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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| E3  | 1.0 |     |     |     |     |     | 2.2 |     |     |     |     |     | 4.7 |     |     |     |     |     |     |     |     |     |     |     |
| E6  | 1.0 |     | 1.5 |     |     |     | 2.2 |     |     | 3.3 |     |     | 4.7 |     |     | 6.8 |     |     |     |     |     |     |     |     |
| E12 | 1.0 | 1.2 | 1.5 | 1.8 | 2.2 | 2.7 | 3.3 | 3.9 | 4.7 | 5.6 | 6.8 | 8.2 |     |     |     |     |     |     |     |     |     |     |     |     |
| E24 | 1.0 | 1.1 | 1.2 | 1.3 | 1.5 | 1.6 | 1.8 | 2.0 | 2.2 | 2.4 | 2.7 | 3.0 | 3.3 | 3.6 | 3.9 | 4.3 | 4.7 | 5.1 | 5.6 | 6.2 | 6.8 | 7.5 | 8.2 | 9.1 |

## Structure



## Ordering Code

**C 1005 NP0 101 J G T S Δ**

### PRODUCT CODE

C = MLCC

### SIZE in mm (EIA CODE, in inch)

|             |            |             |             |             |
|-------------|------------|-------------|-------------|-------------|
| 0402(01005) | 0603(0201) | 1005 (0402) | 1608 (0603) | 2012 (0805) |
| 3216 (1206) | 3225(1210) | 4520 (1808) | 4532 (1812) |             |

### T. C.

NP0:  $0 \pm 30\text{ppm}/^\circ\text{C}$   $-55^\circ\text{C}$  to  $+125^\circ\text{C}$  X5R:  $\pm 15\%$   $-55^\circ\text{C}$  to  $+85^\circ\text{C}$   
 X7R:  $\pm 15\%$  X7S:  $\pm 22\%$  X7T:  $+22\%/-33\%$  X7U:  $+22\%/-56\%$   $-55^\circ\text{C}$  to  $+125^\circ\text{C}$   
 X6S:  $\pm 22\%$   $-55^\circ\text{C}$  to  $+105^\circ\text{C}$  Y5V:  $+22\%/-82\%$   $-30^\circ\text{C}$  to  $+85^\circ\text{C}$

### CAPACITANCE CODE

Expressed in pico-farads and identified by a three-digit number.  
 First two digits represent significant figures.  
 Last digit specifies the number of zeros.  
 (Use 9 for 1.0 through 9.9pF ; Use 8 for 0.20 through 0.99pF)

Examples:

| Code | Cap (pF) |
|------|----------|
| 478  | 0.47     |
| 229  | 2.2      |
| 101  | 100      |
| 102  | 1000     |

### TOLERANCE CODE

A:  $\pm 0.05\text{pF}$  B:  $\pm 0.1\text{pF}$  C:  $\pm 0.25\text{pF}$  D:  $\pm 0.5\text{pF}$  F:  $\pm 1\%$  G:  $\pm 2\%$   
 J:  $\pm 5\%$  K:  $\pm 10\%$  M:  $\pm 20\%$  Z:  $+80/-20\%$

### VOLTAGE CODE

B: 4V C: 6.3V D: 10V E: 16V F: 25V N: 35V G: 50V H: 100V  
 J: 200V K: 250V L: 500V M: 630V P: 1KV Q: 2KV R: 3KV S: 4KV

### PACKAGING CODE

T: Paper tape reel  $\varnothing 180\text{mm}$  (7") P: Embossed tape reel  $\varnothing 180\text{mm}$  (7")  
 N: Paper tape reel  $\varnothing 250\text{mm}$  (10") D: Embossed tape reel  $\varnothing 250\text{mm}$  (10")  
 A: Paper tape reel  $\varnothing 330\text{mm}$  (13") E: Embossed tape reel  $\varnothing 330\text{mm}$  (13")  
 W: Special Packing

### Application Code

S: Standard Q: High Q/Low ESR F: Microwave A: Automotive Infotainment with AEC-Q200

### Thickness Code

| Code    | Thick (mm)     | Code | Thick(mm) | Code | Thick (mm) | Code | Thick (mm) |
|---------|----------------|------|-----------|------|------------|------|------------|
| (blank) | Standard Thick | M    | 0.70      | G    | 1.25       | S    | 1.90       |
| Z       | 0.20           | D    | 0.80      | H    | 1.50       | --   | --         |
| A       | 0.30           | E    | 0.85      | L    | 1.60       | --   | --         |
| Q       | 0.45           | I    | 0.95      | N    | 2.00       | --   | --         |
| B       | 0.50           | J    | 1.00      | P    | 2.50       | --   | --         |
| C       | 0.60           | F    | 1.15      | R    | 3.20       | --   | --         |

## General Purpose

■ External Dimensions



| TYPE            |             | Dimension (mm) |             |          |         |             |
|-----------------|-------------|----------------|-------------|----------|---------|-------------|
| Size (EIA Size) | Kind        | L (Length)     | W (Width)   | T (Max.) | g (Min) | A (Min/Max) |
| C0603 (0201)    | Standard    | 0.6 ± 0.03     | 0.30 ± 0.03 | 0.33     | 0.15    | 0.10 / 0.20 |
|                 | Special (1) | 0.6 ± 0.05     | 0.30 ± 0.05 | 0.35     |         |             |
|                 | Special (2) | 0.6 ± 0.09     | 0.30 ± 0.09 | 0.39     |         |             |
| C1005 (0402)    | Standard    | 1.0 ± 0.05     | 0.50 ± 0.05 | 0.55     | 0.30    | 0.15 / 0.35 |
|                 | Special (1) | 1.0 ± 0.10     | 0.50 ± 0.10 | 0.60     |         |             |
|                 | Special (2) | 1.0 ± 0.15     | 0.50 ± 0.15 | 0.65     |         |             |
| C1608 (0603)    | Standard    | 1.6 ± 0.10     | 0.80 ± 0.10 | 0.90     | 0.50    | 0.25 / 0.65 |
|                 | Special (1) | 1.6 ± 0.15     | 0.80 ± 0.15 | 0.95     |         |             |
|                 | Special (2) | 1.6 ± 0.20     | 0.80 ± 0.20 | 1.00     |         |             |
| C2012 (0805)    | Standard    | 1.6 ± 0.25     | 0.80 ± 0.25 | 1.05     | 0.70    | 0.25 / 0.75 |
|                 | Special (1) | 2.0 ± 0.15     | 1.25 ± 0.15 | 1.45     |         |             |
|                 | Special (2) | 2.0 ± 0.20     | 1.25 ± 0.20 | 1.45     |         |             |
| C3216 (1206)    | Standard    | 3.2 ± 0.15     | 1.60 ± 0.15 | 1.80     | 1.50    | 0.25 / 0.75 |
|                 | Special (1) | 3.2 ± 0.20     | 1.60 ± 0.20 | 1.90     |         |             |
|                 | Special (2) | 3.2 ± 0.30     | 1.60 ± 0.30 | 1.90     |         |             |
| C3225 (1210)    | Standard    | 3.2 ± 0.30     | 2.50 ± 0.20 | 2.80     | 1.50    | 0.3 / 0.90  |
|                 | Special (1) | 3.2 ± 0.40     | 2.50 ± 0.30 | 2.80     |         |             |

For special parts, please see the "Part Number & Characteristic" for detail specification.

## ● Class I: Temperature Compensating Type

### ■ Feature

1. Ultra-stable
2. Tight tolerance available
3. Low ESR (Frequency is within 800MHz)
4. Good frequency performance
5. No aging of capacitance
6. RoHS compliant
7. Halogen Free

### ■ Application

1. LC and RC tuned circuit
2. Filtering
3. Timing

### ■ Part Number & Characteristic

#### ● C0603NP0\_S Series (EIA0201)

| RV          | DARFON P/N  | DARFON P/N 2 | Measuring Condition | Capacitance |             | Available Tolerance    | Thick. (mm) | Tolerance(mm) |        | DF (max.) | Standard Packing |
|-------------|-------------|--------------|---------------------|-------------|-------------|------------------------|-------------|---------------|--------|-----------|------------------|
|             |             |              |                     | Value       | Unit        |                        |             | L/W           | Thick. |           |                  |
| 50V         | C0603NP0208 | C0603NP0208  | 1V, 1MHz            | 0.20        | pF          | ±0.25pF,±0.1pF,±0.05pF | 0.30        | ±0.03         | ±0.03  | 0.25%     | Paper,15Kpcs     |
|             | C0603NP0308 | C0603NP0308  | 1V, 1MHz            | 0.30        | pF          | ±0.25pF,±0.1pF,±0.05pF | 0.30        | ±0.03         | ±0.03  | 0.25%     |                  |
|             | C0603NP0408 | C0603NP0408  | 1V, 1MHz            | 0.40        | pF          | ±0.25pF,±0.1pF,±0.05pF | 0.30        | ±0.03         | ±0.03  | 0.25%     |                  |
|             | C0603NP0508 | C0603NP0508  | 1V, 1MHz            | 0.50        | pF          | ±0.25pF,±0.1pF,±0.05pF | 0.30        | ±0.03         | ±0.03  | 0.24%     |                  |
|             | C0603NP0608 | C0603NP0608  | 1V, 1MHz            | 0.60        | pF          | ±0.25pF,±0.1pF,±0.05pF | 0.30        | ±0.03         | ±0.03  | 0.24%     |                  |
|             | C0603NP0708 | C0603NP0708  | 1V, 1MHz            | 0.70        | pF          | ±0.25pF,±0.1pF,±0.05pF | 0.30        | ±0.03         | ±0.03  | 0.24%     |                  |
|             | C0603NP0758 | C0603NP0758  | 1V, 1MHz            | 0.75        | pF          | ±0.25pF,±0.1pF,±0.05pF | 0.30        | ±0.03         | ±0.03  | 0.24%     |                  |
|             | C0603NP0808 | C0603NP0808  | 1V, 1MHz            | 0.80        | pF          | ±0.25pF,±0.1pF,±0.05pF | 0.30        | ±0.03         | ±0.03  | 0.24%     |                  |
|             | C0603NP0908 | C0603NP0908  | 1V, 1MHz            | 0.90        | pF          | ±0.25pF,±0.1pF,±0.05pF | 0.30        | ±0.03         | ±0.03  | 0.24%     |                  |
|             | C0603NP0109 | C0603NP0109  | 1V, 1MHz            | 1.0         | pF          | ±0.25pF,±0.1pF,±0.05pF | 0.30        | ±0.03         | ±0.03  | 0.24%     |                  |
|             | C0603NP0119 | C0603NP0119  | 1V, 1MHz            | 1.1         | pF          | ±0.25pF,±0.1pF         | 0.30        | ±0.03         | ±0.03  | 0.24%     |                  |
|             | C0603NP0129 | C0603NP0129  | 1V, 1MHz            | 1.2         | pF          | ±0.25pF,±0.1pF         | 0.30        | ±0.03         | ±0.03  | 0.24%     |                  |
|             | C0603NP0139 | C0603NP0139  | 1V, 1MHz            | 1.3         | pF          | ±0.25pF,±0.1pF         | 0.30        | ±0.03         | ±0.03  | 0.23%     |                  |
|             | C0603NP0159 | C0603NP0159  | 1V, 1MHz            | 1.5         | pF          | ±0.25pF,±0.1pF         | 0.30        | ±0.03         | ±0.03  | 0.23%     |                  |
|             | C0603NP0169 | C0603NP0169  | 1V, 1MHz            | 1.6         | pF          | ±0.25pF,±0.1pF         | 0.30        | ±0.03         | ±0.03  | 0.23%     |                  |
|             | C0603NP0189 | C0603NP0189  | 1V, 1MHz            | 1.8         | pF          | ±0.25pF,±0.1pF         | 0.30        | ±0.03         | ±0.03  | 0.23%     |                  |
|             | C0603NP0209 | C0603NP0209  | 1V, 1MHz            | 2.0         | pF          | ±0.25pF,±0.1pF         | 0.30        | ±0.03         | ±0.03  | 0.23%     |                  |
|             | C0603NP0229 | C0603NP0229  | 1V, 1MHz            | 2.2         | pF          | ±0.25pF,±0.1pF         | 0.30        | ±0.03         | ±0.03  | 0.23%     |                  |
|             | C0603NP0249 | C0603NP0249  | 1V, 1MHz            | 2.4         | pF          | ±0.25pF,±0.1pF         | 0.30        | ±0.03         | ±0.03  | 0.22%     |                  |
|             | C0603NP0279 | C0603NP0279  | 1V, 1MHz            | 2.7         | pF          | ±0.25pF,±0.1pF         | 0.30        | ±0.03         | ±0.03  | 0.22%     |                  |
|             | C0603NP0309 | C0603NP0309  | 1V, 1MHz            | 3.0         | pF          | ±0.25pF,±0.1pF         | 0.30        | ±0.03         | ±0.03  | 0.22%     |                  |
|             | C0603NP0339 | C0603NP0339  | 1V, 1MHz            | 3.3         | pF          | ±0.25pF,±0.1pF         | 0.30        | ±0.03         | ±0.03  | 0.21%     |                  |
|             | C0603NP0359 | C0603NP0359  | 1V, 1MHz            | 3.5         | pF          | ±0.25pF,±0.1pF         | 0.30        | ±0.03         | ±0.03  | 0.21%     |                  |
|             | C0603NP0399 | C0603NP0399  | 1V, 1MHz            | 3.9         | pF          | ±0.25pF,±0.1pF         | 0.30        | ±0.03         | ±0.03  | 0.21%     |                  |
|             | C0603NP0409 | C0603NP0409  | 1V, 1MHz            | 4.0         | pF          | ±0.25pF,±0.1pF         | 0.30        | ±0.03         | ±0.03  | 0.21%     |                  |
|             | C0603NP0439 | C0603NP0439  | 1V, 1MHz            | 4.3         | pF          | ±0.25pF,±0.1pF         | 0.30        | ±0.03         | ±0.03  | 0.21%     |                  |
|             | C0603NP0479 | C0603NP0479  | 1V, 1MHz            | 4.7         | pF          | ±0.25pF,±0.1pF         | 0.30        | ±0.03         | ±0.03  | 0.20%     |                  |
|             | C0603NP0509 | C0603NP0509  | 1V, 1MHz            | 5.0         | pF          | ±0.5pF,±0.25pF,±0.1pF  | 0.30        | ±0.03         | ±0.03  | 0.20%     |                  |
|             | C0603NP0519 | C0603NP0519  | 1V, 1MHz            | 5.1         | pF          | ±0.5pF,±0.25pF,±0.1pF  | 0.30        | ±0.03         | ±0.03  | 0.20%     |                  |
|             | C0603NP0569 | C0603NP0569  | 1V, 1MHz            | 5.6         | pF          | ±0.5pF,±0.25pF,±0.1pF  | 0.30        | ±0.03         | ±0.03  | 0.20%     |                  |
|             | C0603NP0609 | C0603NP0609  | 1V, 1MHz            | 6.0         | pF          | ±0.5pF,±0.25pF,±0.1pF  | 0.30        | ±0.03         | ±0.03  | 0.19%     |                  |
|             | C0603NP0629 | C0603NP0629  | 1V, 1MHz            | 6.2         | pF          | ±0.5pF,±0.25pF,±0.1pF  | 0.30        | ±0.03         | ±0.03  | 0.19%     |                  |
|             | C0603NP0689 | C0603NP0689  | 1V, 1MHz            | 6.8         | pF          | ±0.5pF,±0.25pF,±0.1pF  | 0.30        | ±0.03         | ±0.03  | 0.19%     |                  |
|             | C0603NP0709 | C0603NP0709  | 1V, 1MHz            | 7.0         | pF          | ±0.5pF,±0.25pF,±0.1pF  | 0.30        | ±0.03         | ±0.03  | 0.19%     |                  |
|             | C0603NP0759 | C0603NP0759  | 1V, 1MHz            | 7.5         | pF          | ±0.5pF,±0.25pF,±0.1pF  | 0.30        | ±0.03         | ±0.03  | 0.18%     |                  |
|             | C0603NP0809 | C0603NP0809  | 1V, 1MHz            | 8.0         | pF          | ±0.5pF,±0.25pF,±0.1pF  | 0.30        | ±0.03         | ±0.03  | 0.18%     |                  |
|             | C0603NP0829 | C0603NP0829  | 1V, 1MHz            | 8.2         | pF          | ±0.5pF,±0.25pF,±0.1pF  | 0.30        | ±0.03         | ±0.03  | 0.18%     |                  |
|             | C0603NP0909 | C0603NP0909  | 1V, 1MHz            | 9.0         | pF          | ±0.5pF,±0.25pF,±0.1pF  | 0.30        | ±0.03         | ±0.03  | 0.17%     |                  |
|             | C0603NP0100 | C0603NP0100  | 1V, 1MHz            | 10          | pF          | ±5%,±2%,±1%            | 0.30        | ±0.03         | ±0.03  | 0.17%     |                  |
|             | C0603NP0120 | C0603NP0120  | 1V, 1MHz            | 12          | pF          | ±5%,±2%,±1%            | 0.30        | ±0.03         | ±0.03  | 0.16%     |                  |
| C0603NP0150 | C0603NP0150 | 1V, 1MHz     | 15                  | pF          | ±5%,±2%,±1% | 0.30                   | ±0.03       | ±0.03         | 0.14%  |           |                  |
| C0603NP0180 | C0603NP0180 | 1V, 1MHz     | 18                  | pF          | ±5%,±2%,±1% | 0.30                   | ±0.03       | ±0.03         | 0.13%  |           |                  |
| C0603NP0200 | C0603NP0200 | 1V, 1MHz     | 20                  | pF          | ±5%,±2%,±1% | 0.30                   | ±0.03       | ±0.03         | 0.13%  |           |                  |
| C0603NP0220 | C0603NP0220 | 1V, 1MHz     | 22                  | pF          | ±5%,±2%,±1% | 0.30                   | ±0.03       | ±0.03         | 0.12%  |           |                  |
| C0603NP0270 | C0603NP0270 | 1V, 1MHz     | 27                  | pF          | ±5%,±2%,±1% | 0.30                   | ±0.03       | ±0.03         | 0.11%  |           |                  |
| C0603NP0330 | C0603NP0330 | 1V, 1MHz     | 33                  | pF          | ±5%,±2%,±1% | 0.30                   | ±0.03       | ±0.03         | 0.10%  |           |                  |
| C0603NP0390 | C0603NP0390 | 1V, 1MHz     | 39                  | pF          | ±5%,±2%,±1% | 0.30                   | ±0.03       | ±0.03         | 0.10%  |           |                  |
| C0603NP0470 | C0603NP0470 | 1V, 1MHz     | 47                  | pF          | ±5%,±2%,±1% | 0.30                   | ±0.03       | ±0.03         | 0.10%  |           |                  |
| C0603NP0560 | C0603NP0560 | 1V, 1MHz     | 56                  | pF          | ±5%,±2%,±1% | 0.30                   | ±0.03       | ±0.03         | 0.10%  |           |                  |
| C0603NP0680 | C0603NP0680 | 1V, 1MHz     | 68                  | pF          | ±5%,±2%,±1% | 0.30                   | ±0.03       | ±0.03         | 0.10%  |           |                  |
| C0603NP0820 | C0603NP0820 | 1V, 1MHz     | 82                  | pF          | ±5%,±2%,±1% | 0.30                   | ±0.03       | ±0.03         | 0.10%  |           |                  |
| C0603NP0101 | C0603NP0101 | 1V, 1MHz     | 100                 | pF          | ±5%,±2%,±1% | 0.30                   | ±0.03       | ±0.03         | 0.10%  |           |                  |

□ Tolerance Code: A=±0.05 pF, B=±0.1pF, C=±0.25pF, D=±0.5pF, F=±1%, G=±2%, J=±5%; Special tolerance on the request.

| RV          | DARFON P/N  | DARFON P/N 2 | Measuring Condition | Capacitance |             | Available Tolerance    | Thick. (mm) | Tolerance(mm) |        | DF (max.) | Standard Packing |
|-------------|-------------|--------------|---------------------|-------------|-------------|------------------------|-------------|---------------|--------|-----------|------------------|
|             |             |              |                     | Value       | Unit        |                        |             | L/W           | Thick. |           |                  |
| 25V         | C0603NP0208 | C0603NP0208  | 1V, 1MHz            | 0.20        | pF          | ±0.25pF,±0.1pF,±0.05pF | 0.30        | ±0.03         | ±0.03  | 0.25%     | Paper,15Kpcs     |
|             | C0603NP0308 | C0603NP0308  | 1V, 1MHz            | 0.30        | pF          | ±0.25pF,±0.1pF,±0.05pF | 0.30        | ±0.03         | ±0.03  | 0.25%     |                  |
|             | C0603NP0408 | C0603NP0408  | 1V, 1MHz            | 0.40        | pF          | ±0.25pF,±0.1pF,±0.05pF | 0.30        | ±0.03         | ±0.03  | 0.25%     |                  |
|             | C0603NP0508 | C0603NP0508  | 1V, 1MHz            | 0.50        | pF          | ±0.25pF,±0.1pF,±0.05pF | 0.30        | ±0.03         | ±0.03  | 0.24%     |                  |
|             | C0603NP0608 | C0603NP0608  | 1V, 1MHz            | 0.60        | pF          | ±0.25pF,±0.1pF,±0.05pF | 0.30        | ±0.03         | ±0.03  | 0.24%     |                  |
|             | C0603NP0708 | C0603NP0708  | 1V, 1MHz            | 0.70        | pF          | ±0.25pF,±0.1pF,±0.05pF | 0.30        | ±0.03         | ±0.03  | 0.24%     |                  |
|             | C0603NP0758 | C0603NP0758  | 1V, 1MHz            | 0.75        | pF          | ±0.25pF,±0.1pF,±0.05pF | 0.30        | ±0.03         | ±0.03  | 0.24%     |                  |
|             | C0603NP0808 | C0603NP0808  | 1V, 1MHz            | 0.80        | pF          | ±0.25pF,±0.1pF,±0.05pF | 0.30        | ±0.03         | ±0.03  | 0.24%     |                  |
|             | C0603NP0908 | C0603NP0908  | 1V, 1MHz            | 0.90        | pF          | ±0.25pF,±0.1pF,±0.05pF | 0.30        | ±0.03         | ±0.03  | 0.24%     |                  |
|             | C0603NP0109 | C0603NP0109  | 1V, 1MHz            | 1.0         | pF          | ±0.25pF,±0.1pF,±0.05pF | 0.30        | ±0.03         | ±0.03  | 0.24%     |                  |
|             | C0603NP0129 | C0603NP0129  | 1V, 1MHz            | 1.2         | pF          | ±0.25pF,±0.1pF         | 0.30        | ±0.03         | ±0.03  | 0.24%     |                  |
|             | C0603NP0139 | C0603NP0139  | 1V, 1MHz            | 1.3         | pF          | ±0.25pF,±0.1pF         | 0.30        | ±0.03         | ±0.03  | 0.23%     |                  |
|             | C0603NP0159 | C0603NP0159  | 1V, 1MHz            | 1.5         | pF          | ±0.25pF,±0.1pF         | 0.30        | ±0.03         | ±0.03  | 0.23%     |                  |
|             | C0603NP0169 | C0603NP0169  | 1V, 1MHz            | 1.6         | pF          | ±0.25pF,±0.1pF         | 0.30        | ±0.03         | ±0.03  | 0.23%     |                  |
|             | C0603NP0189 | C0603NP0189  | 1V, 1MHz            | 1.8         | pF          | ±0.25pF,±0.1pF         | 0.30        | ±0.03         | ±0.03  | 0.23%     |                  |
|             | C0603NP0209 | C0603NP0209  | 1V, 1MHz            | 2.0         | pF          | ±0.25pF,±0.1pF         | 0.30        | ±0.03         | ±0.03  | 0.23%     |                  |
|             | C0603NP0229 | C0603NP0229  | 1V, 1MHz            | 2.2         | pF          | ±0.25pF,±0.1pF         | 0.30        | ±0.03         | ±0.03  | 0.23%     |                  |
|             | C0603NP0279 | C0603NP0279  | 1V, 1MHz            | 2.7         | pF          | ±0.25pF,±0.1pF         | 0.30        | ±0.03         | ±0.03  | 0.22%     |                  |
|             | C0603NP0309 | C0603NP0309  | 1V, 1MHz            | 3.0         | pF          | ±0.25pF,±0.1pF         | 0.30        | ±0.03         | ±0.03  | 0.22%     |                  |
|             | C0603NP0339 | C0603NP0339  | 1V, 1MHz            | 3.3         | pF          | ±0.25pF,±0.1pF         | 0.30        | ±0.03         | ±0.03  | 0.21%     |                  |
|             | C0603NP0359 | C0603NP0359  | 1V, 1MHz            | 3.5         | pF          | ±0.25pF,±0.1pF         | 0.30        | ±0.03         | ±0.03  | 0.21%     |                  |
|             | C0603NP0399 | C0603NP0399  | 1V, 1MHz            | 3.9         | pF          | ±0.25pF,±0.1pF         | 0.30        | ±0.03         | ±0.03  | 0.21%     |                  |
|             | C0603NP0409 | C0603NP0409  | 1V, 1MHz            | 4.0         | pF          | ±0.25pF,±0.1pF         | 0.30        | ±0.03         | ±0.03  | 0.21%     |                  |
|             | C0603NP0439 | C0603NP0439  | 1V, 1MHz            | 4.3         | pF          | ±0.25pF,±0.1pF         | 0.30        | ±0.03         | ±0.03  | 0.21%     |                  |
|             | C0603NP0479 | C0603NP0479  | 1V, 1MHz            | 4.7         | pF          | ±0.25pF,±0.1pF         | 0.30        | ±0.03         | ±0.03  | 0.20%     |                  |
|             | C0603NP0509 | C0603NP0509  | 1V, 1MHz            | 5.0         | pF          | ±0.5pF,±0.25pF,±0.1pF  | 0.30        | ±0.03         | ±0.03  | 0.20%     |                  |
|             | C0603NP0519 | C0603NP0519  | 1V, 1MHz            | 5.1         | pF          | ±0.5pF,±0.25pF,±0.1pF  | 0.30        | ±0.03         | ±0.03  | 0.20%     |                  |
|             | C0603NP0569 | C0603NP0569  | 1V, 1MHz            | 5.6         | pF          | ±0.5pF,±0.25pF,±0.1pF  | 0.30        | ±0.03         | ±0.03  | 0.20%     |                  |
|             | C0603NP0609 | C0603NP0609  | 1V, 1MHz            | 6.0         | pF          | ±0.5pF,±0.25pF,±0.1pF  | 0.30        | ±0.03         | ±0.03  | 0.19%     |                  |
|             | C0603NP0629 | C0603NP0629  | 1V, 1MHz            | 6.2         | pF          | ±0.5pF,±0.25pF,±0.1pF  | 0.30        | ±0.03         | ±0.03  | 0.19%     |                  |
|             | C0603NP0689 | C0603NP0689  | 1V, 1MHz            | 6.8         | pF          | ±0.5pF,±0.25pF,±0.1pF  | 0.30        | ±0.03         | ±0.03  | 0.19%     |                  |
|             | C0603NP0709 | C0603NP0709  | 1V, 1MHz            | 7.0         | pF          | ±0.5pF,±0.25pF,±0.1pF  | 0.30        | ±0.03         | ±0.03  | 0.19%     |                  |
|             | C0603NP0759 | C0603NP0759  | 1V, 1MHz            | 7.5         | pF          | ±0.5pF,±0.25pF,±0.1pF  | 0.30        | ±0.03         | ±0.03  | 0.18%     |                  |
|             | C0603NP0809 | C0603NP0809  | 1V, 1MHz            | 8.0         | pF          | ±0.5pF,±0.25pF,±0.1pF  | 0.30        | ±0.03         | ±0.03  | 0.18%     |                  |
|             | C0603NP0829 | C0603NP0829  | 1V, 1MHz            | 8.2         | pF          | ±0.5pF,±0.25pF,±0.1pF  | 0.30        | ±0.03         | ±0.03  | 0.18%     |                  |
|             | C0603NP0909 | C0603NP0909  | 1V, 1MHz            | 9.0         | pF          | ±0.5pF,±0.25pF,±0.1pF  | 0.30        | ±0.03         | ±0.03  | 0.17%     |                  |
|             | C0603NP0919 | C0603NP0919  | 1V, 1MHz            | 9.1         | pF          | ±0.5pF,±0.25pF,±0.1pF  | 0.30        | ±0.03         | ±0.03  | 0.17%     |                  |
|             | C0603NP0100 | C0603NP0100  | 1V, 1MHz            | 10          | pF          | ±5%,±2%,±1%            | 0.30        | ±0.03         | ±0.03  | 0.17%     |                  |
|             | C0603NP0120 | C0603NP0120  | 1V, 1MHz            | 12          | pF          | ±5%,±2%,±1%            | 0.30        | ±0.03         | ±0.03  | 0.16%     |                  |
|             | C0603NP0150 | C0603NP0150  | 1V, 1MHz            | 15          | pF          | ±5%,±2%,±1%            | 0.30        | ±0.03         | ±0.03  | 0.14%     |                  |
| C0603NP0180 | C0603NP0180 | 1V, 1MHz     | 18                  | pF          | ±5%,±2%,±1% | 0.30                   | ±0.03       | ±0.03         | 0.13%  |           |                  |
| C0603NP0200 | C0603NP0200 | 1V, 1MHz     | 20                  | pF          | ±5%,±2%,±1% | 0.30                   | ±0.03       | ±0.03         | 0.13%  |           |                  |
| C0603NP0220 | C0603NP0220 | 1V, 1MHz     | 22                  | pF          | ±5%,±2%,±1% | 0.30                   | ±0.03       | ±0.03         | 0.12%  |           |                  |
| C0603NP0240 | C0603NP0240 | 1V, 1MHz     | 24                  | pF          | ±5%,±2%,±1% | 0.30                   | ±0.03       | ±0.03         | 0.11%  |           |                  |
| C0603NP0270 | C0603NP0270 | 1V, 1MHz     | 27                  | pF          | ±5%,±2%,±1% | 0.30                   | ±0.03       | ±0.03         | 0.11%  |           |                  |
| C0603NP0300 | C0603NP0300 | 1V, 1MHz     | 30                  | pF          | ±5%         | 0.30                   | ±0.03       | ±0.03         | 0.10%  |           |                  |
| C0603NP0330 | C0603NP0330 | 1V, 1MHz     | 33                  | pF          | ±5%,±2%,±1% | 0.30                   | ±0.03       | ±0.03         | 0.10%  |           |                  |
| C0603NP0390 | C0603NP0390 | 1V, 1MHz     | 39                  | pF          | ±5%,±2%,±1% | 0.30                   | ±0.03       | ±0.03         | 0.10%  |           |                  |
| C0603NP0470 | C0603NP0470 | 1V, 1MHz     | 47                  | pF          | ±5%,±2%,±1% | 0.30                   | ±0.03       | ±0.03         | 0.10%  |           |                  |
| C0603NP0560 | C0603NP0560 | 1V, 1MHz     | 56                  | pF          | ±5%,±2%,±1% | 0.30                   | ±0.03       | ±0.03         | 0.10%  |           |                  |
| C0603NP0680 | C0603NP0680 | 1V, 1MHz     | 68                  | pF          | ±5%,±2%,±1% | 0.30                   | ±0.03       | ±0.03         | 0.10%  |           |                  |
| C0603NP0820 | C0603NP0820 | 1V, 1MHz     | 82                  | pF          | ±5%,±2%,±1% | 0.30                   | ±0.03       | ±0.03         | 0.10%  |           |                  |
| C0603NP0101 | C0603NP0101 | 1V, 1MHz     | 100                 | pF          | ±5%,±2%,±1% | 0.30                   | ±0.03       | ±0.03         | 0.10%  |           |                  |
| 16V         | C0603NP0279 | C0603NP0279  | 1V, 1MHz            | 2.7         | pF          | ±0.25pF,±0.1pF         | 0.30        | ±0.03         | ±0.03  | 0.22%     | Paper,15Kpcs     |
|             | C0603NP0330 | C0603NP0330  | 1V, 1MHz            | 33          | pF          | ±5%,±2%,±1%            | 0.30        | ±0.03         | ±0.03  | 0.10%     |                  |

● C1005NP0\_S Series (EIA0402)

| RV          | DARFON P/N  | DARFON P/N 2 | Measuring Condition | Capacitance |          | Available Tolerance | Thick. (mm)      | Tolerance(mm)          |        | DF (max.) | Standard Packing |       |
|-------------|-------------|--------------|---------------------|-------------|----------|---------------------|------------------|------------------------|--------|-----------|------------------|-------|
|             |             |              |                     | Value       | Unit     |                     |                  | L/W                    | Thick. |           |                  |       |
| 50V         | C1005NP0208 | GTS          | C1005NP0208         | GT          | 1V, 1MHz | 0.20                | pF               | ±0.25pF,±0.1pF,±0.05pF | 0.50   | ±0.05     | ±0.05            | 0.25% |
|             | C1005NP0308 | GTS          | C1005NP0308         | GT          | 1V, 1MHz | 0.30                | pF               | ±0.25pF,±0.1pF,±0.05pF | 0.50   | ±0.05     | ±0.05            | 0.25% |
|             | C1005NP0408 | GTS          | C1005NP0408         | GT          | 1V, 1MHz | 0.40                | pF               | ±0.25pF,±0.1pF,±0.05pF | 0.50   | ±0.05     | ±0.05            | 0.25% |
|             | C1005NP0508 | GTS          | C1005NP0508         | GT          | 1V, 1MHz | 0.50                | pF               | ±0.25pF,±0.1pF,±0.05pF | 0.50   | ±0.05     | ±0.05            | 0.24% |
|             | C1005NP0608 | GTS          | C1005NP0608         | GT          | 1V, 1MHz | 0.60                | pF               | ±0.25pF,±0.1pF,±0.05pF | 0.50   | ±0.05     | ±0.05            | 0.24% |
|             | C1005NP0688 | GTS          | C1005NP0688         | GT          | 1V, 1MHz | 0.68                | pF               | ±0.25pF,±0.1pF,±0.05pF | 0.50   | ±0.05     | ±0.05            | 0.24% |
|             | C1005NP0708 | GTS          | C1005NP0708         | GT          | 1V, 1MHz | 0.70                | pF               | ±0.25pF,±0.1pF,±0.05pF | 0.50   | ±0.05     | ±0.05            | 0.24% |
|             | C1005NP0808 | GTS          | C1005NP0808         | GT          | 1V, 1MHz | 0.80                | pF               | ±0.25pF,±0.1pF,±0.05pF | 0.50   | ±0.05     | ±0.05            | 0.24% |
|             | C1005NP0828 | GTS          | C1005NP0828         | GT          | 1V, 1MHz | 0.82                | pF               | ±0.25pF,±0.1pF,±0.05pF | 0.50   | ±0.05     | ±0.05            | 0.24% |
|             | C1005NP0908 | GTS          | C1005NP0908         | GT          | 1V, 1MHz | 0.90                | pF               | ±0.25pF,±0.1pF,±0.05pF | 0.50   | ±0.05     | ±0.05            | 0.24% |
|             | C1005NP0109 | GTS          | C1005NP0109         | GT          | 1V, 1MHz | 1.0                 | pF               | ±0.25pF,±0.1pF,±0.05pF | 0.50   | ±0.05     | ±0.05            | 0.24% |
|             | C1005NP0129 | GTS          | C1005NP0129         | GT          | 1V, 1MHz | 1.2                 | pF               | ±0.25pF,±0.1pF,±0.05pF | 0.50   | ±0.05     | ±0.05            | 0.24% |
|             | C1005NP0139 | GTS          | C1005NP0139         | GT          | 1V, 1MHz | 1.3                 | pF               | ±0.25pF,±0.1pF,±0.05pF | 0.50   | ±0.05     | ±0.05            | 0.23% |
|             | C1005NP0159 | GTS          | C1005NP0159         | GT          | 1V, 1MHz | 1.5                 | pF               | ±0.25pF,±0.1pF,±0.05pF | 0.50   | ±0.05     | ±0.05            | 0.23% |
|             | C1005NP0189 | GTS          | C1005NP0189         | GT          | 1V, 1MHz | 1.8                 | pF               | ±0.25pF,±0.1pF,±0.05pF | 0.50   | ±0.05     | ±0.05            | 0.23% |
|             | C1005NP0209 | GTS          | C1005NP0209         | GT          | 1V, 1MHz | 2.0                 | pF               | ±0.25pF,±0.1pF,±0.05pF | 0.50   | ±0.05     | ±0.05            | 0.23% |
|             | C1005NP0229 | GTS          | C1005NP0229         | GT          | 1V, 1MHz | 2.2                 | pF               | ±0.25pF,±0.1pF,±0.05pF | 0.50   | ±0.05     | ±0.05            | 0.23% |
|             | C1005NP0249 | GTS          | C1005NP0249         | GT          | 1V, 1MHz | 2.4                 | pF               | ±0.25pF,±0.1pF,±0.05pF | 0.50   | ±0.05     | ±0.05            | 0.22% |
|             | C1005NP0259 | GTS          | C1005NP0259         | GT          | 1V, 1MHz | 2.5                 | pF               | ±0.25pF,±0.1pF,±0.05pF | 0.50   | ±0.05     | ±0.05            | 0.22% |
|             | C1005NP0279 | GTS          | C1005NP0279         | GT          | 1V, 1MHz | 2.7                 | pF               | ±0.25pF,±0.1pF,±0.05pF | 0.50   | ±0.05     | ±0.05            | 0.22% |
|             | C1005NP0309 | GTS          | C1005NP0309         | GT          | 1V, 1MHz | 3.0                 | pF               | ±0.25pF,±0.1pF,±0.05pF | 0.50   | ±0.05     | ±0.05            | 0.22% |
|             | C1005NP0339 | GTS          | C1005NP0339         | GT          | 1V, 1MHz | 3.3                 | pF               | ±0.25pF,±0.1pF,±0.05pF | 0.50   | ±0.05     | ±0.05            | 0.21% |
|             | C1005NP0369 | GTS          | C1005NP0369         | GT          | 1V, 1MHz | 3.6                 | pF               | ±0.25pF,±0.1pF,±0.05pF | 0.50   | ±0.05     | ±0.05            | 0.21% |
|             | C1005NP0399 | GTS          | C1005NP0399         | GT          | 1V, 1MHz | 3.9                 | pF               | ±0.25pF,±0.1pF,±0.05pF | 0.50   | ±0.05     | ±0.05            | 0.21% |
|             | C1005NP0409 | GTS          | C1005NP0409         | GT          | 1V, 1MHz | 4.0                 | pF               | ±0.25pF,±0.1pF,±0.05pF | 0.50   | ±0.05     | ±0.05            | 0.21% |
|             | C1005NP0439 | GTS          | C1005NP0439         | GT          | 1V, 1MHz | 4.3                 | pF               | ±0.25pF,±0.1pF,±0.05pF | 0.50   | ±0.05     | ±0.05            | 0.21% |
|             | C1005NP0479 | GTS          | C1005NP0479         | GT          | 1V, 1MHz | 4.7                 | pF               | ±0.25pF,±0.1pF,±0.05pF | 0.50   | ±0.05     | ±0.05            | 0.20% |
|             | C1005NP0509 | GTS          | C1005NP0509         | GT          | 1V, 1MHz | 5.0                 | pF               | ±0.5pF,±0.25pF,±0.1pF  | 0.50   | ±0.05     | ±0.05            | 0.20% |
|             | C1005NP0519 | GTS          | C1005NP0519         | GT          | 1V, 1MHz | 5.1                 | pF               | ±0.5pF,±0.25pF,±0.1pF  | 0.50   | ±0.05     | ±0.05            | 0.20% |
|             | C1005NP0569 | GTS          | C1005NP0569         | GT          | 1V, 1MHz | 5.6                 | pF               | ±0.5pF,±0.25pF,±0.1pF  | 0.50   | ±0.05     | ±0.05            | 0.20% |
|             | C1005NP0609 | GTS          | C1005NP0609         | GT          | 1V, 1MHz | 6.0                 | pF               | ±0.5pF,±0.25pF,±0.1pF  | 0.50   | ±0.05     | ±0.05            | 0.19% |
|             | C1005NP0629 | GTS          | C1005NP0629         | GT          | 1V, 1MHz | 6.2                 | pF               | ±0.5pF,±0.25pF,±0.1pF  | 0.50   | ±0.05     | ±0.05            | 0.19% |
|             | C1005NP0689 | GTS          | C1005NP0689         | GT          | 1V, 1MHz | 6.8                 | pF               | ±0.5pF,±0.25pF,±0.1pF  | 0.50   | ±0.05     | ±0.05            | 0.19% |
|             | C1005NP0709 | GTS          | C1005NP0709         | GT          | 1V, 1MHz | 7.0                 | pF               | ±0.5pF,±0.25pF,±0.1pF  | 0.50   | ±0.05     | ±0.05            | 0.19% |
|             | C1005NP0759 | GTS          | C1005NP0759         | GT          | 1V, 1MHz | 7.5                 | pF               | ±0.5pF,±0.25pF,±0.1pF  | 0.50   | ±0.05     | ±0.05            | 0.18% |
|             | C1005NP0809 | GTS          | C1005NP0809         | GT          | 1V, 1MHz | 8.0                 | pF               | ±0.5pF,±0.25pF,±0.1pF  | 0.50   | ±0.05     | ±0.05            | 0.18% |
|             | C1005NP0829 | GTS          | C1005NP0829         | GT          | 1V, 1MHz | 8.2                 | pF               | ±0.5pF,±0.25pF,±0.1pF  | 0.50   | ±0.05     | ±0.05            | 0.18% |
|             | C1005NP0909 | GTS          | C1005NP0909         | GT          | 1V, 1MHz | 9.0                 | pF               | ±0.5pF,±0.25pF,±0.1pF  | 0.50   | ±0.05     | ±0.05            | 0.17% |
|             | C1005NP0919 | GTS          | C1005NP0919         | GT          | 1V, 1MHz | 9.1                 | pF               | ±0.5pF,±0.25pF,±0.1pF  | 0.50   | ±0.05     | ±0.05            | 0.17% |
|             | C1005NP0100 | GTS          | C1005NP0100         | GT          | 1V, 1MHz | 10                  | pF               | ±5%,±2%,±1%            | 0.50   | ±0.05     | ±0.05            | 0.17% |
|             | C1005NP0110 | GTS          | C1005NP0110         | GT          | 1V, 1MHz | 11                  | pF               | ±5%,±2%,±1%            | 0.50   | ±0.05     | ±0.05            | 0.16% |
|             | C1005NP0120 | GTS          | C1005NP0120         | GT          | 1V, 1MHz | 12                  | pF               | ±5%,±2%,±1%            | 0.50   | ±0.05     | ±0.05            | 0.16% |
| C1005NP0150 | GTS         | C1005NP0150  | GT                  | 1V, 1MHz    | 15       | pF                  | ±5%,±2%,±1%      | 0.50                   | ±0.05  | ±0.05     | 0.14%            |       |
| C1005NP0160 | GTS         | C1005NP0160  | GT                  | 1V, 1MHz    | 16       | pF                  | ±5%,±2%,±1%      | 0.50                   | ±0.05  | ±0.05     | 0.14%            |       |
| C1005NP0180 | GTS         | C1005NP0180  | GT                  | 1V, 1MHz    | 18       | pF                  | ±5%,±2%,±1%      | 0.50                   | ±0.05  | ±0.05     | 0.13%            |       |
| C1005NP0200 | GTS         | C1005NP0200  | GT                  | 1V, 1MHz    | 20       | pF                  | ±5%,±2%,±1%      | 0.50                   | ±0.05  | ±0.05     | 0.13%            |       |
| C1005NP0220 | GTS         | C1005NP0220  | GT                  | 1V, 1MHz    | 22       | pF                  | ±5%,±2%,±1%      | 0.50                   | ±0.05  | ±0.05     | 0.12%            |       |
| C1005NP0240 | GTS         | C1005NP0240  | GT                  | 1V, 1MHz    | 24       | pF                  | ±5%,±2%,±1%      | 0.50                   | ±0.05  | ±0.05     | 0.11%            |       |
| C1005NP0270 | GTS         | C1005NP0270  | GT                  | 1V, 1MHz    | 27       | pF                  | ±5%,±2%,±1%      | 0.50                   | ±0.05  | ±0.05     | 0.11%            |       |
| C1005NP0300 | GTS         | C1005NP0300  | GT                  | 1V, 1MHz    | 30       | pF                  | ±5%,±2%,±1%      | 0.50                   | ±0.05  | ±0.05     | 0.10%            |       |
| C1005NP0330 | GTS         | C1005NP0330  | GT                  | 1V, 1MHz    | 33       | pF                  | ±10%,±5%,±2%,±1% | 0.50                   | ±0.05  | ±0.05     | 0.10%            |       |
| C1005NP0360 | GTS         | C1005NP0360  | GT                  | 1V, 1MHz    | 36       | pF                  | ±5%,±2%,±1%      | 0.50                   | ±0.05  | ±0.05     | 0.10%            |       |
| C1005NP0390 | GTS         | C1005NP0390  | GT                  | 1V, 1MHz    | 39       | pF                  | ±5%,±2%,±1%      | 0.50                   | ±0.05  | ±0.05     | 0.10%            |       |
| C1005NP0430 | GTS         | C1005NP0430  | GT                  | 1V, 1MHz    | 43       | pF                  | ±5%,±2%,±1%      | 0.50                   | ±0.05  | ±0.05     | 0.10%            |       |
| C1005NP0470 | GTS         | C1005NP0470  | GT                  | 1V, 1MHz    | 47       | pF                  | ±5%,±2%,±1%      | 0.50                   | ±0.05  | ±0.05     | 0.10%            |       |
| C1005NP0510 | GTS         | C1005NP0510  | GT                  | 1V, 1MHz    | 51       | pF                  | ±5%,±2%,±1%      | 0.50                   | ±0.05  | ±0.05     | 0.10%            |       |
| C1005NP0560 | GTS         | C1005NP0560  | GT                  | 1V, 1MHz    | 56       | pF                  | ±5%,±2%,±1%      | 0.50                   | ±0.05  | ±0.05     | 0.10%            |       |
| C1005NP0620 | GTS         | C1005NP0620  | GT                  | 1V, 1MHz    | 62       | pF                  | ±5%,±2%,±1%      | 0.50                   | ±0.05  | ±0.05     | 0.10%            |       |
| C1005NP0680 | GTS         | C1005NP0680  | GT                  | 1V, 1MHz    | 68       | pF                  | ±5%,±2%,±1%      | 0.50                   | ±0.05  | ±0.05     | 0.10%            |       |
| C1005NP0750 | GTS         | C1005NP0750  | GT                  | 1V, 1MHz    | 75       | pF                  | ±5%,±2%,±1%      | 0.50                   | ±0.05  | ±0.05     | 0.10%            |       |
| C1005NP0820 | GTS         | C1005NP0820  | GT                  | 1V, 1MHz    | 82       | pF                  | ±5%,±2%,±1%      | 0.50                   | ±0.05  | ±0.05     | 0.10%            |       |
| C1005NP0910 | GTS         | C1005NP0910  | GT                  | 1V, 1MHz    | 91       | pF                  | ±5%,±2%,±1%      | 0.50                   | ±0.05  | ±0.05     | 0.10%            |       |
| C1005NP0101 | GTS         | C1005NP0101  | GT                  | 1V, 1MHz    | 100      | pF                  | ±5%,±2%,±1%      | 0.50                   | ±0.05  | ±0.05     | 0.10%            |       |
| C1005NP0121 | GTS         | C1005NP0121  | GT                  | 1V, 1MHz    | 120      | pF                  | ±5%,±2%,±1%      | 0.50                   | ±0.05  | ±0.05     | 0.10%            |       |
| C1005NP0151 | GTS         | C1005NP0151  | GT                  | 1V, 1MHz    | 150      | pF                  | ±5%,±2%,±1%      | 0.50                   | ±0.05  | ±0.05     | 0.10%            |       |
| C1005NP0181 | GTS         | C1005NP0181  | GT                  | 1V, 1MHz    | 180      | pF                  | ±5%,±2%,±1%      | 0.50                   | ±0.05  | ±0.05     | 0.10%            |       |
| C1005NP0201 | GTS         | C1005NP0201  | GT                  | 1V, 1MHz    | 200      | pF                  | ±5%,±2%,±1%      | 0.50                   | ±0.05  | ±0.05     | 0.10%            |       |
| C1005NP0221 | GTS         | C1005NP0221  | GT                  | 1V, 1MHz    | 220      | pF                  | ±5%,±2%,±1%      | 0.50                   | ±0.05  | ±0.05     | 0.10%            |       |

Paper, 10Kpcs

□ Tolerance Code: A=±0.05 pF, B=±0.1pF, C=±0.25pF, D=±0.5pF, F=±1%, G=±2%, J=±5%; Special tolerance on the request.



| RV              | DARFON P/N      | DARFON P/N 2   | Measuring Condition | Capacitance |      | Available Tolerance | Thick. (mm) | Tolerance(mm) |             | DF (max.) | Standard Packing |
|-----------------|-----------------|----------------|---------------------|-------------|------|---------------------|-------------|---------------|-------------|-----------|------------------|
|                 |                 |                |                     | Value       | Unit |                     |             | L/W           | Thick.      |           |                  |
| 50V             | C1608NP0271□GTS | C1608NP0271□GT | 1V, 1MHz            | 270         | pF   | ±5%,±2%             | 0.80        | ±0.10         | ±0.10       | 0.10%     | Paper, 4Kpcs     |
|                 | C1608NP0331□GTS | C1608NP0331□GT | 1V, 1MHz            | 330         | pF   | ±5%,±2%             | 0.80        | ±0.10         | ±0.10       | 0.10%     |                  |
|                 | C1608NP0391□GTS | C1608NP0391□GT | 1V, 1MHz            | 390         | pF   | ±5%,±2%             | 0.80        | ±0.10         | ±0.10       | 0.10%     |                  |
|                 | C1608NP0471□GTS | C1608NP0471□GT | 1V, 1MHz            | 470         | pF   | ±5%,±2%             | 0.80        | ±0.10         | ±0.10       | 0.10%     |                  |
|                 | C1608NP0561□GTS | C1608NP0561□GT | 1V, 1MHz            | 560         | pF   | ±5%,±2%             | 0.80        | ±0.10         | ±0.10       | 0.10%     |                  |
|                 | C1608NP0681□GTS | C1608NP0681□GT | 1V, 1MHz            | 680         | pF   | ±5%,±2%             | 0.80        | ±0.10         | ±0.10       | 0.10%     |                  |
|                 | C1608NP0821□GTS | C1608NP0821□GT | 1V, 1MHz            | 820         | pF   | ±5%,±2%             | 0.80        | ±0.10         | ±0.10       | 0.10%     |                  |
|                 | C1608NP0102□GTS | C1608NP0102□GT | 1V, 1MHz            | 1.0         | nF   | ±5%,±2%             | 0.80        | ±0.10         | ±0.10       | 0.10%     |                  |
|                 | C1608NP0122JGTS | C1608NP0122JGT | 1V, 1kHz            | 1.2         | nF   | ±5%                 | 0.80        | +0.15/-0.10   | +0.15/-0.10 | 0.10%     |                  |
|                 | C1608NP0152JGTS | C1608NP0152JGT | 1V, 1kHz            | 1.5         | nF   | ±5%                 | 0.80        | +0.15/-0.10   | +0.15/-0.10 | 0.10%     |                  |
|                 | C1608NP0182JGTS | C1608NP0182JGT | 1V, 1kHz            | 1.8         | nF   | ±5%                 | 0.80        | +0.15/-0.10   | +0.15/-0.10 | 0.10%     |                  |
|                 | C1608NP0222JGTS | C1608NP0222JGT | 1V, 1kHz            | 2.2         | nF   | ±5%                 | 0.80        | +0.15/-0.10   | +0.15/-0.10 | 0.10%     |                  |
| C1608NP0272JGTS | C1608NP0272JGT  | 1V, 1kHz       | 2.7                 | nF          | ±5%  | 0.80                | +0.15/-0.10 | +0.15/-0.10   | 0.10%       |           |                  |
| C1608NP0332JGTS | C1608NP0332JGT  | 1V, 1kHz       | 3.3                 | nF          | ±5%  | 0.80                | +0.15/-0.10 | +0.15/-0.10   | 0.10%       |           |                  |
| C1608NP0103JGTS | C1608NP0103JGT  | 1V, 1kHz       | 10                  | nF          | ±5%  | 0.80                | +0.15/-0.10 | +0.15/-0.10   | 0.10%       |           |                  |
| 25V             | C1608NP0152JFTS | C1608NP0152JFT | 1V, 1kHz            | 1.5         | nF   | ±5%                 | 0.80        | +0.15/-0.10   | +0.15/-0.10 | 0.10%     | Paper, 4Kpcs     |
|                 | C1608NP0682JFTS | C1608NP0682JFT | 1V, 1kHz            | 6.8         | nF   | ±5%                 | 0.80        | +0.15/-0.10   | +0.15/-0.10 | 0.10%     |                  |
|                 | C1608NP0103JFTS | C1608NP0103JFT | 1V, 1kHz            | 10          | nF   | ±5%                 | 0.80        | +0.15/-0.10   | +0.15/-0.10 | 0.10%     |                  |
| 16V             | C1608NP0180□ETS | C1608NP0180□ET | 1V, 1MHz            | 18          | pF   | ±5%,±2%,±1%         | 0.80        | ±0.10         | ±0.10       | 0.13%     | Paper, 4Kpcs     |
|                 | C1608NP0300JETS | C1608NP0300JET | 1V, 1MHz            | 30          | pF   | ±5%                 | 0.80        | ±0.10         | ±0.10       | 0.10%     |                  |
|                 | C1608NP0152JETS | C1608NP0152JET | 1V, 1kHz            | 1.5         | nF   | ±5%                 | 0.80        | +0.15/-0.10   | +0.15/-0.10 | 0.10%     |                  |
|                 | C1608NP0272JETS | C1608NP0272JET | 1V, 1kHz            | 2.7         | nF   | ±5%                 | 0.80        | +0.15/-0.10   | +0.15/-0.10 | 0.10%     |                  |
| C1608NP0332JETS | C1608NP0332JET  | 1V, 1kHz       | 3.3                 | nF          | ±5%  | 0.80                | +0.15/-0.10 | +0.15/-0.10   | 0.10%       |           |                  |

● C2012NP0\_S Series (EIA0805)

| RV              | DARFON P/N      | DARFON P/N 2   | Measuring Condition | Capacitance |      | Available Tolerance | Thick. (mm) | Tolerance(mm) |        | DF (max.) | Standard Packing |
|-----------------|-----------------|----------------|---------------------|-------------|------|---------------------|-------------|---------------|--------|-----------|------------------|
|                 |                 |                |                     | Value       | Unit |                     |             | L/W           | Thick. |           |                  |
| 50V             | C2012NP0100□GTS | C2012NP0100□GT | 1V, 1MHz            | 10          | pF   | ±5%,±2%             | 0.60        | ±0.15         | ±0.15  | 0.17%     | Paper, 4Kpcs     |
|                 | C2012NP0120□GTS | C2012NP0120□GT | 1V, 1MHz            | 12          | pF   | ±5%,±2%             | 0.60        | ±0.15         | ±0.15  | 0.16%     |                  |
|                 | C2012NP0150□GTS | C2012NP0150□GT | 1V, 1MHz            | 15          | pF   | ±5%,±2%             | 0.60        | ±0.15         | ±0.15  | 0.14%     |                  |
|                 | C2012NP0180□GTS | C2012NP0180□GT | 1V, 1MHz            | 18          | pF   | ±5%,±2%             | 0.60        | ±0.15         | ±0.15  | 0.13%     |                  |
|                 | C2012NP0200□GTS | C2012NP0200□GT | 1V, 1MHz            | 20          | pF   | ±5%,±2%             | 0.60        | ±0.15         | ±0.15  | 0.13%     |                  |
|                 | C2012NP0220□GTS | C2012NP0220□GT | 1V, 1MHz            | 22          | pF   | ±5%,±2%             | 0.60        | ±0.15         | ±0.15  | 0.12%     |                  |
|                 | C2012NP0270□GTS | C2012NP0270□GT | 1V, 1MHz            | 27          | pF   | ±5%,±2%             | 0.60        | ±0.15         | ±0.15  | 0.11%     |                  |
|                 | C2012NP0300□GTS | C2012NP0300□GT | 1V, 1MHz            | 30          | pF   | ±5%,±2%             | 0.60        | ±0.15         | ±0.15  | 0.10%     |                  |
|                 | C2012NP0330□GTS | C2012NP0330□GT | 1V, 1MHz            | 33          | pF   | ±5%,±2%             | 0.60        | ±0.15         | ±0.15  | 0.10%     |                  |
|                 | C2012NP0360□GTS | C2012NP0360□GT | 1V, 1MHz            | 36          | pF   | ±5%,±2%             | 0.60        | ±0.15         | ±0.15  | 0.10%     |                  |
|                 | C2012NP0470□GTS | C2012NP0470□GT | 1V, 1MHz            | 47          | pF   | ±5%,±2%             | 0.60        | ±0.15         | ±0.15  | 0.10%     |                  |
|                 | C2012NP0680□GTS | C2012NP0680□GT | 1V, 1MHz            | 68          | pF   | ±5%,±2%             | 0.60        | ±0.15         | ±0.15  | 0.10%     |                  |
|                 | C2012NP0820□GTS | C2012NP0820□GT | 1V, 1MHz            | 82          | pF   | ±5%,±2%             | 0.60        | ±0.15         | ±0.15  | 0.10%     |                  |
|                 | C2012NP0101□GTS | C2012NP0101□GT | 1V, 1MHz            | 100         | pF   | ±5%,±2%             | 0.60        | ±0.15         | ±0.15  | 0.10%     |                  |
|                 | C2012NP0121JGTS | C2012NP0121JGT | 1V, 1MHz            | 120         | pF   | ±5%                 | 0.60        | ±0.15         | ±0.15  | 0.10%     |                  |
|                 | C2012NP0151JGTS | C2012NP0151JGT | 1V, 1MHz            | 150         | pF   | ±5%                 | 0.60        | ±0.15         | ±0.15  | 0.10%     |                  |
|                 | C2012NP0201JGTS | C2012NP0201JGT | 1V, 1MHz            | 200         | pF   | ±5%                 | 0.60        | ±0.15         | ±0.15  | 0.10%     |                  |
|                 | C2012NP0221JGTS | C2012NP0221JGT | 1V, 1MHz            | 220         | pF   | ±5%                 | 0.60        | ±0.15         | ±0.15  | 0.10%     |                  |
|                 | C2012NP0271JGTS | C2012NP0271JGT | 1V, 1MHz            | 270         | pF   | ±5%                 | 0.60        | ±0.15         | ±0.15  | 0.10%     |                  |
|                 | C2012NP0331JGTS | C2012NP0331JGT | 1V, 1MHz            | 330         | pF   | ±5%                 | 0.60        | ±0.15         | ±0.15  | 0.10%     |                  |
|                 | C2012NP0391JGTS | C2012NP0391JGT | 1V, 1MHz            | 390         | pF   | ±5%                 | 0.60        | ±0.15         | ±0.15  | 0.10%     |                  |
|                 | C2012NP0471JGTS | C2012NP0471JGT | 1V, 1MHz            | 470         | pF   | ±5%                 | 0.60        | ±0.15         | ±0.15  | 0.10%     |                  |
|                 | C2012NP0561JGTS | C2012NP0561JGT | 1V, 1MHz            | 560         | pF   | ±5%                 | 0.60        | ±0.15         | ±0.15  | 0.10%     |                  |
|                 | C2012NP0681JGTS | C2012NP0681JGT | 1V, 1MHz            | 680         | pF   | ±5%                 | 0.60        | ±0.15         | ±0.15  | 0.10%     |                  |
|                 | C2012NP0821JGTS | C2012NP0821JGT | 1V, 1MHz            | 820         | pF   | ±5%                 | 0.60        | ±0.15         | ±0.15  | 0.10%     |                  |
|                 | C2012NP0102JGTS | C2012NP0102JGT | 1V, 1MHz            | 1.0         | nF   | ±5%                 | 0.60        | ±0.15         | ±0.15  | 0.10%     |                  |
|                 | C2012NP0122JGTS | C2012NP0122JGT | 1V, 1kHz            | 1.2         | nF   | ±5%                 | 0.85        | ±0.15         | ±0.15  | 0.10%     |                  |
|                 | C2012NP0152JGTS | C2012NP0152JGT | 1V, 1kHz            | 1.5         | nF   | ±5%                 | 0.85        | ±0.15         | ±0.15  | 0.10%     |                  |
|                 | C2012NP0182JGTS | C2012NP0182JGT | 1V, 1kHz            | 1.8         | nF   | ±5%                 | 0.85        | ±0.15         | ±0.15  | 0.10%     |                  |
|                 | C2012NP0222JGTS | C2012NP0222JGT | 1V, 1kHz            | 2.2         | nF   | ±5%                 | 0.85        | ±0.15         | ±0.15  | 0.10%     |                  |
|                 | C2012NP0272JGTS | C2012NP0272JGT | 1V, 1kHz            | 2.7         | nF   | ±5%                 | 0.85        | ±0.15         | ±0.15  | 0.10%     |                  |
|                 | C2012NP0332JGTS | C2012NP0332JGT | 1V, 1kHz            | 3.3         | nF   | ±5%                 | 0.85        | ±0.15         | ±0.15  | 0.10%     |                  |
|                 | C2012NP0392JGTS | C2012NP0392JGT | 1V, 1kHz            | 3.9         | nF   | ±5%                 | 0.85        | ±0.15         | ±0.15  | 0.10%     |                  |
|                 | C2012NP0472JGTS | C2012NP0472JGT | 1V, 1kHz            | 4.7         | nF   | ±5%                 | 0.85        | ±0.15         | ±0.15  | 0.10%     |                  |
|                 | C2012NP0272JGPS | C2012NP0272JGP | 1V, 1kHz            | 2.7         | nF   | ±5%                 | 1.25        | ±0.15         | ±0.20  | 0.10%     |                  |
|                 | C2012NP0332JGPS | C2012NP0332JGP | 1V, 1kHz            | 3.3         | nF   | ±5%                 | 1.25        | ±0.15         | ±0.20  | 0.10%     |                  |
| C2012NP0392JGPS | C2012NP0392JGP  | 1V, 1kHz       | 3.9                 | nF          | ±5%  | 1.25                | ±0.15       | ±0.20         | 0.10%  |           |                  |
| C2012NP0472JGPS | C2012NP0472JGP  | 1V, 1kHz       | 4.7                 | nF          | ±5%  | 1.25                | ±0.15       | ±0.20         | 0.10%  |           |                  |
| C2012NP0562JGPS | C2012NP0562JGP  | 1V, 1kHz       | 5.6                 | nF          | ±5%  | 1.25                | ±0.15       | ±0.20         | 0.10%  |           |                  |
| C2012NP0682JGPS | C2012NP0682JGP  | 1V, 1kHz       | 6.8                 | nF          | ±5%  | 1.25                | ±0.15       | ±0.20         | 0.10%  |           |                  |
| C2012NP0822JGPS | C2012NP0822JGP  | 1V, 1kHz       | 8.2                 | nF          | ±5%  | 1.25                | ±0.15       | ±0.20         | 0.10%  |           |                  |
| C2012NP0103JGTS | C2012NP0103JGT  | 1V, 1kHz       | 10                  | nF          | ±5%  | 0.85                | ±0.15       | ±0.10         | 0.10%  |           |                  |
| C2012NP0103JGPS | C2012NP0103JGP  | 1V, 1kHz       | 10                  | nF          | ±5%  | 1.25                | ±0.15       | ±0.20         | 0.10%  |           |                  |
| 16V             | C2012NP0270□ETS | C2012NP0270□GT | 1V, 1MHz            | 27          | pF   | ±5%,±2%             | 0.60        | ±0.15         | ±0.15  | 0.11%     | Paper, 4Kpcs     |

□ Tolerance Code: F=±1%, G=±2%, J=±5%; Special tolerance on the request.



● C3216NP0\_S Series (EIA1206)

| RV              | DARFON P/N      | DARFON P/N 2   | Measuring Condition | Capacitance |      | Available Tolerance | Thick. (mm) | Tolerance(mm) |        | DF (max.)       | Standard Packing |
|-----------------|-----------------|----------------|---------------------|-------------|------|---------------------|-------------|---------------|--------|-----------------|------------------|
|                 |                 |                |                     | Value       | Unit |                     |             | L/W           | Thick. |                 |                  |
| 50V             | C3216NP0103JGPS | C3216NP0103JGP | 1V, 1kHz            | 10          | nF   | ±5%                 | 1.25        | ±0.15         | ±0.20  | 0.10%           | Embossed, 3Kpcs  |
|                 | C3216NP0123JGPS | C3216NP0123JGP | 1V, 1kHz            | 12          | nF   | ±5%                 | 1.60        | ±0.30         | ±0.30  | 0.10%           |                  |
|                 | C3216NP0153JGPS | C3216NP0153JGP | 1V, 1kHz            | 15          | nF   | ±5%                 | 1.60        | ±0.30         | ±0.30  | 0.10%           |                  |
|                 | C3216NP0183JGPS | C3216NP0183JGP | 1V, 1kHz            | 18          | nF   | ±5%                 | 1.60        | ±0.30         | ±0.30  | 0.10%           | Embossed, 2Kpcs  |
|                 | C3216NP0223JGPS | C3216NP0223JGP | 1V, 1kHz            | 22          | nF   | ±5%                 | 1.60        | ±0.30         | ±0.30  | 0.10%           |                  |
|                 | C3216NP0273JGPS | C3216NP0273JGP | 1V, 1kHz            | 27          | nF   | ±5%                 | 1.60        | ±0.30         | ±0.30  | 0.10%           |                  |
|                 | C3216NP0333JGPS | C3216NP0333JGP | 1V, 1kHz            | 33          | nF   | ±5%                 | 1.60        | ±0.30         | ±0.30  | 0.10%           |                  |
|                 | C3216NP0393JGPS | C3216NP0393JGP | 1V, 1kHz            | 39          | nF   | ±5%                 | 1.60        | ±0.30         | ±0.30  | 0.10%           |                  |
|                 | C3216NP0473JGPS | C3216NP0473JGP | 1V, 1kHz            | 47          | nF   | ±5%                 | 1.15        | ±0.20         | ±0.20  | 0.10%           |                  |
| C3216NP0104JGPS | C3216NP0104JGP  | 1V, 1kHz       | 100                 | nF          | ±5%  | 1.60                | ±0.30       | ±0.30         | 0.10%  | Embossed, 2Kpcs |                  |
| 16V             | C3216NP0123JEPS | C3216NP0123JEP | 1V, 1kHz            | 12          | nF   | ±5%                 | 1.60        | ±0.30         | ±0.30  | 0.10%           | Embossed, 2Kpcs  |
|                 | C3216NP0153JEPS | C3216NP0153JEP | 1V, 1kHz            | 15          | nF   | ±5%                 | 1.60        | ±0.30         | ±0.30  | 0.10%           |                  |
|                 | C3216NP0183JEPS | C3216NP0183JEP | 1V, 1kHz            | 18          | nF   | ±5%                 | 1.60        | ±0.30         | ±0.30  | 0.10%           |                  |
|                 | C3216NP0223JEPS | C3216NP0223JEP | 1V, 1kHz            | 22          | nF   | ±5%                 | 1.60        | ±0.30         | ±0.30  | 0.10%           |                  |
|                 | C3216NP0273JEPS | C3216NP0273JEP | 1V, 1kHz            | 27          | nF   | ±5%                 | 1.60        | ±0.30         | ±0.30  | 0.10%           |                  |
|                 | C3216NP0333JEPS | C3216NP0333JEP | 1V, 1kHz            | 33          | nF   | ±5%                 | 1.60        | ±0.30         | ±0.30  | 0.10%           |                  |
|                 | C3216NP0393JEPS | C3216NP0393JEP | 1V, 1kHz            | 39          | nF   | ±5%                 | 1.60        | ±0.30         | ±0.30  | 0.10%           |                  |

□ Tolerance Code: F=±1%, G=±2%, J=±5%; Special tolerance on the request.

## ● Class II: High Dielectric Constant Type

### ■ Feature

1. High volumetric efficiency
2. High insulation resistance
3. RoHS compliant
4. Halogen Free

### ■ Application

1. Blocking
2. Coupling
3. Timing
4. Bypassing
5. Frequency discriminating
6. Flittering

### ■ Part Number & Characteristic

#### ■ X5R Series

#### ● C0603X5R Series(EIA0201)

| RV              | DARFON P/N      | DARFON P/N 2   | Measuring Condition | Capacitance |      | Available Tolerance | Thick. (mm) | Tolerance(mm) |        | DF (max.) | Standard Packing | Test Spec. |
|-----------------|-----------------|----------------|---------------------|-------------|------|---------------------|-------------|---------------|--------|-----------|------------------|------------|
|                 |                 |                |                     | Value       | Unit |                     |             | L/W           | Thick. |           |                  |            |
| 50V             | C0603X5R102□GTS | C0603X5R102□GT | 1V, 1kHz            | 1.0         | nF   | ±10%, ±20%          | 0.30        | ±0.03         | ±0.03  | 5.0%      | Paper, 15Kpcs    | (I)        |
|                 | C0603X5R151KFTS | C0603X5R151KFT | 1V, 1kHz            | 150         | pF   | ±10%                | 0.30        | ±0.03         | ±0.03  | 5.0%      | Paper, 15Kpcs    | (I)        |
|                 | C0603X5R102□FTS | C0603X5R102□FT | 1V, 1kHz            | 1.0         | nF   | ±10%, ±20%          | 0.30        | ±0.03         | ±0.03  | 5.0%      |                  | (I)        |
|                 | C0603X5R103□FTS | C0603X5R103□FT | 1V, 1kHz            | 10          | nF   | ±10%, ±20%          | 0.30        | ±0.03         | ±0.03  | 5.0%      |                  | (II)*      |
|                 | C0603X5R223□FTS | C0603X5R223□FT | 1V, 1kHz            | 22          | nF   | ±10%, ±20%          | 0.30        | ±0.03         | ±0.03  | 7.5%      |                  | (II)*      |
|                 | C0603X5R104□FTS | C0603X5R104□FT | 1V, 1kHz            | 100         | nF   | ±10%, ±20%          | 0.30        | ±0.03         | ±0.03  | 10.0%     |                  | (II)       |
| C0603X5R474MFTS | C0603X5R474MFT  | 1V, 1kHz       | 470                 | nF          | ±20% | 0.30                | ±0.09       | ±0.09         | 10.0%  | (II)*     |                  |            |
| 16V             | C0603X5R103□ETS | C0603X5R103□ET | 1V, 1kHz            | 10          | nF   | ±10%, ±20%          | 0.30        | ±0.03         | ±0.03  | 5.0%      | Paper, 15Kpcs    | (II)       |
|                 | C0603X5R223□ETS | C0603X5R223□ET | 1V, 1kHz            | 22          | nF   | ±10%, ±20%          | 0.30        | ±0.03         | ±0.03  | 10.0%     |                  | (II)*      |
|                 | C0603X5R473□ETS | C0603X5R473□ET | 1V, 1kHz            | 47          | nF   | ±10%, ±20%          | 0.30        | ±0.03         | ±0.03  | 10.0%     |                  | (II)       |
|                 | C0603X5R104□ETS | C0603X5R104□ET | 1V, 1kHz            | 100         | nF   | ±10%, ±20%          | 0.30        | ±0.03         | ±0.03  | 10.0%     |                  | (II)       |
|                 | C0603X5R224□ETS | C0603X5R224□ET | 1V, 1kHz            | 220         | nF   | ±10%, ±20%          | 0.30        | ±0.03         | ±0.03  | 10.0%     |                  | (II)       |
|                 | C0603X5R105METS | C0603X5R105MET | 0.5V, 1kHz          | 1.0         | uF   | ±20%                | 0.30        | ±0.09         | ±0.09  | 12.5%     |                  | (II)*      |
| 10V             | C0603X5R222□DTS | C0603X5R222□DT | 1V, 1kHz            | 2.2         | nF   | ±10%, ±20%          | 0.30        | ±0.03         | ±0.03  | 7.5%      | Paper, 15Kpcs    | (I)        |
|                 | C0603X5R332□DTS | C0603X5R332□DT | 1V, 1kHz            | 3.3         | nF   | ±10%, ±20%          | 0.30        | ±0.03         | ±0.03  | 7.5%      |                  | (I)        |
|                 | C0603X5R472□DTS | C0603X5R472□DT | 1V, 1kHz            | 4.7         | nF   | ±10%, ±20%          | 0.30        | ±0.03         | ±0.03  | 7.5%      |                  | (I)        |
|                 | C0603X5R562□DTS | C0603X5R562□DT | 1V, 1kHz            | 5.6         | nF   | ±10%, ±20%          | 0.30        | ±0.03         | ±0.03  | 7.5%      |                  | (I)        |
|                 | C0603X5R682□DTS | C0603X5R682□DT | 1V, 1kHz            | 6.8         | nF   | ±10%, ±20%          | 0.30        | ±0.03         | ±0.03  | 7.5%      |                  | (I)        |
|                 | C0603X5R822□DTS | C0603X5R822□DT | 1V, 1kHz            | 8.2         | nF   | ±10%, ±20%          | 0.30        | ±0.03         | ±0.03  | 7.5%      |                  | (I)        |
|                 | C0603X5R103□DTS | C0603X5R103□DT | 1V, 1kHz            | 10          | nF   | ±10%, ±20%          | 0.30        | ±0.03         | ±0.03  | 7.5%      |                  | (I)        |
|                 | C0603X5R153□DTS | C0603X5R153□DT | 1V, 1kHz            | 15          | nF   | ±10%, ±20%          | 0.30        | ±0.03         | ±0.03  | 7.5%      |                  | (II)       |
|                 | C0603X5R223□DTS | C0603X5R223□DT | 1V, 1kHz            | 22          | nF   | ±10%, ±20%          | 0.30        | ±0.03         | ±0.03  | 10.0%     |                  | (II)       |
|                 | C0603X5R333□DTS | C0603X5R333□DT | 1V, 1kHz            | 33          | nF   | ±10%, ±20%          | 0.30        | ±0.03         | ±0.03  | 10.0%     |                  | (II)       |
|                 | C0603X5R473□DTS | C0603X5R473□DT | 1V, 1kHz            | 47          | nF   | ±10%, ±20%          | 0.30        | ±0.03         | ±0.03  | 10.0%     |                  | (II)       |
|                 | C0603X5R563□DTS | C0603X5R563□DT | 1V, 1kHz            | 56          | nF   | ±10%, ±20%          | 0.30        | ±0.03         | ±0.03  | 10.0%     |                  | (II)       |
|                 | C0603X5R683□DTS | C0603X5R683□DT | 1V, 1kHz            | 68          | nF   | ±10%, ±20%          | 0.30        | ±0.03         | ±0.03  | 10.0%     |                  | (II)       |
|                 | C0603X5R823□DTS | C0603X5R823□DT | 1V, 1kHz            | 82          | nF   | ±10%, ±20%          | 0.30        | ±0.03         | ±0.03  | 10.0%     |                  | (II)       |
|                 | C0603X5R104□DTS | C0603X5R104□DT | 0.5V, 1kHz          | 100         | nF   | ±10%, ±20%          | 0.30        | ±0.03         | ±0.03  | 10.0%     |                  | (II)       |
|                 | C0603X5R224□DTS | C0603X5R224□DT | 0.5V, 1kHz          | 220         | nF   | ±10%, ±20%          | 0.30        | ±0.03         | ±0.03  | 10.0%     |                  | (II)*      |
|                 | C0603X5R474□DTS | C0603X5R474□DT | 0.5V, 1kHz          | 470         | nF   | ±10%, ±20%          | 0.30        | ±0.03         | ±0.03  | 12.5%     |                  | (II)*      |
|                 | C0603X5R105MDTS | C0603X5R105MDT | 0.5V, 1kHz          | 1.0         | uF   | ±20%                | 0.30        | ±0.09         | ±0.09  | 12.5%     |                  | (II)*      |
| 6.3V            | C0603X5R222□CTS | C0603X5R222□CT | 1V, 1kHz            | 2.2         | nF   | ±10%, ±20%          | 0.30        | ±0.03         | ±0.03  | 10.0%     | Paper, 15Kpcs    | (I)        |
|                 | C0603X5R332□CTS | C0603X5R332□CT | 1V, 1kHz            | 3.3         | nF   | ±10%, ±20%          | 0.30        | ±0.03         | ±0.03  | 10.0%     |                  | (I)        |
|                 | C0603X5R472□CTS | C0603X5R472□CT | 1V, 1kHz            | 4.7         | nF   | ±10%, ±20%          | 0.30        | ±0.03         | ±0.03  | 10.0%     |                  | (I)        |
|                 | C0603X5R562□CTS | C0603X5R562□CT | 1V, 1kHz            | 5.6         | nF   | ±10%, ±20%          | 0.30        | ±0.03         | ±0.03  | 10.0%     |                  | (I)        |
|                 | C0603X5R682□CTS | C0603X5R682□CT | 1V, 1kHz            | 6.8         | nF   | ±10%, ±20%          | 0.30        | ±0.03         | ±0.03  | 10.0%     |                  | (I)        |
|                 | C0603X5R822□CTS | C0603X5R822□CT | 1V, 1kHz            | 8.2         | nF   | ±10%, ±20%          | 0.30        | ±0.03         | ±0.03  | 10.0%     |                  | (I)        |
|                 | C0603X5R103□CTS | C0603X5R103□CT | 1V, 1kHz            | 10          | nF   | ±10%, ±20%          | 0.30        | ±0.03         | ±0.03  | 10.0%     |                  | (I)        |
|                 | C0603X5R223□CTS | C0603X5R223□CT | 1V, 1kHz            | 22          | nF   | ±10%, ±20%          | 0.30        | ±0.03         | ±0.03  | 10.0%     |                  | (II)       |
|                 | C0603X5R333□CTS | C0603X5R333□CT | 1V, 1kHz            | 33          | nF   | ±10%, ±20%          | 0.30        | ±0.03         | ±0.03  | 10.0%     |                  | (II)       |
|                 | C0603X5R473□CTS | C0603X5R473□CT | 1V, 1kHz            | 47          | nF   | ±10%, ±20%          | 0.30        | ±0.03         | ±0.03  | 10.0%     |                  | (II)       |
|                 | C0603X5R563□CTS | C0603X5R563□CT | 1V, 1kHz            | 56          | nF   | ±10%, ±20%          | 0.30        | ±0.03         | ±0.03  | 10.0%     |                  | (II)       |
|                 | C0603X5R683□CTS | C0603X5R683□CT | 1V, 1kHz            | 68          | nF   | ±10%, ±20%          | 0.30        | ±0.03         | ±0.03  | 10.0%     |                  | (II)       |
|                 | C0603X5R823□CTS | C0603X5R823□CT | 1V, 1kHz            | 82          | nF   | ±10%, ±20%          | 0.30        | ±0.03         | ±0.03  | 10.0%     |                  | (II)       |
|                 | C0603X5R104□CTS | C0603X5R104□CT | 0.5V, 1kHz          | 100         | nF   | ±10%, ±20%          | 0.30        | ±0.03         | ±0.03  | 10.0%     |                  | (II)       |
|                 | C0603X5R224□CTS | C0603X5R224□CT | 0.5V, 1kHz          | 220         | nF   | ±10%, ±20%          | 0.30        | ±0.03         | ±0.03  | 10.0%     |                  | (II)*      |
|                 | C0603X5R334□CTS | C0603X5R334□CT | 0.5V, 1kHz          | 330         | nF   | ±10%, ±20%          | 0.30        | ±0.03         | ±0.03  | 10.0%     |                  | (II)*      |
|                 | C0603X5R474□CTS | C0603X5R474□CT | 0.5V, 1kHz          | 470         | nF   | ±10%, ±20%          | 0.30        | ±0.03         | ±0.03  | 12.5%     |                  | (II)*      |
|                 | C0603X5R105□CTS | C0603X5R105□CT | 0.5V, 1kHz          | 1.0         | uF   | ±10%, ±20%          | 0.30        | ±0.05         | ±0.05  | 12.5%     |                  | (II)*      |
| C0603X5R225MCTS | C0603X5R225MCT  | 0.5V, 1kHz     | 2.2                 | uF          | ±20% | 0.30                | ±0.09       | ±0.09         | 20.0%  | (II)*     |                  |            |
| 4V              | C0603X5R224□BTS | C0603X5R224□BT | 0.5V, 1kHz          | 220         | nF   | ±10%, ±20%          | 0.30        | ±0.03         | ±0.03  | 10.0%     | Paper, 15Kpcs    | (II)       |
|                 | C0603X5R474□BTS | C0603X5R474□BT | 0.5V, 1kHz          | 470         | nF   | ±10%, ±20%          | 0.30        | ±0.03         | ±0.03  | 12.5%     |                  | (II)*      |
|                 | C0603X5R105□BTS | C0603X5R105□BT | 0.5V, 1kHz          | 1.0         | uF   | ±10%, ±20%          | 0.30        | ±0.05         | ±0.05  | 10.0%     |                  | (II)*      |



● C1608X5R Series (EIA0603)

| RV   | DARFON P/N       | DARFON P/N 2   | Measuring Condition | Capacitance |      | Available Tolerance | Thick. (mm) | Tolerance(mm) |          | DF (max.) | Standard Packing | Test Spec.      |
|------|------------------|----------------|---------------------|-------------|------|---------------------|-------------|---------------|----------|-----------|------------------|-----------------|
|      |                  |                |                     | Value       | Unit |                     |             | L/W           | Thick.   |           |                  |                 |
| 50V  | C1608X5R102KGTS  | C1608X5R102KGT | 1V, 1kHz            | 1.0         | nF   | ±10%                | 0.80        | ±0.10         | ±0.10    | 5.0%      | Paper, 4Kpcs     | (I)             |
|      | C1608X5R103KGTS  | C1608X5R103KGT | 1V, 1kHz            | 10          | nF   | ±10%                | 0.80        | ±0.10         | ±0.10    | 5.0%      |                  | (I)             |
|      | C1608X5R333KGTS  | C1608X5R333KGT | 1V, 1kHz            | 33          | nF   | ±10%                | 0.80        | ±0.15         | ±0.15    | 5.0%      |                  | (I)             |
|      | C1608X5R224KGT   | C1608X5R224KGT | 1V, 1kHz            | 220         | nF   | ±10%                | 0.80        | ±0.15         | ±0.15    | 5.0%      |                  | (II)            |
|      | C1608X5R474□GTS  | C1608X5R474□GT | 1V, 1kHz            | 470         | nF   | ±10%, ±20%          | 0.80        | ±0.15         | ±0.15    | 10.0%     |                  | (II)            |
|      | C1608X5R105□GTS  | C1608X5R105□GT | 1V, 1kHz            | 1.0         | uF   | ±10%, ±20%          | 0.80        | ±0.10         | ±0.10    | 10.0%     |                  | (II)            |
| 35V  | C1608X5R225□GTS  | C1608X5R225□GT | 1V, 1kHz            | 2.2         | uF   | ±10%, ±20%          | 0.80        | ±0.20         | ±0.20    | 10.0%     | Paper, 4Kpcs     | (II)            |
|      | C1608X5R105□NTS  | C1608X5R105□NT | 1V, 1kHz            | 1.0         | uF   | ±10%, ±20%          | 0.80        | ±0.10         | ±0.10    | 10.0%     |                  | (II)*           |
|      | C1608X5R225□NTS  | C1608X5R225□NT | 1V, 1kHz            | 2.2         | uF   | ±10%, ±20%          | 0.80        | ±0.10         | ±0.10    | 10.0%     |                  | (II)*           |
|      | C1608X5R475□NTS  | C1608X5R475□NT | 1V, 1kHz            | 4.7         | uF   | ±10%, ±20%          | 0.80        | ±0.20         | ±0.20    | 10.0%     |                  | (II)*           |
| 25V  | C1608X5R106MNTS  | C1608X5R106MNT | 1V, 1kHz            | 10          | uF   | ±20%                | 0.80        | ±0.20         | ±0.20    | 10.0%     | Paper, 4Kpcs     | (II)*           |
|      | C1608X5R104□FTS  | C1608X5R104□FT | 1V, 1kHz            | 100         | nF   | ±10%, ±20%          | 0.80        | ±0.10         | ±0.10    | 5.0%      |                  | (I)             |
|      | C1608X5R224□FTS  | C1608X5R224□FT | 1V, 1kHz            | 220         | nF   | ±10%, ±20%          | 0.80        | ±0.10         | ±0.10    | 5.0%      |                  | (I)             |
|      | C1608X5R334KFTS  | C1608X5R334KFT | 1V, 1kHz            | 330         | nF   | ±10%                | 0.80        | ±0.15         | ±0.15    | 7.5%      |                  | (I)             |
|      | C1608X5R474□FTS  | C1608X5R474□FT | 1V, 1kHz            | 470         | nF   | ±10%, ±20%          | 0.80        | ±0.10         | ±0.10    | 5.0%      |                  | (II)            |
|      | C1608X5R105□FTS  | C1608X5R105□FT | 1V, 1kHz            | 1.0         | uF   | ±10%, ±20%          | 0.80        | ±0.15         | ±0.15    | 10.0%     |                  | (II)            |
|      | C1608X5R105□FTSB |                | 1V, 1kHz            | 1.0         | uF   | ±10%, ±20%          | 0.50        | ±0.10         | +0/-0.10 | 12.5%     |                  | (II)*           |
|      | C1608X5R225□FTS  | C1608X5R225□FT | 1V, 1kHz            | 2.2         | uF   | ±10%, ±20%          | 0.80        | ±0.15         | ±0.15    | 10.0%     |                  | (II)            |
| 16V  | C1608X5R475□FTS  | C1608X5R475□FT | 1V, 1kHz            | 4.7         | uF   | ±10%, ±20%          | 0.80        | ±0.20         | ±0.20    | 10.0%     | Paper, 4Kpcs     | (II)            |
|      | C1608X5R106MFTS  | C1608X5R106MFT | 1V, 1kHz            | 10          | uF   | ±20%                | 0.80        | ±0.20         | ±0.20    | 10.0%     |                  | (II)            |
|      | C1608X5R104□ETS  | C1608X5R104□ET | 1V, 1kHz            | 100         | nF   | ±10%, ±20%          | 0.80        | ±0.10         | ±0.10    | 5.0%      |                  | (I)             |
|      | C1608X5R224□ETS  | C1608X5R224□ET | 1V, 1kHz            | 220         | nF   | ±10%, ±20%          | 0.80        | ±0.10         | ±0.10    | 5.0%      |                  | (I)             |
|      | C1608X5R334□ETS  | C1608X5R334□ET | 1V, 1kHz            | 330         | nF   | ±10%, ±20%          | 0.80        | ±0.10         | ±0.10    | 5.0%      |                  | (I)             |
|      | C1608X5R474□ETS  | C1608X5R474□ET | 1V, 1kHz            | 470         | nF   | ±10%, ±20%          | 0.80        | ±0.10         | ±0.10    | 3.5%      |                  | (II)            |
|      | C1608X5R684□ETS  | C1608X5R684□ET | 1V, 1kHz            | 680         | nF   | ±10%, ±20%          | 0.80        | ±0.10         | ±0.10    | 7.5%      |                  | (II)            |
|      | C1608X5R105□ETS  | C1608X5R105□ET | 1V, 1kHz            | 1.0         | uF   | ±10%, ±20%          | 0.80        | ±0.10         | ±0.10    | 10.0%     |                  | (II)            |
| 10V  | C1608X5R105□ETSB |                | 0.5V, 1kHz          | 1.0         | uF   | ±10%, ±20%          | 0.50        | ±0.10         | +0/-0.10 | 10.0%     | Paper, 4Kpcs     | (II)            |
|      | C1608X5R225□ETS  | C1608X5R225□ET | 1V, 1kHz            | 2.2         | uF   | ±10%, ±20%          | 0.80        | ±0.10         | ±0.10    | 10.0%     |                  | (II)            |
|      | C1608X5R475□ETS  | C1608X5R475□ET | 1V, 1kHz            | 4.7         | uF   | ±10%, ±20%          | 0.80        | ±0.20         | ±0.15    | 10.0%     |                  | (II)*           |
|      | C1608X5R106□ETS  | C1608X5R106□ET | 1V, 1kHz            | 10          | uF   | ±10%, ±20%          | 0.80        | ±0.20         | ±0.20    | 10.0%     |                  | (II)*           |
|      | C1608X5R104□DTS  | C1608X5R104□DT | 1V, 1kHz            | 100         | nF   | ±10%, ±20%          | 0.80        | ±0.10         | ±0.10    | 7.5%      |                  | (I)             |
|      | C1608X5R224□DTS  | C1608X5R224□DT | 1V, 1kHz            | 220         | nF   | ±10%, ±20%          | 0.80        | ±0.10         | ±0.10    | 7.5%      |                  | (I)             |
|      | C1608X5R334□DTS  | C1608X5R334□DT | 1V, 1kHz            | 330         | nF   | ±10%, ±20%          | 0.80        | ±0.10         | ±0.10    | 7.5%      |                  | (I)             |
|      | C1608X5R474□DTS  | C1608X5R474□DT | 1V, 1kHz            | 470         | nF   | ±10%, ±20%          | 0.80        | ±0.10         | ±0.10    | 7.5%      |                  | (I)             |
|      | C1608X5R684□DTS  | C1608X5R684□DT | 1V, 1kHz            | 680         | nF   | ±10%, ±20%          | 0.80        | ±0.10         | ±0.10    | 7.5%      |                  | (I)             |
|      | C1608X5R105□DTS  | C1608X5R105□DT | 1V, 1kHz            | 1.0         | uF   | ±10%, ±20%          | 0.80        | ±0.10         | ±0.10    | 7.5%      |                  | (II)            |
|      | C1608X5R105□DTSB |                | 1V, 1kHz            | 1.0         | uF   | ±10%, ±20%          | 0.50        | ±0.10         | +0/-0.10 | 10.0%     |                  | (II)            |
|      | C1608X5R225□DTS  | C1608X5R225□DT | 1V, 1kHz            | 2.2         | uF   | ±10%, ±20%          | 0.80        | ±0.10/±0.15   | ±0.15    | 10.0%     |                  | (II)            |
|      | C1608X5R225□DTSB |                | 0.5V, 1kHz          | 2.2         | uF   | ±10%, ±20%          | 0.50        | ±0.10         | +0/-0.10 | 10.0%     |                  | (II)*           |
|      | C1608X5R335□DTS  | C1608X5R335□DT | 1V, 1kHz            | 3.3         | uF   | ±10%, ±20%          | 0.80        | ±0.15         | ±0.15    | 10.0%     |                  | (II)            |
| 6.3V | C1608X5R475□DTS  | C1608X5R475□DT | 1V, 1kHz            | 4.7         | uF   | ±10%, ±20%          | 0.80        | ±0.15         | ±0.15    | 10.0%     | Paper, 4Kpcs     | (II)            |
|      | C1608X5R475□DTSB |                | 1V, 1kHz            | 4.7         | uF   | ±10%, ±20%          | 0.50        | ±0.20         | ±0.05    | 10.0%     |                  | (II)            |
|      | C1608X5R106□DTS  | C1608X5R106□DT | 1V, 1kHz            | 10          | uF   | ±10%, ±20%          | 0.80        | ±0.20         | ±0.20    | 10.0%     |                  | (II)*           |
|      | C1608X5R226MDTS  | C1608X5R226MDT | 0.5V, 120Hz         | 22          | uF   | ±20%                | 0.80        | ±0.25         | ±0.25    | 10.0%     |                  | (II)*           |
|      | C1608X5R226MDWS  | C1608X5R226MDW | 0.5V, 120Hz         | 22          | uF   | ±20%                | 0.80        | ±0.20         | ±0.20    | 10.0%     |                  | Embossed, 4Kpcs |
|      | C1608X5R104□CTS  | C1608X5R104□CT | 1V, 1kHz            | 100         | nF   | ±10%, ±20%          | 0.80        | ±0.10         | ±0.10    | 7.5%      |                  | (I)             |
|      | C1608X5R105□CTS  | C1608X5R105□CT | 1V, 1kHz            | 1.0         | uF   | ±10%, ±20%          | 0.80        | ±0.10         | ±0.10    | 7.5%      |                  | (II)            |
|      | C1608X5R225□CTS  | C1608X5R225□CT | 0.5V, 1kHz          | 2.2         | uF   | ±10%, ±20%          | 0.80        | ±0.10         | ±0.10    | 10.0%     |                  | (II)            |
|      | C1608X5R335KCTS  | C1608X5R335KCT | 1V, 1kHz            | 3.3         | uF   | ±10%                | 0.80        | ±0.15         | ±0.15    | 10.0%     |                  | (II)            |
|      | C1608X5R475□CTS  | C1608X5R475□CT | 0.5V, 1kHz          | 4.7         | uF   | ±10%, ±20%          | 0.80        | ±0.10         | ±0.10    | 10.0%     |                  | (II)            |
|      | C1608X5R106MCTSB |                | 0.5V, 1kHz          | 10          | uF   | ±20%                | 0.50        | ±0.10         | ±0.10    | 10.0%     |                  | (II)*           |
|      | C1608X5R106□CTS  | C1608X5R106□CT | 0.5V, 1kHz          | 10          | uF   | ±10%, ±20%          | 0.80        | ±0.15         | ±0.15    | 10.0%     |                  | (II)*           |
| 4V   | C1608X5R226MCTS  | C1608X5R226MCT | 0.5V, 120Hz         | 22          | uF   | ±20%                | 0.80        | ±0.20         | ±0.20    | 15.0%     | (II)*            |                 |
|      | C1608X5R476MCTS  | C1608X5R476MCT | 0.5V, 120Hz         | 47          | uF   | ±20%                | 0.80        | ±0.20         | ±0.20    | 12.5%     | (II)*            |                 |
|      | C1608X5R106MBTS  | C1608X5R106MBT | 0.5V, 1kHz          | 10          | uF   | ±20%                | 0.80        | ±0.10         | ±0.10    | 10.0%     | Paper, 4Kpcs     | (II)            |
|      | C1608X5R226MBTS  | C1608X5R226MBT | 0.5V, 120Hz         | 22          | uF   | ±20%                | 0.80        | ±0.20         | ±0.20    | 10.0%     |                  | (II)*           |
|      | C1608X5R476MBTS  | C1608X5R476MBT | 0.5V, 120Hz         | 47          | uF   | ±20%                | 0.80        | ±0.20         | ±0.20    | 12.5%     | (II)*            |                 |

● C2012X5R Series (EIA0805)

| RV              | DARFON P/N      | DARFON P/N 2   | Measuring Condition | Capacitance |      | Available Tolerance | Thick. (mm) | Tolerance(mm) |        | DF (max.)       | Standard Packing | Test Spec. |
|-----------------|-----------------|----------------|---------------------|-------------|------|---------------------|-------------|---------------|--------|-----------------|------------------|------------|
|                 |                 |                |                     | Value       | Unit |                     |             | L/W           | Thick. |                 |                  |            |
| 50V             | C2012X5R105□GTS | C2012X5R105□GT | 1V, 1kHz            | 1.0         | uF   | ±10%, ±20%          | 0.85        | ±0.15         | ±0.15  | 10.0%           | Paper, 4Kpcs     | (II)       |
|                 | C2012X5R225□GTS | C2012X5R225□GT | 1V, 1kHz            | 2.2         | uF   | ±10%, ±20%          | 0.85        | ±0.20         | ±0.15  | 10.0%           |                  | (II)       |
|                 | C2012X5R105□GPS | C2012X5R105□GP | 1V, 1kHz            | 1.0         | uF   | ±10%, ±20%          | 1.25        | ±0.15         | ±0.20  | 10.0%           | Embossed, 3Kpcs  | (II)       |
|                 | C2012X5R225□GPS | C2012X5R225□GP | 1V, 1kHz            | 2.2         | uF   | ±10%, ±20%          | 1.25        | ±0.15         | ±0.20  | 10.0%           |                  | (II)       |
|                 | C2012X5R475□GPS | C2012X5R475□GP | 1V, 1kHz            | 4.7         | uF   | ±10%, ±20%          | 1.25        | ±0.20         | ±0.20  | 10.0%           |                  | (II)       |
| C2012X5R106MGPS | C2012X5R106MGP  | 1V, 1kHz       | 10.0                | uF          | ±20% | 1.25                | ±0.20       | ±0.20         | 10.0%  | (II)*           |                  |            |
| 35V             | C2012X5R106KNPS | C2012X5R106KNP | 1V, 1kHz            | 10.0        | uF   | ±10%                | 1.25        | ±0.20         | ±0.20  | 10.0%           | Embossed, 3Kpcs  | (II)*      |
| 25V             | C2012X5R105□FTS | C2012X5R105□FT | 1V, 1kHz            | 1.0         | uF   | ±10%, ±20%          | 0.85        | ±0.15         | ±0.10  | 10.0%           | Paper, 4Kpcs     | (II)       |
|                 | C2012X5R105□FPS | C2012X5R105□FP | 1V, 1kHz            | 1.0         | uF   | ±10%, ±20%          | 1.25        | ±0.20         | ±0.20  | 10.0%           | Embossed, 3Kpcs  | (I)        |
|                 | C2012X5R225□FTS | C2012X5R225□FT | 1V, 1kHz            | 2.2         | uF   | ±10%, ±20%          | 0.85        | ±0.20         | ±0.10  | 10.0%           | Paper, 4Kpcs     | (II)       |
|                 | C2012X5R225□FPS | C2012X5R225□FP | 1V, 1kHz            | 2.2         | uF   | ±10%, ±20%          | 1.25        | ±0.15         | ±0.20  | 10.0%           | Embossed, 3Kpcs  | (II)       |
|                 | C2012X5R475□FTS | C2012X5R475□FT | 1V, 1kHz            | 4.7         | uF   | ±10%, ±20%          | 0.85        | ±0.20         | ±0.10  | 10.0%           | Paper, 4Kpcs     | (II)*      |
|                 | C2012X5R475□FPS | C2012X5R475□FP | 1V, 1kHz            | 4.7         | uF   | ±10%, ±20%          | 1.25        | ±0.15         | ±0.20  | 10.0%           | Embossed, 3Kpcs  | (II)       |
|                 | C2012X5R106□FTS | C2012X5R106□FT | 1V, 1kHz            | 10          | uF   | ±10%, ±20%          | 0.85        | ±0.20         | ±0.10  | 12.5%           | Paper, 4Kpcs     | (II)*      |
|                 | C2012X5R106□FPS | C2012X5R106□FP | 1V, 1kHz            | 10          | uF   | ±10%, ±20%          | 1.25        | ±0.20         | ±0.20  | 12.5%           | Embossed, 3Kpcs  | (II)*      |
|                 | C2012X5R226MFPS | C2012X5R226MFP | 0.5V, 120Hz         | 22          | uF   | ±20%                | 1.25        | ±0.20         | ±0.20  | 15.0%           | Paper, 4Kpcs     | (II)       |
|                 | C2012X5R226MFWS | C2012X5R226MFW | 0.5V, 120Hz         | 22          | uF   | ±20%                | 1.25        | ±0.20         | ±0.20  | 15.0%           | Embossed, 2Kpcs  | (II)       |
| 16V             | C2012X5R105□ETS | C2012X5R105□ET | 1V, 1kHz            | 1.0         | uF   | ±10%, ±20%          | 0.85        | ±0.15         | ±0.15  | 10.0%           | Paper, 4Kpcs     | (II)       |
|                 | C2012X5R105□EPS | C2012X5R105□EP | 1V, 1kHz            | 1.0         | uF   | ±10%, ±20%          | 1.25        | ±0.15         | ±0.20  | 5.0%            | Embossed, 3Kpcs  | (I)        |
|                 | C2012X5R225□ETS | C2012X5R225□ET | 1V, 1kHz            | 2.2         | uF   | ±10%, ±20%          | 1.25        | ±0.15         | ±0.20  | 5.0%            |                  | (II)       |
|                 | C2012X5R335□ETS | C2012X5R335□ET | 1V, 1kHz            | 3.3         | uF   | ±10%, ±20%          | 1.25        | ±0.20         | ±0.20  | 10.0%           |                  | (II)       |
|                 | C2012X5R475□ETS | C2012X5R475□ET | 0.5V, 1kHz          | 4.7         | uF   | ±10%, ±20%          | 0.85        | ±0.20         | ±0.10  | 10.0%           | Paper, 4Kpcs     | (II)       |
|                 | C2012X5R475□EPS | C2012X5R475□EP | 1V, 1kHz            | 4.7         | uF   | ±10%, ±20%          | 1.25        | ±0.15         | ±0.20  | 7.5%            | Embossed, 3Kpcs  | (II)       |
|                 | C2012X5R106□ETS | C2012X5R106□ET | 1V, 1kHz            | 10          | uF   | ±10%, ±20%          | 0.85        | ±0.15         | ±0.10  | 10.0%           | Paper, 4Kpcs     | (II)*      |
|                 | C2012X5R106□EPS | C2012X5R106□EP | 0.5V, 1kHz          | 10          | uF   | ±10%, ±20%          | 1.25        | ±0.15         | ±0.20  | 10.0%           | Embossed, 3Kpcs  | (II)*      |
| C2012X5R226METS | C2012X5R226MET  | 0.5V, 120Hz    | 22                  | uF          | ±20% | 0.85                | ±0.20       | ±0.10         | 10.0%  | Paper, 4Kpcs    | (II)*            |            |
| 10V             | C2012X5R225□DTS | C2012X5R225□DT | 1V, 1kHz            | 2.2         | uF   | ±10%, ±20%          | 0.85        | ±0.15         | ±0.10  | 10.0%           | Paper, 4Kpcs     | (II)       |
|                 | C2012X5R335□DPS | C2012X5R335□DP | 1V, 1kHz            | 3.3         | uF   | ±10%, ±20%          | 1.25        | ±0.20         | ±0.20  | 10.0%           | Embossed, 3Kpcs  | (II)       |
|                 | C2012X5R475□DPS | C2012X5R475□DP | 1V, 1kHz            | 4.7         | uF   | ±10%, ±20%          | 1.25        | ±0.15         | ±0.20  | 10.0%           |                  | (II)       |
|                 | C2012X5R106□DTS | C2012X5R106□DT | 0.5V, 1kHz          | 10          | uF   | ±10%, ±20%          | 0.85        | ±0.20         | ±0.10  | 10.0%           | Paper, 4Kpcs     | (II)       |
|                 | C2012X5R106□DPS | C2012X5R106□DP | 0.5V, 1kHz          | 10          | uF   | ±10%, ±20%          | 1.25        | ±0.15         | ±0.20  | 10.0%           | Embossed, 3Kpcs  | (II)       |
|                 | C2012X5R226MDTS | C2012X5R226MDT | 0.5V, 120Hz         | 22          | uF   | ±20%                | 0.85        | ±0.20         | ±0.15  | 10.0%           | Paper, 4Kpcs     | (II)*      |
|                 | C2012X5R476MDPS | C2012X5R476MDP | 0.5V, 120Hz         | 47          | uF   | ±20%                | 1.25        | ±0.20         | ±0.20  | 10.0%           | Embossed, 3Kpcs  | (II)*      |
| 6.3V            | C2012X5R225KCTS | C2012X5R225KCT | 1V, 1kHz            | 2.2         | uF   | ±10%                | 0.85        | ±0.15         | ±0.10  | 10.0%           | Paper, 4Kpcs     | (II)       |
|                 | C2012X5R475□CPS | C2012X5R475□CP | 0.5V, 1kHz          | 4.7         | uF   | ±10%, ±20%          | 1.25        | ±0.15         | ±0.20  | 10.0%           | Embossed, 3Kpcs  | (I)        |
|                 | C2012X5R106□CTS | C2012X5R106□CT | 0.5V, 1kHz          | 10          | uF   | ±10%, ±20%          | 0.85        | ±0.20         | ±0.15  | 10.0%           | Paper, 4Kpcs     | (II)       |
|                 | C2012X5R106□CPS | C2012X5R106□CP | 0.5V, 1kHz          | 10          | uF   | ±10%, ±20%          | 1.25        | ±0.15         | ±0.20  | 10.0%           | Embossed, 3Kpcs  | (II)       |
|                 | C2012X5R226MCTS | C2012X5R226MCT | 0.5V, 120Hz         | 22          | uF   | ±20%                | 0.85        | ±0.15         | ±0.15  | 10.0%           | Paper, 4Kpcs     | (II)       |
|                 | C2012X5R226□CPS | C2012X5R226□CP | 0.5V, 120Hz         | 22          | uF   | ±10%, ±20%          | 1.25        | ±0.15         | ±0.15  | 10.0%           | Embossed, 3Kpcs  | (II)       |
|                 | C2012X5R476MCTS | C2012X5R476MCT | 0.5V, 120Hz         | 47          | uF   | ±20%                | 0.85        | ±0.20         | ±0.15  | 10.0%           | Paper, 4Kpcs     | (II)*      |
|                 | C2012X5R476MCPS | C2012X5R476MCP | 0.5V, 120Hz         | 47          | uF   | ±20%                | 1.25        | ±0.20         | ±0.20  | 10.0%           | Embossed, 3Kpcs  | (II)*      |
| C2012X5R107MCPS | C2012X5R107MCP  | 0.5V, 120Hz    | 100                 | uF          | ±20% | 1.25                | ±0.20       | ±0.20         | 10.0%  | Embossed, 3Kpcs | (II)*            |            |
| 4V              | C2012X5R107MBPS | C2012X5R107MBP | 0.5V, 120Hz         | 100         | uF   | ±20%                | 1.25        | ±0.20         | ±0.20  | 10.0%           | Embossed, 3Kpcs  | (II)*      |

□ Tolerance Code: K=±10%, M=±20% ;(II)\* High temperature load life test are applicable in rated voltage \*100%



## ■ X6S Series

### ● C0603X6S Series (EIA0201)

| RV   | DARFON P/N      | DARFON P/N 2   | Measuring Condition | Capacitance |      | Available Tolerance | Thick. (mm) | Tolerance(mm) |        | DF (max.) | Standard Packing | Test Spec. |
|------|-----------------|----------------|---------------------|-------------|------|---------------------|-------------|---------------|--------|-----------|------------------|------------|
|      |                 |                |                     | Value       | Unit |                     |             | L/W           | Thick. |           |                  |            |
| 25V  | C0603X6S103KFTS | C0603X6S103KFT | 1V, 1kHz            | 10          | nF   | ±10%                | 0.30        | ±0.03         | ±0.03  | 5.0%      | Paper, 15Kpcs    | (I)        |
|      | C0603X6S104KFTS | C0603X6S104KFT | 1V, 1kHz            | 100         | nF   | ±10%                | 0.30        | ±0.03         | ±0.03  | 10.0%     |                  | (II)*      |
| 16V  | C0603X6S103KETs | C0603X6S103KET | 1V, 1kHz            | 10          | nF   | ±10%                | 0.30        | ±0.03         | ±0.03  | 5.0%      | Paper, 15Kpcs    | (I)        |
|      | C0603X6S104□ETS | C0603X6S104□ET | 1V, 1kHz            | 100         | nF   | ±10%, ±20%          | 0.30        | ±0.03         | ±0.03  | 10.0%     |                  | (II)       |
| 10V  | C0603X6S104KDTS | C0603X6S104KDT | 1V, 1kHz            | 100         | nF   | ±10%                | 0.30        | ±0.03         | ±0.03  | 10.0%     | Paper, 15Kpcs    | (II)       |
|      | C0603X6S224□DTS | C0603X6S224□DT | 0.5V, 1kHz          | 220         | nF   | ±10%, ±20%          | 0.30        | ±0.03         | ±0.03  | 10.0%     |                  | (II)       |
| 6.3V | C0603X6S103□CTS | C0603X6S103□CT | 1V, 1kHz            | 10          | nF   | ±10%, ±20%          | 0.30        | ±0.03         | ±0.03  | 5.0%      | Paper, 15Kpcs    | (I)        |
|      | C0603X6S473□CTS | C0603X6S473□CT | 1V, 1kHz            | 47          | nF   | ±10%, ±20%          | 0.30        | ±0.03         | ±0.03  | 10.0%     |                  | (I)        |
|      | C0603X6S104□CTS | C0603X6S104□CT | 1V, 1kHz            | 100         | nF   | ±10%, ±20%          | 0.30        | ±0.03         | ±0.03  | 10.0%     |                  | (II)*      |
|      | C0603X6S224□CTS | C0603X6S224□CT | 0.5V, 1kHz          | 220         | nF   | ±10%, ±20%          | 0.30        | ±0.03         | ±0.03  | 10.0%     |                  | (II)*      |
| 4V   | C0603X6S105MCTS | C0603X6S105MCT | 0.5V, 1kHz          | 1           | uF   | ±20%                | 0.30        | ±0.09         | ±0.09  | 10.0%     | Paper, 15Kpcs    | (II)*      |
|      | C0603X6S104□BTS | C0603X6S104□BT | 0.5V, 1kHz          | 100         | nF   | ±10%, ±20%          | 0.30        | ±0.03         | ±0.03  | 10.0%     |                  | (II)       |
|      | C0603X6S224□BTS | C0603X6S224□BT | 0.5V, 1kHz          | 220         | nF   | ±10%, ±20%          | 0.30        | ±0.03         | ±0.03  | 10.0%     |                  | (II)       |
|      | C0603X6S474MBTS | C0603X6S474MBT | 0.5V, 1kHz          | 470         | nF   | ±20%                | 0.30        | ±0.03         | ±0.03  | 10.0%     |                  | (II)       |
|      | C0603X6S105MBTS | C0603X6S105MBT | 0.5V, 1kHz          | 1           | uF   | ±20%                | 0.30        | ±0.09         | ±0.09  | 10.0%     |                  | (II)*      |

### ● C1005X6S Series (EIA0402)

| RV   | DARFON P/N      | DARFON P/N 2   | Measuring Condition | Capacitance |      | Available Tolerance | Thick. (mm) | Tolerance(mm) |        | DF (max.) | Standard Packing | Test Spec. |
|------|-----------------|----------------|---------------------|-------------|------|---------------------|-------------|---------------|--------|-----------|------------------|------------|
|      |                 |                |                     | Value       | Unit |                     |             | L/W           | Thick. |           |                  |            |
| 25V  | C1005X6S104KFTS | C1005X6S104KFT | 1V, 1kHz            | 100         | nF   | ±10%                | 0.50        | ±0.05         | ±0.05  | 10.0%     | Paper, 10Kpcs    | (II)       |
|      | C1005X6S224KFTS | C1005X6S224KFT | 1V, 1kHz            | 220         | nF   | ±10%                | 0.50        | ±0.05         | ±0.05  | 10.0%     |                  | (II)       |
|      | C1005X6S105□FTS | C1005X6S105□FT | 0.5V, 1kHz          | 1.0         | uF   | ±10%, ±20%          | 0.50        | ±0.10         | ±0.10  | 10.0%     |                  | (II)*      |
| 16V  | C1005X6S224KETs | C1005X6S224KET | 1V, 1kHz            | 220         | nF   | ±10%                | 0.50        | ±0.05         | ±0.05  | 10.0%     | Paper, 10Kpcs    | (II)       |
|      | C1005X6S105□ETS | C1005X6S105□ET | 0.5V, 1kHz          | 1.0         | uF   | ±10%, ±20%          | 0.50        | ±0.10         | ±0.10  | 12.5%     | Paper, 10Kpcs    | (II)*      |
|      | C1005X6S225METS | C1005X6S225MET | 1V, 1kHz            | 2.2         | uF   | ±20%                | 0.50        | ±0.20         | ±0.20  | 10.0%     | Paper, 10Kpcs    | (II)       |
| 10V  | C1005X6S105□DTS | C1005X6S105□DT | 0.5V, 1kHz          | 1.0         | uF   | ±10%, ±20%          | 0.50        | ±0.05         | ±0.05  | 12.5%     | Paper, 10Kpcs    | (II)*      |
|      | C1005X6S225□DTS | C1005X6S225□DT | 1V, 1kHz            | 2.2         | uF   | ±10%, ±20%          | 0.50        | ±0.20         | ±0.20  | 10.0%     | Paper, 10Kpcs    | (II)       |
| 6.3V | C1005X6S224KCTS | C1005X6S224KCT | 1V, 1kHz            | 220         | nF   | ±10%                | 0.50        | ±0.05         | ±0.05  | 10.0%     | Paper, 10Kpcs    | (II)       |
|      | C1005X6S105□CTS | C1005X6S105□CT | 0.5V, 1kHz          | 1.0         | uF   | ±10%, ±20%          | 0.50        | ±0.05         | ±0.05  | 10.0%     |                  | (II)*      |
|      | C1005X6S225□CTS | C1005X6S225□CT | 0.5V, 1kHz          | 2.2         | uF   | ±10%, ±20%          | 0.50        | ±0.05         | ±0.05  | 10.0%     |                  | (II)*      |
|      | C1005X6S475MCTS | C1005X6S475MCT | 0.5V, 1kHz          | 4.7         | uF   | ±20%                | 0.50        | ±0.15         | ±0.15  | 10.0%     |                  | (II)*      |
| 4V   | C1005X6S106MCTS | C1005X6S106MCT | 0.5V, 1kHz          | 10          | uF   | ±20%                | 0.50        | ±0.20         | ±0.20  | 10.0%     |                  | (II)*      |
|      | C1005X6S106MBTS | C1005X6S106MBT | 0.5V, 1kHz          | 10          | uF   | ±20%                | 0.50        | ±0.20         | ±0.20  | 10.0%     | Paper, 10Kpcs    | (II)*      |

### ● C1608X6S Series (EIA0603)

| RV   | DARFON P/N      | DARFON P/N 2   | Measuring Condition | Capacitance |      | Available Tolerance | Thick. (mm) | Tolerance(mm) |        | DF (max.) | Standard Packing | Test Spec. |
|------|-----------------|----------------|---------------------|-------------|------|---------------------|-------------|---------------|--------|-----------|------------------|------------|
|      |                 |                |                     | Value       | Unit |                     |             | L/W           | Thick. |           |                  |            |
| 25V  | C1608X6S475□FTS | C1608X6S475□FT | 1V, 1kHz            | 4.7         | uF   | ±10%, ±20%          | 0.80        | ±0.20         | ±0.20  | 10.0%     | Paper, 4Kpcs     | (II)*      |
| 16V  | C1608X6S105KETs | C1608X6S105KET | 1V, 1kHz            | 1.0         | uF   | ±10%                | 0.80        | ±0.15         | ±0.15  | 10.0%     | Paper, 4Kpcs     | (II)       |
|      | C1608X6S225KETs | C1608X6S225KET | 1V, 1kHz            | 2.2         | uF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 10.0%     |                  | (II)       |
|      | C1608X6S475KETs | C1608X6S475KET | 1V, 1kHz            | 4.7         | uF   | ±10%                | 0.80        | ±0.20         | ±0.20  | 10.0%     |                  | (II)       |
|      | C1608X6S106METS | C1608X6S106MET | 1V, 1kHz            | 10          | uF   | ±20%                | 0.80        | ±0.20         | ±0.20  | 10.0%     |                  | (II)       |
| 10V  | C1608X6S225DTS  | C1608X6S225KDT | 1V, 1kHz            | 2.2         | uF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 10.0%     | Paper, 4Kpcs     | (II)       |
|      | C1608X6S475KDTS | C1608X6S475KDT | 1V, 1kHz            | 4.7         | uF   | ±10%                | 0.80        | ±0.15         | ±0.15  | 10.0%     |                  | (II)       |
|      | C1608X6S106MDTS | C1608X6S106MDT | 1V, 1kHz            | 10          | uF   | ±20%                | 0.80        | ±0.20         | ±0.20  | 10.0%     |                  | (II)       |
| 6.3V | C1608X6S475□CTS | C1608X6S475□CT | 1V, 1kHz            | 4.7         | uF   | ±10%, ±20%          | 0.80        | ±0.10         | ±0.10  | 10.0%     | Paper, 4Kpcs     | (II)*      |
|      | C1608X6S106MCTS | C1608X6S106MCT | 0.5V, 120Hz         | 10          | uF   | ±20%                | 0.80        | ±0.20         | ±0.20  | 10.0%     |                  | (II)       |
|      | C1608X6S226MCTS | C1608X6S226MCT | 0.5V, 120Hz         | 22          | uF   | ±20%                | 0.80        | ±0.20         | ±0.20  | 10.0%     |                  | (II)*      |
| 4V   | C1608X6S106MBTS | C1608X6S106MBT | 0.5V, 120Hz         | 10          | uF   | ±20%                | 0.80        | ±0.20         | ±0.20  | 10.0%     | Paper, 4Kpcs     | (II)       |
|      | C1608X6S226MBTS | C1608X6S226MBT | 0.5V, 120Hz         | 22          | uF   | ±20%                | 0.80        | ±0.20         | ±0.20  | 10.0%     |                  | (II)*      |

● C2012X6S Series (EIA0805)

| RV   | DARFON P/N      | DARFON P/N 2   | Measuring Condition | Capacitance |      | Available Tolerance | Thick. (mm) | Tolerance(mm) |        | DF (max.) | Standard Packing | Test Spec. |
|------|-----------------|----------------|---------------------|-------------|------|---------------------|-------------|---------------|--------|-----------|------------------|------------|
|      |                 |                |                     | Value       | Unit |                     |             | L/W           | Thick. |           |                  |            |
| 50V  | C2012X6S475KGPS | C2012X6S475KGP | 1V , 1kHz           | 4.7         | uF   | ±10%                | 1.25        | ±0.20         | ±0.20  | 10.0%     | Embossed, 3Kpcs  | (II)       |
| 25V  | C2012X6S106KFPS | C2012X6S106KFP | 0.5V , 1kHz         | 10          | uF   | ±10%                | 1.25        | ±0.15         | ±0.20  | 12.5%     | Embossed, 3Kpcs  | (II)*      |
| 16V  | C2012X6S106KEPS | C2012X6S106KEP | 1V , 1kHz           | 10          | uF   | ±10%                | 1.25        | ±0.15         | ±0.15  | 10.0%     | Embossed, 3Kpcs  | (II)       |
|      | C2012X6S226MEPS | C2012X6S226MEP | 0.5V , 120Hz        | 22          | uF   | ±20%                | 1.25        | ±0.20         | ±0.20  | 10.0%     |                  | (II)*      |
| 10V  | C2012X6S106KDPS | C2012X6S106KDP | 0.5V , 1kHz         | 10          | uF   | ±10%                | 1.25        | ±0.15         | ±0.15  | 10.0%     | Embossed, 3Kpcs  | (II)*      |
|      | C2012X6S226MDPS | C2012X6S226MDP | 0.5V , 120Hz        | 22          | uF   | ±20%                | 1.25        | ±0.20         | ±0.20  | 10.0%     |                  | (II)       |
| 6.3V | C2012X6S106MCPS | C2012X6S106MCP | 0.5V , 1kHz         | 10          | uF   | ±20%                | 1.25        | ±0.15         | ±0.15  | 10.0%     | Embossed, 3Kpcs  | (II)*      |
|      | C2012X6S226MCPS | C2012X6S226MCP | 0.5V , 120Hz        | 22          | uF   | ±20%                | 1.25        | ±0.15         | ±0.15  | 10.0%     |                  | (II)*      |
| 4V   | C2012X6S106MBPS | C2012X6S106MBP | 0.5V , 1kHz         | 10          | uF   | ±20%                | 1.25        | ±0.15         | ±0.15  | 10.0%     | Embossed, 3Kpcs  | (II)       |
|      | C2012X6S226MBPS | C2012X6S226MBP | 0.5V , 120Hz        | 22          | uF   | ±20%                | 1.25        | ±0.15         | ±0.15  | 10.0%     |                  | (II)       |
|      | C2012X6S476MBPS | C2012X6S476MBP | 0.5V , 120Hz        | 47          | uF   | ±20%                | 1.25        | ±0.20         | ±0.20  | 10.0%     |                  | (II)*      |
|      | C2012X6S107MBPS | C2012X6S107MBP | 0.5V , 120Hz        | 100         | uF   | ±20%                | 1.25        | ±0.20         | ±0.20  | 10.0%     |                  | (II)*      |

● C3216X6S Series (EIA1206)

| RV   | DARFON P/N      | DARFON P/N 2   | Measuring Condition | Capacitance |      | Available Tolerance | Thick. (mm) | Tolerance(mm) |        | DF (max.) | Standard Packing | Test Spec. |
|------|-----------------|----------------|---------------------|-------------|------|---------------------|-------------|---------------|--------|-----------|------------------|------------|
|      |                 |                |                     | Value       | Unit |                     |             | L/W           | Thick. |           |                  |            |
| 35V  | C3216X6S106KNPS | C3216X6S106KNP | 1V , 1kHz           | 10          | uF   | ±10%                | 1.60        | ±0.20         | ±0.20  | 10.0%     | Embossed, 2Kpcs  | (II)       |
| 25V  | C3216X6S106KFPS | C3216X6S106KFP | 1V , 1kHz           | 10          | uF   | ±10%                | 1.60        | ±0.20         | ±0.20  | 10.0%     | Embossed, 2Kpcs  | (II)       |
|      | C3216X6S226□FPS | C3216X6S226□FP | 0.5V , 120Hz        | 22          | uF   | ±10%,±20%           | 1.60        | ±0.30         | ±0.30  | 10.0%     |                  | (II)       |
| 16V  | C3216X6S226MEPS | C3216X6S226MEP | 0.5V , 120Hz        | 22          | uF   | ±20%                | 1.60        | ±0.20         | ±0.20  | 10.0%     | Embossed, 2Kpcs  | (II)       |
| 10V  | C3216X6S476MDPS | C3216X6S476MDP | 0.5V , 120Hz        | 47          | uF   | ±20%                | 1.60        | ±0.30         | ±0.30  | 10.0%     | Embossed, 2Kpcs  | (II)       |
| 6.3V | C3216X6S476MCPS | C3216X6S476MCP | 0.5V , 120Hz        | 47          | uF   | ±20%                | 1.60        | ±0.20         | ±0.20  | 10.0%     | Embossed, 2Kpcs  | (II)       |
| 4V   | C3216X6S226MBTS | C3216X6S226MBT | 0.5V , 120Hz        | 22          | uF   | ±20%                | 0.85        | ±0.20         | ±0.10  | 10.0%     | Paper, 4Kpcs     | (II)       |
|      | C3216X6S107MBPS | C3216X6S107MBP | 0.5V , 120Hz        | 100         | uF   | ±20%                | 1.60        | ±0.20         | ±0.20  | 10.0%     | Embossed, 2Kpcs  | (II)       |

● C3225X6S Series (EIA1210)

| RV   | DARFON P/N      | DARFON P/N 2   | Measuring Condition | Capacitance |      | Available Tolerance | Thick. (mm) | Tolerance(mm) |        | DF (max.) | Standard Packing | Test Spec. |
|------|-----------------|----------------|---------------------|-------------|------|---------------------|-------------|---------------|--------|-----------|------------------|------------|
|      |                 |                |                     | Value       | Unit |                     |             | L/W           | Thick. |           |                  |            |
| 16V  | C3225X6S476MEPS | C3225X6S476MEP | 0.5V , 120Hz        | 47          | uF   | ±20%                | 2.50        | ±0.30         | ±0.20  | 10.0%     | Embossed, 1Kpcs  | (II)*      |
| 6.3V | C3225X6S107MCPS | C3225X6S107MCP | 0.5V , 120Hz        | 100         | uF   | ±20%                | 2.50        | ±0.30         | ±0.30  | 10.0%     | Embossed, 1Kpcs  | (II)       |

□ Tolerance Code: K=±10%, M=±20% ;Special tolerance on the request.;

(II)\* High temperature load life test are applicable in rated voltage \*100%









● C1608X7R Series (EIA0603)

| RV              | DARFON P/N      | DARFON P/N 2   | Measuring Condition | Capacitance |      | Available Tolerance | Thick. (mm) | Tolerance(mm) |        | DF (max.) | Standard Packing | Test Spec. |
|-----------------|-----------------|----------------|---------------------|-------------|------|---------------------|-------------|---------------|--------|-----------|------------------|------------|
|                 |                 |                |                     | Value       | Unit |                     |             | L/W           | Thick. |           |                  |            |
| 50V             | C1608X7R101KGTS | C1608X7R101KGT | 1V, 1kHz            | 100         | pF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 2.5%      | Paper, 4Kpcs     | (I)        |
|                 | C1608X7R121KGTS | C1608X7R121KGT | 1V, 1kHz            | 120         | pF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 2.5%      |                  | (I)        |
|                 | C1608X7R151KGTS | C1608X7R151KGT | 1V, 1kHz            | 150         | pF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 2.5%      |                  | (I)        |
|                 | C1608X7R181KGTS | C1608X7R181KGT | 1V, 1kHz            | 180         | pF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 2.5%      |                  | (I)        |
|                 | C1608X7R221KGTS | C1608X7R221KGT | 1V, 1kHz            | 220         | pF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 2.5%      |                  | (I)        |
|                 | C1608X7R271KGTS | C1608X7R271KGT | 1V, 1kHz            | 270         | pF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 2.5%      |                  | (I)        |
|                 | C1608X7R331KGTS | C1608X7R331KGT | 1V, 1kHz            | 330         | pF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 2.5%      |                  | (I)        |
|                 | C1608X7R391KGTS | C1608X7R391KGT | 1V, 1kHz            | 390         | pF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 2.5%      |                  | (I)        |
|                 | C1608X7R471KGTS | C1608X7R471KGT | 1V, 1kHz            | 470         | pF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 2.5%      |                  | (I)        |
|                 | C1608X7R561KGTS | C1608X7R561KGT | 1V, 1kHz            | 560         | pF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 2.5%      |                  | (I)        |
|                 | C1608X7R681KGTS | C1608X7R681KGT | 1V, 1kHz            | 680         | pF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 2.5%      |                  | (I)        |
|                 | C1608X7R821KGTS | C1608X7R821KGT | 1V, 1kHz            | 820         | pF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 2.5%      |                  | (I)        |
|                 | C1608X7R102KGT  | C1608X7R102KGT | 1V, 1kHz            | 1.0         | nF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 2.5%      |                  | (I)        |
|                 | C1608X7R122KGT  | C1608X7R122KGT | 1V, 1kHz            | 1.2         | nF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 2.5%      |                  | (I)        |
|                 | C1608X7R152KGT  | C1608X7R152KGT | 1V, 1kHz            | 1.5         | nF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 2.5%      |                  | (I)        |
|                 | C1608X7R182KGT  | C1608X7R182KGT | 1V, 1kHz            | 1.8         | nF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 2.5%      |                  | (I)        |
|                 | C1608X7R202KGT  | C1608X7R202KGT | 1V, 1kHz            | 2.0         | nF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 2.5%      |                  | (I)        |
|                 | C1608X7R222KGT  | C1608X7R222KGT | 1V, 1kHz            | 2.2         | nF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 2.5%      |                  | (I)        |
|                 | C1608X7R272KGT  | C1608X7R272KGT | 1V, 1kHz            | 2.7         | nF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 2.5%      |                  | (I)        |
|                 | C1608X7R332KGT  | C1608X7R332KGT | 1V, 1kHz            | 3.3         | nF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 2.5%      |                  | (I)        |
|                 | C1608X7R392KGT  | C1608X7R392KGT | 1V, 1kHz            | 3.9         | nF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 2.5%      |                  | (I)        |
|                 | C1608X7R472KGT  | C1608X7R472KGT | 1V, 1kHz            | 4.7         | nF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 2.5%      |                  | (I)        |
|                 | C1608X7R562KGT  | C1608X7R562KGT | 1V, 1kHz            | 5.6         | nF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 2.5%      |                  | (I)        |
|                 | C1608X7R682KGT  | C1608X7R682KGT | 1V, 1kHz            | 6.8         | nF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 2.5%      |                  | (I)        |
|                 | C1608X7R822KGT  | C1608X7R822KGT | 1V, 1kHz            | 8.2         | nF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 2.5%      |                  | (I)        |
|                 | C1608X7R103□GTS | C1608X7R103□GT | 1V, 1kHz            | 10          | nF   | ±10%,±5%            | 0.80        | ±0.10         | ±0.10  | 2.5%      |                  | (I)        |
|                 | C1608X7R123KGT  | C1608X7R123KGT | 1V, 1kHz            | 12          | nF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 2.5%      |                  | (I)        |
|                 | C1608X7R153KGT  | C1608X7R153KGT | 1V, 1kHz            | 15          | nF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 2.5%      |                  | (I)        |
|                 | C1608X7R183□GTS | C1608X7R183□GT | 1V, 1kHz            | 18          | nF   | ±10%,±5%            | 0.80        | ±0.10         | ±0.10  | 2.5%      |                  | (I)        |
|                 | C1608X7R223KGT  | C1608X7R223KGT | 1V, 1kHz            | 22          | nF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 2.5%      |                  | (I)        |
|                 | C1608X7R273KGT  | C1608X7R273KGT | 1V, 1kHz            | 27          | nF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 2.5%      |                  | (I)        |
|                 | C1608X7R333KGT  | C1608X7R333KGT | 1V, 1kHz            | 33          | nF   | ±10%                | 0.80        | ±0.15         | ±0.15  | 2.5%      |                  | (I)        |
|                 | C1608X7R393KGT  | C1608X7R393KGT | 1V, 1kHz            | 39          | nF   | ±10%                | 0.80        | ±0.15         | ±0.15  | 2.5%      |                  | (I)        |
| C1608X7R473KGT  | C1608X7R473KGT  | 1V, 1kHz       | 47                  | nF          | ±10% | 0.80                | ±0.15       | ±0.15         | 3.0%   | (I)       |                  |            |
| C1608X7R563KGT  | C1608X7R563KGT  | 1V, 1kHz       | 56                  | nF          | ±10% | 0.80                | ±0.15       | ±0.15         | 3.0%   | (I)       |                  |            |
| C1608X7R683KGT  | C1608X7R683KGT  | 1V, 1kHz       | 68                  | nF          | ±10% | 0.80                | ±0.15       | ±0.15         | 3.0%   | (I)       |                  |            |
| C1608X7R823KGT  | C1608X7R823KGT  | 1V, 1kHz       | 82                  | nF          | ±10% | 0.80                | ±0.15       | ±0.15         | 3.0%   | (I)       |                  |            |
| C1608X7R104KGT  | C1608X7R104KGT  | 1V, 1kHz       | 100                 | nF          | ±10% | 0.80                | ±0.15       | ±0.15         | 3.0%   | (II)      |                  |            |
| C1608X7R224KGT  | C1608X7R224KGT  | 1V, 1kHz       | 220                 | nF          | ±10% | 0.80                | ±0.15       | ±0.15         | 3.5%   | (II)      |                  |            |
| C1608X7R474KGT  | C1608X7R474KGT  | 1V, 1kHz       | 470                 | nF          | ±10% | 0.80                | ±0.15       | ±0.15         | 10.0%  | (II)      |                  |            |
| C1608X7R105KGT  | C1608X7R105KGT  | 1V, 1kHz       | 1.0                 | uF          | ±10% | 0.80                | ±0.20       | ±0.20         | 10.0%  | (II)      |                  |            |
| C1608X7R474KNTS | C1608X7R474KNT  | 1V, 1kHz       | 470                 | nF          | ±10% | 0.80                | ±0.15       | ±0.15         | 10.0%  | (II)      |                  |            |
| C1608X7R105KNTS | C1608X7R105KNT  | 1V, 1kHz       | 1.0                 | uF          | ±10% | 0.80                | ±0.20       | ±0.20         | 10.0%  | (II)      |                  |            |
| 25V             | C1608X7R101KFTS | C1608X7R101KFT | 1V, 1kHz            | 100         | pF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 3.5%      | Paper, 4Kpcs     | (I)        |
|                 | C1608X7R121KFTS | C1608X7R121KFT | 1V, 1kHz            | 120         | pF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 3.5%      |                  | (I)        |
|                 | C1608X7R151KFTS | C1608X7R151KFT | 1V, 1kHz            | 150         | pF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 3.5%      |                  | (I)        |
|                 | C1608X7R181KFTS | C1608X7R181KFT | 1V, 1kHz            | 180         | pF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 3.5%      |                  | (I)        |
|                 | C1608X7R221KFTS | C1608X7R221KFT | 1V, 1kHz            | 220         | pF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 3.5%      |                  | (I)        |
|                 | C1608X7R271KFTS | C1608X7R271KFT | 1V, 1kHz            | 270         | pF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 3.5%      |                  | (I)        |
|                 | C1608X7R331KFTS | C1608X7R331KFT | 1V, 1kHz            | 330         | pF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 3.5%      |                  | (I)        |
|                 | C1608X7R391KFTS | C1608X7R391KFT | 1V, 1kHz            | 390         | pF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 3.5%      |                  | (I)        |
|                 | C1608X7R471KFTS | C1608X7R471KFT | 1V, 1kHz            | 470         | pF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 3.5%      |                  | (I)        |
|                 | C1608X7R561KFTS | C1608X7R561KFT | 1V, 1kHz            | 560         | pF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 3.5%      |                  | (I)        |
|                 | C1608X7R681KFTS | C1608X7R681KFT | 1V, 1kHz            | 680         | pF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 3.5%      |                  | (I)        |
|                 | C1608X7R821KFTS | C1608X7R821KFT | 1V, 1kHz            | 820         | pF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 3.5%      |                  | (I)        |
|                 | C1608X7R102KFTS | C1608X7R102KFT | 1V, 1kHz            | 1.0         | nF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 3.5%      |                  | (I)        |
|                 | C1608X7R122KFTS | C1608X7R122KFT | 1V, 1kHz            | 1.2         | nF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 3.5%      |                  | (I)        |
|                 | C1608X7R152KFTS | C1608X7R152KFT | 1V, 1kHz            | 1.5         | nF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 3.5%      |                  | (I)        |
|                 | C1608X7R182KFTS | C1608X7R182KFT | 1V, 1kHz            | 1.8         | nF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 3.5%      |                  | (I)        |
|                 | C1608X7R222KFTS | C1608X7R222KFT | 1V, 1kHz            | 2.2         | nF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 3.5%      |                  | (I)        |
|                 | C1608X7R272KFTS | C1608X7R272KFT | 1V, 1kHz            | 2.7         | nF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 3.5%      |                  | (I)        |
|                 | C1608X7R332KFTS | C1608X7R332KFT | 1V, 1kHz            | 3.3         | nF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 3.5%      |                  | (I)        |
|                 | C1608X7R392KFTS | C1608X7R392KFT | 1V, 1kHz            | 3.9         | nF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 3.5%      |                  | (I)        |
|                 | C1608X7R472KFTS | C1608X7R472KFT | 1V, 1kHz            | 4.7         | nF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 3.5%      |                  | (I)        |
| C1608X7R562KFTS | C1608X7R562KFT  | 1V, 1kHz       | 5.6                 | nF          | ±10% | 0.80                | ±0.10       | ±0.10         | 3.5%   | (I)       |                  |            |
| C1608X7R682KFTS | C1608X7R682KFT  | 1V, 1kHz       | 6.8                 | nF          | ±10% | 0.80                | ±0.10       | ±0.10         | 3.5%   | (I)       |                  |            |
| C1608X7R822KFTS | C1608X7R822KFT  | 1V, 1kHz       | 8.2                 | nF          | ±10% | 0.80                | ±0.10       | ±0.10         | 3.5%   | (I)       |                  |            |
| C1608X7R103KFTS | C1608X7R103KFT  | 1V, 1kHz       | 10                  | nF          | ±10% | 0.80                | ±0.10       | ±0.10         | 3.5%   | (I)       |                  |            |

□ Tolerance Code: J=±5%, K=±10%, M=±20%; Special tolerance on the request.

| RV              | DARFON P/N       | DARFON P/N 2    | Measuring Condition | Capacitance |      | Available Tolerance | Thick. (mm) | Tolerance(mm) |        | DF (max.) | Standard Packing | Test Spec. |
|-----------------|------------------|-----------------|---------------------|-------------|------|---------------------|-------------|---------------|--------|-----------|------------------|------------|
|                 |                  |                 |                     | Value       | Unit |                     |             | L/W           | Thick. |           |                  |            |
| 25V             | C1608X7R123KFSTS | C1608X7R123KFT  | 1V, 1kHz            | 12          | nF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 3.5%      | Paper, 4Kpcs     | (I)        |
|                 | C1608X7R153KFSTS | C1608X7R153KFT  | 1V, 1kHz            | 15          | nF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 3.5%      |                  | (I)        |
|                 | C1608X7R183KFSTS | C1608X7R183KFT  | 1V, 1kHz            | 18          | nF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 3.5%      |                  | (I)        |
|                 | C1608X7R223KFSTS | C1608X7R223KFT  | 1V, 1kHz            | 22          | nF   | ±10%,±5%            | 0.80        | ±0.10         | ±0.10  | 3.5%      |                  | (I)        |
|                 | C1608X7R273KFSTS | C1608X7R273KFT  | 1V, 1kHz            | 27          | nF   | ±10%,±5%            | 0.80        | ±0.10         | ±0.10  | 3.5%      |                  | (I)        |
|                 | C1608X7R333KFSTS | C1608X7R333KFT  | 1V, 1kHz            | 33          | nF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 3.5%      |                  | (I)        |
|                 | C1608X7R393KFSTS | C1608X7R393KFT  | 1V, 1kHz            | 39          | nF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 3.5%      |                  | (I)        |
|                 | C1608X7R473KFSTS | C1608X7R473KFT  | 1V, 1kHz            | 47          | nF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 3.5%      |                  | (I)        |
|                 | C1608X7R563KFSTS | C1608X7R563KFT  | 1V, 1kHz            | 56          | nF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 3.5%      |                  | (I)        |
|                 | C1608X7R683KFSTS | C1608X7R683KFT  | 1V, 1kHz            | 68          | nF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 3.5%      |                  | (I)        |
|                 | C1608X7R823KFSTS | C1608X7R823KFT  | 1V, 1kHz            | 82          | nF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 3.5%      |                  | (I)        |
|                 | C1608X7R104KFSTS | C1608X7R104KFT  | 1V, 1kHz            | 100         | nF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 3.5%      |                  | (I)        |
|                 | C1608X7R124KFSTS | C1608X7R124KFT  | 1V, 1kHz            | 120         | nF   | ±10%                | 0.80        | ±0.15         | ±0.15  | 3.5%      |                  | (I)        |
|                 | C1608X7R154KFSTS | C1608X7R154KFT  | 1V, 1kHz            | 150         | nF   | ±10%                | 0.80        | ±0.15         | ±0.15  | 3.5%      |                  | (I)        |
|                 | C1608X7R184KFSTS | C1608X7R184KFT  | 1V, 1kHz            | 180         | nF   | ±10%                | 0.80        | ±0.15         | ±0.15  | 3.5%      |                  | (I)        |
|                 | C1608X7R224KFSTS | C1608X7R224KFT  | 1V, 1kHz            | 220         | nF   | ±10%                | 0.80        | ±0.15         | ±0.15  | 3.5%      |                  | (I)        |
|                 | C1608X7R334KFSTS | C1608X7R334KFT  | 1V, 1kHz            | 330         | nF   | ±10%                | 0.80        | ±0.15         | ±0.15  | 7.0%      |                  | (I)        |
|                 | C1608X7R474KFSTS | C1608X7R474KFT  | 1V, 1kHz            | 470         | nF   | ±10%                | 0.80        | ±0.15         | ±0.15  | 10.0%     |                  | (I)        |
|                 | C1608X7R105KFSTS | C1608X7R105KFT  | 1V, 1kHz            | 1.0         | uF   | ±10%                | 0.80        | ±0.15         | ±0.15  | 10.0%     |                  | (II)       |
|                 | 16V              | C1608X7R101KETS | C1608X7R101KET      | 1V, 1kHz    | 100  | pF                  | ±10%        | 0.80          | ±0.10  | ±0.10     |                  | 5.0%       |
| C1608X7R121KETS |                  | C1608X7R121KET  | 1V, 1kHz            | 120         | pF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 5.0%      | (I)              |            |
| C1608X7R151KETS |                  | C1608X7R151KET  | 1V, 1kHz            | 150         | pF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 5.0%      | (I)              |            |
| C1608X7R181KETS |                  | C1608X7R181KET  | 1V, 1kHz            | 180         | pF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 5.0%      | (I)              |            |
| C1608X7R221KETS |                  | C1608X7R221KET  | 1V, 1kHz            | 220         | pF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 5.0%      | (I)              |            |
| C1608X7R271KETS |                  | C1608X7R271KET  | 1V, 1kHz            | 270         | pF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 5.0%      | (I)              |            |
| C1608X7R331KETS |                  | C1608X7R331KET  | 1V, 1kHz            | 330         | pF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 5.0%      | (I)              |            |
| C1608X7R391KETS |                  | C1608X7R391KET  | 1V, 1kHz            | 390         | pF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 5.0%      | (I)              |            |
| C1608X7R471KETS |                  | C1608X7R471KET  | 1V, 1kHz            | 470         | pF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 5.0%      | (I)              |            |
| C1608X7R561KETS |                  | C1608X7R561KET  | 1V, 1kHz            | 560         | pF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 5.0%      | (I)              |            |
| C1608X7R681KETS |                  | C1608X7R681KET  | 1V, 1kHz            | 680         | pF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 5.0%      | (I)              |            |
| C1608X7R821KETS |                  | C1608X7R821KET  | 1V, 1kHz            | 820         | pF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 5.0%      | (I)              |            |
| C1608X7R102KETS |                  | C1608X7R102KET  | 1V, 1kHz            | 1.0         | nF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 5.0%      | (I)              |            |
| C1608X7R122KETS |                  | C1608X7R122KET  | 1V, 1kHz            | 1.2         | nF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 5.0%      | (I)              |            |
| C1608X7R152KETS |                  | C1608X7R152KET  | 1V, 1kHz            | 1.5         | nF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 5.0%      | (I)              |            |
| C1608X7R182KETS |                  | C1608X7R182KET  | 1V, 1kHz            | 1.8         | nF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 5.0%      | (I)              |            |
| C1608X7R222KETS |                  | C1608X7R222KET  | 1V, 1kHz            | 2.2         | nF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 5.0%      | (I)              |            |
| C1608X7R272KETS |                  | C1608X7R272KET  | 1V, 1kHz            | 2.7         | nF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 5.0%      | (I)              |            |
| C1608X7R332KETS |                  | C1608X7R332KET  | 1V, 1kHz            | 3.3         | nF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 5.0%      | (I)              |            |
| C1608X7R392KETS |                  | C1608X7R392KET  | 1V, 1kHz            | 3.9         | nF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 5.0%      | (I)              |            |
| C1608X7R472KETS |                  | C1608X7R472KET  | 1V, 1kHz            | 4.7         | nF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 5.0%      | (I)              |            |
| C1608X7R562KETS |                  | C1608X7R562KET  | 1V, 1kHz            | 5.6         | nF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 5.0%      | (I)              |            |
| C1608X7R682KETS |                  | C1608X7R682KET  | 1V, 1kHz            | 6.8         | nF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 5.0%      | (I)              |            |
| C1608X7R822KETS |                  | C1608X7R822KET  | 1V, 1kHz            | 8.2         | nF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 5.0%      | (I)              |            |
| C1608X7R103KETS |                  | C1608X7R103KET  | 1V, 1kHz            | 10          | nF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 5.0%      | (I)              |            |
| C1608X7R123KETS |                  | C1608X7R123KET  | 1V, 1kHz            | 12          | nF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 5.0%      | (I)              |            |
| C1608X7R153KETS |                  | C1608X7R153KET  | 1V, 1kHz            | 15          | nF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 5.0%      | (I)              |            |
| C1608X7R183KETS |                  | C1608X7R183KET  | 1V, 1kHz            | 18          | nF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 5.0%      | (I)              |            |
| C1608X7R223KETS |                  | C1608X7R223KET  | 1V, 1kHz            | 22          | nF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 5.0%      | (I)              |            |
| C1608X7R273KETS |                  | C1608X7R273KET  | 1V, 1kHz            | 27          | nF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 5.0%      | (I)              |            |
| C1608X7R333KETS |                  | C1608X7R333KET  | 1V, 1kHz            | 33          | nF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 5.0%      | (I)              |            |
| C1608X7R393KETS |                  | C1608X7R393KET  | 1V, 1kHz            | 39          | nF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 5.0%      | (I)              |            |
| C1608X7R473KETS |                  | C1608X7R473KET  | 1V, 1kHz            | 47          | nF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 5.0%      | (I)              |            |
| C1608X7R563KETS |                  | C1608X7R563KET  | 1V, 1kHz            | 56          | nF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 5.0%      | (I)              |            |
| C1608X7R683KETS |                  | C1608X7R683KET  | 1V, 1kHz            | 68          | nF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 5.0%      | (I)              |            |
| C1608X7R823KETS |                  | C1608X7R823KET  | 1V, 1kHz            | 82          | nF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 5.0%      | (I)              |            |
| C1608X7R104KETS |                  | C1608X7R104KET  | 1V, 1kHz            | 100         | nF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 5.0%      | (I)              |            |
| C1608X7R154KETS |                  | C1608X7R154KET  | 1V, 1kHz            | 150         | nF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 5.0%      | (I)              |            |
| C1608X7R184KETS |                  | C1608X7R184KET  | 1V, 1kHz            | 180         | nF   | ±10%                | 0.80        | ±0.15         | ±0.15  | 5.0%      | (I)              |            |
| C1608X7R224KETS |                  | C1608X7R224KET  | 1V, 1kHz            | 220         | nF   | ±10%                | 0.80        | ±0.15         | ±0.15  | 5.0%      | (I)              |            |
| C1608X7R334KETS |                  | C1608X7R334KET  | 1V, 1kHz            | 330         | nF   | ±10%                | 0.80        | ±0.15         | ±0.15  | 5.0%      | (I)              |            |
| C1608X7R474KETS |                  | C1608X7R474KET  | 1V, 1kHz            | 470         | nF   | ±10%                | 0.80        | ±0.15         | ±0.15  | 5.0%      | (I)              |            |
| C1608X7R684KETS |                  | C1608X7R684KET  | 1V, 1kHz            | 680         | nF   | ±10%                | 0.80        | ±0.15         | ±0.15  | 10.0%     | (I)              |            |
| C1608X7R105KETS |                  | C1608X7R105KET  | 1V, 1kHz            | 1.0         | uF   | ±10%, ±20%          | 0.80        | ±0.15         | ±0.15  | 10.0%     | (II)             |            |
| C1608X7R225KETS |                  | C1608X7R225KET  | 1V, 1kHz            | 2.2         | uF   | ±10%                | 0.80        | ±0.20         | ±0.20  | 10.0%     | (II)             |            |

MLCC

General Purpose

| RV              | DARFON P/N      | DARFON P/N 2   | Measuring Condition | Capacitance |      | Available Tolerance | Thick. (mm) | Tolerance(mm) |        | DF (max.) | Standard Packing | Test Spec. |
|-----------------|-----------------|----------------|---------------------|-------------|------|---------------------|-------------|---------------|--------|-----------|------------------|------------|
|                 |                 |                |                     | Value       | Unit |                     |             | L/W           | Thick. |           |                  |            |
| 10V             | C1608X7R101KDTS | C1608X7R101KDT | 1V, 1kHz            | 100         | pF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 5.0%      | Paper, 4Kpcs     | (I)        |
|                 | C1608X7R121KDTS | C1608X7R121KDT | 1V, 1kHz            | 120         | pF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 5.0%      |                  | (I)        |
|                 | C1608X7R151KDTS | C1608X7R151KDT | 1V, 1kHz            | 150         | pF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 5.0%      |                  | (I)        |
|                 | C1608X7R181KDTS | C1608X7R181KDT | 1V, 1kHz            | 180         | pF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 5.0%      |                  | (I)        |
|                 | C1608X7R221KDTS | C1608X7R221KDT | 1V, 1kHz            | 220         | pF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 5.0%      |                  | (I)        |
|                 | C1608X7R271KDTS | C1608X7R271KDT | 1V, 1kHz            | 270         | pF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 5.0%      |                  | (I)        |
|                 | C1608X7R331KDTS | C1608X7R331KDT | 1V, 1kHz            | 330         | pF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 5.0%      |                  | (I)        |
|                 | C1608X7R391KDTS | C1608X7R391KDT | 1V, 1kHz            | 390         | pF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 5.0%      |                  | (I)        |
|                 | C1608X7R471KDTS | C1608X7R471KDT | 1V, 1kHz            | 470         | pF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 5.0%      |                  | (I)        |
|                 | C1608X7R561KDTS | C1608X7R561KDT | 1V, 1kHz            | 560         | pF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 5.0%      |                  | (I)        |
|                 | C1608X7R681KDTS | C1608X7R681KDT | 1V, 1kHz            | 680         | pF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 5.0%      |                  | (I)        |
|                 | C1608X7R821KDTS | C1608X7R821KDT | 1V, 1kHz            | 820         | pF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 5.0%      |                  | (I)        |
|                 | C1608X7R102KDTS | C1608X7R102KDT | 1V, 1kHz            | 1.0         | nF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 5.0%      |                  | (I)        |
|                 | C1608X7R122KDTS | C1608X7R122KDT | 1V, 1kHz            | 1.2         | nF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 5.0%      |                  | (I)        |
|                 | C1608X7R152KDTS | C1608X7R152KDT | 1V, 1kHz            | 1.5         | nF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 5.0%      |                  | (I)        |
|                 | C1608X7R182KDTS | C1608X7R182KDT | 1V, 1kHz            | 1.8         | nF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 5.0%      |                  | (I)        |
|                 | C1608X7R222KDTS | C1608X7R222KDT | 1V, 1kHz            | 2.2         | nF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 5.0%      |                  | (I)        |
|                 | C1608X7R272KDTS | C1608X7R272KDT | 1V, 1kHz            | 2.7         | nF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 5.0%      |                  | (I)        |
|                 | C1608X7R332KDTS | C1608X7R332KDT | 1V, 1kHz            | 3.3         | nF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 5.0%      |                  | (I)        |
|                 | C1608X7R392KDTS | C1608X7R392KDT | 1V, 1kHz            | 3.9         | nF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 5.0%      |                  | (I)        |
|                 | C1608X7R472KDTS | C1608X7R472KDT | 1V, 1kHz            | 4.7         | nF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 5.0%      |                  | (I)        |
|                 | C1608X7R562KDTS | C1608X7R562KDT | 1V, 1kHz            | 5.6         | nF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 5.0%      |                  | (I)        |
|                 | C1608X7R682KDTS | C1608X7R682KDT | 1V, 1kHz            | 6.8         | nF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 5.0%      |                  | (I)        |
|                 | C1608X7R822KDTS | C1608X7R822KDT | 1V, 1kHz            | 8.2         | nF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 5.0%      |                  | (I)        |
|                 | C1608X7R103KDTS | C1608X7R103KDT | 1V, 1kHz            | 10          | nF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 5.0%      |                  | (I)        |
|                 | C1608X7R123KDTS | C1608X7R123KDT | 1V, 1kHz            | 12          | nF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 5.0%      |                  | (I)        |
|                 | C1608X7R153KDTS | C1608X7R153KDT | 1V, 1kHz            | 15          | nF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 5.0%      |                  | (I)        |
|                 | C1608X7R183KDTS | C1608X7R183KDT | 1V, 1kHz            | 18          | nF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 5.0%      |                  | (I)        |
|                 | C1608X7R223KDTS | C1608X7R223KDT | 1V, 1kHz            | 22          | nF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 5.0%      |                  | (I)        |
|                 | C1608X7R273KDTS | C1608X7R273KDT | 1V, 1kHz            | 27          | nF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 5.0%      |                  | (I)        |
|                 | C1608X7R333KDTS | C1608X7R333KDT | 1V, 1kHz            | 33          | nF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 5.0%      |                  | (I)        |
|                 | C1608X7R393KDTS | C1608X7R393KDT | 1V, 1kHz            | 39          | nF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 5.0%      |                  | (I)        |
|                 | C1608X7R473KDTS | C1608X7R473KDT | 1V, 1kHz            | 47          | nF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 5.0%      |                  | (I)        |
| C1608X7R563KDTS | C1608X7R563KDT  | 1V, 1kHz       | 56                  | nF          | ±10% | 0.80                | ±0.10       | ±0.10         | 5.0%   | (I)       |                  |            |
| C1608X7R683KDTS | C1608X7R683KDT  | 1V, 1kHz       | 68                  | nF          | ±10% | 0.80                | ±0.10       | ±0.10         | 5.0%   | (I)       |                  |            |
| C1608X7R823KDTS | C1608X7R823KDT  | 1V, 1kHz       | 82                  | nF          | ±10% | 0.80                | ±0.10       | ±0.10         | 5.0%   | (I)       |                  |            |
| C1608X7R104KDTS | C1608X7R104KDT  | 1V, 1kHz       | 100                 | nF          | ±10% | 0.80                | ±0.10       | ±0.10         | 5.0%   | (I)       |                  |            |
| C1608X7R224KDTS | C1608X7R224KDT  | 1V, 1kHz       | 220                 | nF          | ±10% | 0.80                | ±0.15       | ±0.15         | 5.0%   | (I)       |                  |            |
| C1608X7R334KDTS | C1608X7R334KDT  | 1V, 1kHz       | 330                 | nF          | ±10% | 0.80                | ±0.15       | ±0.15         | 10.0%  | (I)       |                  |            |
| C1608X7R474KDTS | C1608X7R474KDT  | 1V, 1kHz       | 470                 | nF          | ±10% | 0.80                | ±0.15       | ±0.15         | 10.0%  | (I)       |                  |            |
| C1608X7R684KDTS | C1608X7R684KDT  | 1V, 1kHz       | 680                 | nF          | ±10% | 0.80                | ±0.15       | ±0.15         | 10.0%  | (I)       |                  |            |
| C1608X7R105KDTS | C1608X7R105KDT  | 1V, 1kHz       | 1.0                 | uF          | ±10% | 0.80                | ±0.15       | ±0.15         | 10.0%  | (II)      |                  |            |
| C1608X7R225KDTS | C1608X7R225KDT  | 1V, 1kHz       | 2.2                 | uF          | ±10% | 0.80                | ±0.15       | ±0.10         | 10.0%  | (II)      |                  |            |
| 6.3V            | C1608X7R104KCTS | C1608X7R104KCT | 1V, 1kHz            | 100         | nF   | ±10%                | 0.80        | ±0.10         | ±0.10  | 5.0%      | Paper, 4Kpcs     | (I)        |
|                 | C1608X7R105KCTS | C1608X7R105KCT | 1V, 1kHz            | 1.0         | uF   | ±10%                | 0.80        | ±0.15         | ±0.15  | 10.0%     |                  | (II)       |
|                 | C1608X7R225KCTS | C1608X7R225KCT | 1V, 1kHz            | 2.2         | uF   | ±10%                | 0.80        | ±0.15         | ±0.10  | 10.0%     |                  | (II)       |
|                 | C1608X7R475KCTS | C1608X7R475KCT | 1V, 1kHz            | 4.7         | uF   | ±10%                | 0.80        | ±0.20         | ±0.20  | 10.0%     |                  | (II)       |
|                 | C1608X7R106MCTS | C1608X7R106MCT | 0.5V, 1kHz          | 10          | uF   | ±20%                | 0.80        | ±0.20         | ±0.20  | 10.0%     |                  | (III)*     |

□ Tolerance Code: J=±5%, K=±10%, M=±20%; Special tolerance on the request.

● C2012X7R Series (EIA0805)

| RV  | DARFON P/N      | DARFON P/N 2   | Measuring Condition | Capacitance |      | Available Tolerance | Thick. (mm) | Tolerance(mm) |        | DF (max.) | Standard Packing | Test Spec. |
|-----|-----------------|----------------|---------------------|-------------|------|---------------------|-------------|---------------|--------|-----------|------------------|------------|
|     |                 |                |                     | Value       | Unit |                     |             | L/W           | Thick. |           |                  |            |
| 50V | C2012X7R101KGTS | C2012X7R101KGT | 1V, 1kHz            | 100         | pF   | ±10%                | 0.85        | ±0.15         | ±0.15  | 2.5%      | Paper, 4Kpcs     | (I)        |
|     | C2012X7R151KGTS | C2012X7R151KGT | 1V, 1kHz            | 150         | pF   | ±10%                | 0.60        | ±0.15         | ±0.15  | 2.5%      |                  | (I)        |
|     | C2012X7R181KGTS | C2012X7R181KGT | 1V, 1kHz            | 180         | pF   | ±10%                | 0.60        | ±0.15         | ±0.15  | 2.5%      |                  | (I)        |
|     | C2012X7R221KGTS | C2012X7R221KGT | 1V, 1kHz            | 220         | pF   | ±10%                | 0.60        | ±0.15         | ±0.15  | 2.5%      |                  | (I)        |
|     | C2012X7R271KGTS | C2012X7R271KGT | 1V, 1kHz            | 270         | pF   | ±10%                | 0.60        | ±0.15         | ±0.15  | 2.5%      |                  | (I)        |
|     | C2012X7R331KGTS | C2012X7R331KGT | 1V, 1kHz            | 330         | pF   | ±10%                | 0.60        | ±0.15         | ±0.15  | 2.5%      |                  | (I)        |
|     | C2012X7R391KGTS | C2012X7R391KGT | 1V, 1kHz            | 390         | pF   | ±10%                | 0.60        | ±0.15         | ±0.15  | 2.5%      |                  | (I)        |
|     | C2012X7R471KGTS | C2012X7R471KGT | 1V, 1kHz            | 470         | pF   | ±10%                | 0.60        | ±0.15         | ±0.15  | 2.5%      |                  | (I)        |
|     | C2012X7R561KGTS | C2012X7R561KGT | 1V, 1kHz            | 560         | pF   | ±10%                | 0.60        | ±0.15         | ±0.15  | 2.5%      |                  | (I)        |
|     | C2012X7R681KGTS | C2012X7R681KGT | 1V, 1kHz            | 680         | pF   | ±10%                | 0.60        | ±0.15         | ±0.15  | 2.5%      |                  | (I)        |
|     | C2012X7R821KGTS | C2012X7R821KGT | 1V, 1kHz            | 820         | pF   | ±10%                | 0.60        | ±0.15         | ±0.15  | 2.5%      |                  | (I)        |
|     | C2012X7R102KGTS | C2012X7R102KGT | 1V, 1kHz            | 1.0         | nF   | ±10%                | 0.60        | ±0.15         | ±0.15  | 2.5%      |                  | (I)        |
|     | C2012X7R122KGTS | C2012X7R122KGT | 1V, 1kHz            | 1.2         | nF   | ±10%                | 0.60        | ±0.15         | ±0.15  | 2.5%      |                  | (I)        |
|     | C2012X7R152KGTS | C2012X7R152KGT | 1V, 1kHz            | 1.5         | nF   | ±10%                | 0.60        | ±0.15         | ±0.15  | 2.5%      |                  | (I)        |
|     | C2012X7R182KGTS | C2012X7R182KGT | 1V, 1kHz            | 1.8         | nF   | ±10%                | 0.60        | ±0.15         | ±0.15  | 2.5%      |                  | (I)        |
|     | C2012X7R222KGTS | C2012X7R222KGT | 1V, 1kHz            | 2.2         | nF   | ±10%                | 0.60        | ±0.15         | ±0.15  | 2.5%      |                  | (I)        |
|     | C2012X7R272KGTS | C2012X7R272KGT | 1V, 1kHz            | 2.7         | nF   | ±10%                | 0.60        | ±0.15         | ±0.15  | 2.5%      |                  | (I)        |
|     | C2012X7R332KGTS | C2012X7R332KGT | 1V, 1kHz            | 3.3         | nF   | ±10%                | 0.60        | ±0.15         | ±0.15  | 2.5%      |                  | (I)        |
|     | C2012X7R392KGTS | C2012X7R392KGT | 1V, 1kHz            | 3.9         | nF   | ±10%                | 0.60        | ±0.15         | ±0.15  | 2.5%      |                  | (I)        |
|     | C2012X7R472KGTS | C2012X7R472KGT | 1V, 1kHz            | 4.7         | nF   | ±10%                | 0.60        | ±0.15         | ±0.15  | 2.5%      |                  | (I)        |
|     | C2012X7R562KGTS | C2012X7R562KGT | 1V, 1kHz            | 5.6         | nF   | ±10%                | 0.60        | ±0.15         | ±0.15  | 2.5%      |                  | (I)        |
|     | C2012X7R682KGTS | C2012X7R682KGT | 1V, 1kHz            | 6.8         | nF   | ±10%                | 0.60        | ±0.15         | ±0.15  | 2.5%      |                  | (I)        |
|     | C2012X7R822KGTS | C2012X7R822KGT | 1V, 1kHz            | 8.2         | nF   | ±10%                | 0.60        | ±0.15         | ±0.15  | 2.5%      |                  | (I)        |
|     | C2012X7R103KGTS | C2012X7R103KGT | 1V, 1kHz            | 10          | nF   | ±10%                | 0.60        | ±0.15         | ±0.15  | 2.5%      |                  | (I)        |
|     | C2012X7R123KGTS | C2012X7R123KGT | 1V, 1kHz            | 12          | nF   | ±10%                | 0.60        | ±0.15         | ±0.15  | 2.5%      |                  | (I)        |
|     | C2012X7R153KGTS | C2012X7R153KGT | 1V, 1kHz            | 15          | nF   | ±10%                | 0.60        | ±0.15         | ±0.15  | 2.5%      |                  | (I)        |
|     | C2012X7R183KGTS | C2012X7R183KGT | 1V, 1kHz            | 18          | nF   | ±10%                | 0.60        | ±0.15         | ±0.15  | 2.5%      |                  | (I)        |
|     | C2012X7R223KGTS | C2012X7R223KGT | 1V, 1kHz            | 22          | nF   | ±10%                | 0.60        | ±0.15         | ±0.15  | 2.5%      |                  | (I)        |
|     | C2012X7R273KGTS | C2012X7R273KGT | 1V, 1kHz            | 27          | nF   | ±10%                | 0.60        | ±0.15         | ±0.15  | 2.5%      |                  | (I)        |
|     | C2012X7R333KGTS | C2012X7R333KGT | 1V, 1kHz            | 33          | nF   | ±10%                | 0.60        | ±0.15         | ±0.15  | 2.5%      |                  | (I)        |
|     | C2012X7R393KGTS | C2012X7R393KGT | 1V, 1kHz            | 39          | nF   | ±10%                | 0.60        | ±0.15         | ±0.15  | 2.5%      |                  | (I)        |
|     | C2012X7R473KGTS | C2012X7R473KGT | 1V, 1kHz            | 47          | nF   | ±10%                | 0.60        | ±0.15         | ±0.15  | 2.5%      |                  | (I)        |
|     | C2012X7R563KGTS | C2012X7R563KGT | 1V, 1kHz            | 56          | nF   | ±10%                | 0.60        | ±0.15         | ±0.15  | 2.5%      |                  | (I)        |
|     | C2012X7R683KGTS | C2012X7R683KGT | 1V, 1kHz            | 68          | nF   | ±10%                | 0.60        | ±0.15         | ±0.15  | 2.5%      |                  | (I)        |
|     | C2012X7R823KGTS | C2012X7R823KGT | 1V, 1kHz            | 82          | nF   | ±10%                | 0.60        | ±0.15         | ±0.15  | 2.5%      |                  | (I)        |
|     | C2012X7R104KGTS | C2012X7R104KGT | 1V, 1kHz            | 100         | nF   | ±10%,±5%            | 0.80        | ±0.15         | ±0.10  | 2.5%      |                  | (I)        |
|     | C2012X7R124KGTS | C2012X7R124KGT | 1V, 1kHz            | 120         | nF   | ±10%                | 0.85        | ±0.15         | ±0.15  | 2.5%      |                  | (I)        |
|     | C2012X7R154KGTS | C2012X7R154KGT | 1V, 1kHz            | 150         | nF   | ±10%                | 0.85        | ±0.15         | ±0.15  | 2.5%      |                  | (I)        |
|     | C2012X7R184KGTS | C2012X7R184KGT | 1V, 1kHz            | 180         | nF   | ±10%                | 1.25        | ±0.15         | ±0.20  | 3.0%      |                  | (I)        |
|     | C2012X7R224KGTS | C2012X7R224KGT | 1V, 1kHz            | 220         | nF   | ±10%                | 0.85        | ±0.15         | ±0.15  | 3.0%      |                  | (I)        |
|     | C2012X7R224KGPS | C2012X7R224KGP | 1V, 1kHz            | 220         | nF   | ±10%                | 1.25        | ±0.15         | ±0.20  | 3.0%      |                  | (I)        |
|     | C2012X7R334KGPS | C2012X7R334KGP | 1V, 1kHz            | 330         | nF   | ±10%                | 1.25        | ±0.15         | ±0.20  | 3.0%      |                  | (I)        |
|     | C2012X7R474KGPS | C2012X7R474KGP | 1V, 1kHz            | 470         | nF   | ±10%                | 1.25        | ±0.15         | ±0.20  | 3.5%      |                  | (I)        |
|     | C2012X7R105KGPS | C2012X7R105KGP | 1V, 1kHz            | 1.0         | uF   | ±10%                | 1.25        | ±0.15         | ±0.20  | 10.0%     |                  | (II)       |
|     | C2012X7R225KGPS | C2012X7R225KGP | 1V, 1kHz            | 2.2         | uF   | ±10%                | 1.25        | ±0.20         | ±0.20  | 10.0%     |                  | (II)       |

MLCC  
General Purpose







- X7S Series
- C0603X7S Series (EIA0201)

| RV   | DARFON P/N      | DARFON P/N 2   | Measuring Condition | Capacitance |      | Available Tolerance | Thick. (mm) | Tolerance(mm) |        | DF (max.) | Standard Packing | Test Spec. |
|------|-----------------|----------------|---------------------|-------------|------|---------------------|-------------|---------------|--------|-----------|------------------|------------|
|      |                 |                |                     | Value       | Unit |                     |             | L/W           | Thick. |           |                  |            |
| 16V  | C0603X7S104□ETS | C0603X7S104□ET | 1V, 1kHz            | 100         | nF   | ±10%,±20%           | 0.30        | ± 0.03        | ±0.03  | 10.0%     | Paper, 15Kpcs    | (II)*      |
| 10V  | C0603X7S104KDTS | C0603X7S104KDT | 1V, 1kHz            | 100         | nF   | ±10%                | 0.30        | ± 0.03        | ±0.03  | 10.0%     | Paper, 15Kpcs    | (II)       |
| 6.3V | C0603X7S104KCTS | C0603X7S104KCT | 1V, 1kHz            | 100         | nF   | ±10%                | 0.30        | ± 0.03        | ±0.03  | 10.0%     | Paper, 15Kpcs    | (II)       |

- C1005X7S Series (EIA0402)

| RV   | DARFON P/N      | DARFON P/N 2   | Measuring Condition | Capacitance |      | Available Tolerance | Thick. (mm) | Tolerance(mm) |        | DF (max.) | Standard Packing | Test Spec. |
|------|-----------------|----------------|---------------------|-------------|------|---------------------|-------------|---------------|--------|-----------|------------------|------------|
|      |                 |                |                     | Value       | Unit |                     |             | L/W           | Thick. |           |                  |            |
| 10V  | C1005X7S105KDTS | C1005X7S105KDT | 1V, 1kHz            | 1.0         | uF   | ±10%                | 0.50        | ± 0.10        | ±0.10  | 10.0%     | Paper, 10Kpcs    | (II)       |
|      | C1005X7S225KDTS | C1005X7S225KDT | 1V, 1kHz            | 2.2         | uF   | ±10%                | 0.50        | ± 0.20        | ±0.20  | 10.0%     |                  | (II)       |
| 6.3V | C1005X7S225KCTS | C1005X7S225KCT | 1V, 1kHz            | 2.2         | uF   | ±10%                | 0.50        | ± 0.20        | ±0.20  | 10.0%     |                  | (II)       |

- C1608X7S Series (EIA0603)

| RV  | DARFON P/N      | DARFON P/N 2   | Measuring Condition | Capacitance |      | Available Tolerance | Thick. (mm) | Tolerance(mm) |        | DF (max.) | Standard Packing | Test Spec. |
|-----|-----------------|----------------|---------------------|-------------|------|---------------------|-------------|---------------|--------|-----------|------------------|------------|
|     |                 |                |                     | Value       | Unit |                     |             | L/W           | Thick. |           |                  |            |
| 16V | C1608X7S225KETS | C1608X7S225KET | 1V, 1kHz            | 2.2         | uF   | ±10%                | 0.80        | ± 0.20        | ±0.20  | 10.0%     | Paper, 4Kpcs     | (II)       |
|     | C1608X7S475KETS | C1608X7S475KET | 1V, 1kHz            | 4.7         | uF   | ±10%                | 0.80        | ± 0.20        | ±0.20  | 10.0%     |                  | (II)       |
| 10V | C1608X7S475KDTS | C1608X7S475KDT | 1V, 1kHz            | 4.7         | uF   | ±10%                | 0.80        | ± 0.15        | ±0.15  | 10.0%     |                  | (II)       |

- C2012X7S Series (EIA0805)

| RV  | DARFON P/N      | DARFON P/N 2   | Measuring Condition | Capacitance |      | Available Tolerance | Thick. (mm) | Tolerance(mm) |        | DF (max.) | Standard Packing | Test Spec. |
|-----|-----------------|----------------|---------------------|-------------|------|---------------------|-------------|---------------|--------|-----------|------------------|------------|
|     |                 |                |                     | Value       | Unit |                     |             | L/W           | Thick. |           |                  |            |
| 50V | C2012X7S475KGPS | C2012X7S475KGP | 1V, 1kHz            | 4.7         | uF   | ±10%                | 1.25        | ± 0.20        | ±0.20  | 10.0%     | Embossed, 3Kpcs  | (II)       |
| 25V | C2012X7S225KFPS | C2012X7S225KFP | 1V, 1kHz            | 2.2         | uF   | ±10%                | 1.25        | ± 0.15        | ±0.15  | 10.0%     |                  | (II)       |
|     | C2012X7S106□FPS | C2012X7S106□FP | 1V, 1kHz            | 10          | uF   | ±10%,±20%           | 1.25        | ± 0.20        | ±0.20  | 10.0%     |                  | (II)*      |

- C3225X7S Series (EIA1210)

| RV   | DARFON P/N      | DARFON P/N 2   | Measuring Condition | Capacitance |      | Available Tolerance | Thick. (mm) | Tolerance(mm) |        | DF (max.) | Standard Packing | Test Spec. |
|------|-----------------|----------------|---------------------|-------------|------|---------------------|-------------|---------------|--------|-----------|------------------|------------|
|      |                 |                |                     | Value       | Unit |                     |             | L/W           | Thick. |           |                  |            |
| 6.3V | C3225X7S107MCPS | C3225X7S107MCP | 0.5V, 100Hz         | 100         | uF   | ±20%                | 2.50        | ± 0.30        | ±0.30  | 10.0%     | Embossed,1Kpcs   | (II)*      |

□ Tolerance Code: K=±10%, M=±20%; Special tolerance on the request.

(II)\* High temperature load life test are applicable in rated voltage \*100%

■ X7T Series

● C1608X7T Series (EIA0603)

| RV   | DARFON P/N      | DARFON P/N 2   | Measuring Condition | Capacitance |      | Available Tolerance | Thick. (mm) | Tolerance(mm) |        | DF (max.) | Standard Packing | Test Spec. |
|------|-----------------|----------------|---------------------|-------------|------|---------------------|-------------|---------------|--------|-----------|------------------|------------|
|      |                 |                |                     | Value       | Unit |                     |             | L/W           | Thick. |           |                  |            |
| 6.3V | C1608X7T106MCTS | C1608X7T106MCT | 1V , 1kHz           | 10          | uF   | ±20%                | 0.80        | ± 0.20        | ±0.20  | 10.0%     | Paper, 4Kpcs     | (II)       |

● C2012X7T Series (EIA0805)

| RV   | DARFON P/N      | DARFON P/N 2   | Measuring Condition | Capacitance |      | Available Tolerance | Thick. (mm) | Tolerance(mm) |        | DF (max.) | Standard Packing | Test Spec. |
|------|-----------------|----------------|---------------------|-------------|------|---------------------|-------------|---------------|--------|-----------|------------------|------------|
|      |                 |                |                     | Value       | Unit |                     |             | L/W           | Thick. |           |                  |            |
| 10V  | C2012X7T226MDPS | C2012X7T226MDP | 0.5V , 120Hz        | 22          | uF   | ±20%                | 1.25        | ± 0.20        | ±0.20  | 10.0%     | Embossed, 3Kpcs  | (II)*      |
| 6.3V | C2012X7T226MCPS | C2012X7T226MCP | 0.5V , 120Hz        | 22          | uF   | ±20%                | 1.25        | ± 0.20        | ±0.20  | 10.0%     | Embossed, 3Kpcs  | (II)       |

□ Tolerance Code: K=±10%, M=±20%; Special tolerance on the request.

(II)\* High temperature load life test are applicable in rated voltage \*100%

- X7U Series
- C3216X7U Series (EIA1206)

| RV   | DARFON P/N      | DARFON P/N 2   | Measuring Condition | Capacitance |      | Available Tolerance | Thick. (mm) | Tolerance(mm) |        | DF (max.) | Standard Packing | Test Spec. |
|------|-----------------|----------------|---------------------|-------------|------|---------------------|-------------|---------------|--------|-----------|------------------|------------|
|      |                 |                |                     | Value       | Unit |                     |             | L/W           | Thick. |           |                  |            |
| 6.3V | C3216X7U476MCPS | C3216X7U476MCP | 0.5V , 120Hz        | 47          | uF   | ±20%                | 1.60        | ± 0.30        | ±0.30  | 15.0%     | Embossed, 2Kpcs  | (II)*      |
| 4V   | C3216X7U107MBPS | C3216X7U107MBP | 0.5V , 120Hz        | 100         | uF   | ±20%                | 1.60        | ± 0.30        | ±0.30  | 15.0%     | Embossed, 2Kpcs  | (II)*      |

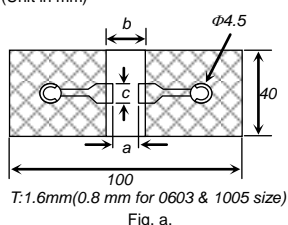
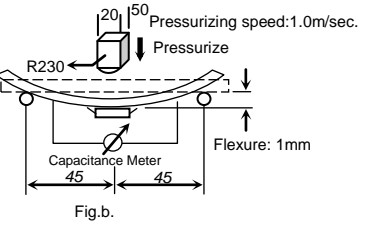
□ Tolerance Code: K=±10%, M=±20%; Special tolerance on the request.

(II)\* High temperature load life test are applicable in rated voltage \*100%





- Test Spec.
- General Purpose (I)

| Item | Specification                           |   | Test Method  |   |   |   |      |     |     |     |      |     |     |     |      |     |     |     |      |     |     |      |      |     |     |     |      |     |     |     |      |     |     |     |  |      |   |   |   |      |     |     |     |      |     |     |     |      |     |     |     |      |     |     |      |      |     |     |     |      |     |     |     |      |     |     |     |
|------|---|---|--|---|---|---|------|-----|-----|-----|------|-----|-----|-----|------|-----|-----|-----|------|-----|-----|------|------|-----|-----|-----|------|-----|-----|-----|------|-----|-----|-----|--|------|---|---|---|------|-----|-----|-----|------|-----|-----|-----|------|-----|-----|-----|------|-----|-----|------|------|-----|-----|-----|------|-----|-----|-----|------|-----|-----|-----|
|      | Temp. compensation type                 | High dielectric constant type   |  |   |   |   |      |     |     |     |      |     |     |     |      |     |     |     |      |     |     |      |      |     |     |     |      |     |     |     |      |     |     |     |  |      |   |   |   |      |     |     |     |      |     |     |     |      |     |     |     |      |     |     |      |      |     |     |     |      |     |     |     |      |     |     |     |
| 1    | Operation Temperature Range             | NP0: -55 to 125 °C<br>X5R: -55 to 85 °C<br>X6S: -55 to 105 °C<br>X7R/X7S/X7T/X7U<br>: -55 to 125 °C<br>Y5V: -30 to 85 °C  | ---  |   |   |   |      |     |     |     |      |     |     |     |      |     |     |     |      |     |     |      |      |     |     |     |      |     |     |     |      |     |     |     |  |      |   |   |   |      |     |     |     |      |     |     |     |      |     |     |     |      |     |     |      |      |     |     |     |      |     |     |     |      |     |     |     |
| 2    | Rated Voltage                           | Shown in the table of "Part Number & Characteristic"  | The rated voltage is defined as the maximum voltage, which may be applied continuously to the capacitor.   |   |   |   |      |     |     |     |      |     |     |     |      |     |     |     |      |     |     |      |      |     |     |     |      |     |     |     |      |     |     |     |  |      |   |   |   |      |     |     |     |      |     |     |     |      |     |     |     |      |     |     |      |      |     |     |     |      |     |     |     |      |     |     |     |
| 3    | Appearance                              | No defects or abnormalities.  | Visual inspection  |   |   |   |      |     |     |     |      |     |     |     |      |     |     |     |      |     |     |      |      |     |     |     |      |     |     |     |      |     |     |     |  |      |   |   |   |      |     |     |     |      |     |     |     |      |     |     |     |      |     |     |      |      |     |     |     |      |     |     |     |      |     |     |     |
| 4    | Dimensions                              | Within the specified dimension.   | Using calipers   |   |   |   |      |     |     |     |      |     |     |     |      |     |     |     |      |     |     |      |      |     |     |     |      |     |     |     |      |     |     |     |  |      |   |   |   |      |     |     |     |      |     |     |     |      |     |     |     |      |     |     |      |      |     |     |     |      |     |     |     |      |     |     |     |
| 5    | Dielectric Strength                     | No defects or abnormalities.  | No failure shall be observed when 250% of the rated voltage is applied between the terminations for 1 to 5 seconds. The charge and discharge current is less than 50mA.  |   |   |   |      |     |     |     |      |     |     |     |      |     |     |     |      |     |     |      |      |     |     |     |      |     |     |     |      |     |     |     |  |      |   |   |   |      |     |     |     |      |     |     |     |      |     |     |     |      |     |     |      |      |     |     |     |      |     |     |     |      |     |     |     |
| 6    | Insulation Resistance ( I.R.)           | To apply rated voltage.<br>I.R. $\geq 10G\Omega$ or $R_C R \geq 500\Omega \cdot F$ (whichever is smaller)   | The insulation resistance shall be measured with a DC voltage not exceeding the rated voltage at 25°C and 75%RH max, and within 1 minute of charging.  |   |   |   |      |     |     |     |      |     |     |     |      |     |     |     |      |     |     |      |      |     |     |     |      |     |     |     |      |     |     |     |  |      |   |   |   |      |     |     |     |      |     |     |     |      |     |     |     |      |     |     |      |      |     |     |     |      |     |     |     |      |     |     |     |
| 7    | Capacitance                             | Within the specified tolerance<br>* X5R, X6S, X7RS, X7S, X7T, X7U and Y5V at 1000 hours   | The capacitance / D.F. shall be measured at 25°C at the frequency and voltage shown in the table of "Part Number & Characteristic".  |   |   |   |      |     |     |     |      |     |     |     |      |     |     |     |      |     |     |      |      |     |     |     |      |     |     |     |      |     |     |     |  |      |   |   |   |      |     |     |     |      |     |     |     |      |     |     |     |      |     |     |      |      |     |     |     |      |     |     |     |      |     |     |     |
| 8    | Q/Dissipation Factor ( D.F.)            | NP0:<br>If $C \leq 30pF$ , $DF \leq 1/(400+20C)$ ,<br>C in pF<br>If $C > 30pF$ , $DF \leq 0.1\%$ .  | Shown in the table of "Part Number & Characteristic"   |   |   |   |      |     |     |     |      |     |     |     |      |     |     |     |      |     |     |      |      |     |     |     |      |     |     |     |      |     |     |     |  |      |   |   |   |      |     |     |     |      |     |     |     |      |     |     |     |      |     |     |      |      |     |     |     |      |     |     |     |      |     |     |     |
| 9    | Capacitance Temperature Characteristics | Capacitance change<br>NP0 within $0 \pm 30ppm/^\circ C$ under operating temperature range.<br>X5R/X7R within $\pm 15\%$<br>X6S/X7S within $\pm 22\%$<br>X7T: -33% to + 22%<br>X7U: -56% to + 22%<br>Y5V: -82 to + 22%   | 1. Temperature compensation type:<br>The capacitance value at 25°C and 85°C shall be measured and calculated from the formula given below.<br>$T.C. = (C_{85} - C_{25}) / C_{25} \cdot \Delta T \cdot 10^6 (PPM/^\circ C)$<br>2. High dielectric constant type:<br>The ranges of capacitance change compared with the 25°C value over the temperature ranges shall be within the specified ranges.   |   |   |   |      |     |     |     |      |     |     |     |      |     |     |     |      |     |     |      |      |     |     |     |      |     |     |     |      |     |     |     |  |      |   |   |   |      |     |     |     |      |     |     |     |      |     |     |     |      |     |     |      |      |     |     |     |      |     |     |     |      |     |     |     |
| 10   | Termination Strength                    | No removal of the terminations or marking defect.   | Apply a parallel force of 5N to a PCB mounted sample for $10 \pm 1$ sec.<br>*2N for 0603 (EIA 0201).   |   |   |   |      |     |     |     |      |     |     |     |      |     |     |     |      |     |     |      |      |     |     |     |      |     |     |     |      |     |     |     |  |      |   |   |   |      |     |     |     |      |     |     |     |      |     |     |     |      |     |     |      |      |     |     |     |      |     |     |     |      |     |     |     |
| 11   | Deflection (Bending Strength)           | No cracking or marking defects shall occur at 1mm deflection.<br>Capacitance change:<br>NP0: within $\pm 5\%$ or $\pm 0.5pF$ . (whichever is larger)<br>X5R, X6S, X7R, X7S, X7T, X7U: within $\pm 12.5\%$<br>Y5V: within $\pm 20\%$   | Solder the capacitor to the test jig (glass epoxy boards) shown in Fig.a using a SAC305(Sn96.5Ag3.0Cu0.5) solder (then let sit for $24 \pm 2$ hours for X5R, X6S, X7R, X7S, X7T, X7U and Y5V).<br>Then apply a force in the direction shown in Fig.b. The soldering shall be done with the reflow method and shall be conducted with care so that the soldering is uniform and free of defects such as heat shock.   |   |   |   |      |     |     |     |      |     |     |     |      |     |     |     |      |     |     |      |      |     |     |     |      |     |     |     |      |     |     |     |  |      |   |   |   |      |     |     |     |      |     |     |     |      |     |     |     |      |     |     |      |      |     |     |     |      |     |     |     |      |     |     |     |
|      |   | (Unit in mm)<br> <table border="1" data-bbox="774 1400 981 1590"> <thead> <tr> <th>Size</th> <th>a</th> <th>b</th> <th>C</th> </tr> </thead> <tbody> <tr> <td>0603</td> <td>0.3</td> <td>0.9</td> <td>0.3</td> </tr> <tr> <td>1005</td> <td>0.4</td> <td>1.5</td> <td>0.5</td> </tr> <tr> <td>1608</td> <td>1.0</td> <td>3.0</td> <td>1.2</td> </tr> <tr> <td>2012</td> <td>1.2</td> <td>4.0</td> <td>1.65</td> </tr> <tr> <td>3216</td> <td>2.2</td> <td>5.0</td> <td>2.0</td> </tr> <tr> <td>4520</td> <td>3.5</td> <td>7.0</td> <td>2.5</td> </tr> <tr> <td>4532</td> <td>3.5</td> <td>7.0</td> <td>3.7</td> </tr> </tbody> </table><br>T: 1.6mm (0.8 mm for 0603 & 1005 size)<br>Fig. a. | Size   | a | b | C | 0603 | 0.3 | 0.9 | 0.3 | 1005 | 0.4 | 1.5 | 0.5 | 1608 | 1.0 | 3.0 | 1.2 | 2012 | 1.2 | 4.0 | 1.65 | 3216 | 2.2 | 5.0 | 2.0 | 4520 | 3.5 | 7.0 | 2.5 | 4532 | 3.5 | 7.0 | 3.7 |  <table border="1" data-bbox="1013 1400 1220 1590"> <thead> <tr> <th>Size</th> <th>a</th> <th>b</th> <th>C</th> </tr> </thead> <tbody> <tr> <td>0603</td> <td>0.3</td> <td>0.9</td> <td>0.3</td> </tr> <tr> <td>1005</td> <td>0.4</td> <td>1.5</td> <td>0.5</td> </tr> <tr> <td>1608</td> <td>1.0</td> <td>3.0</td> <td>1.2</td> </tr> <tr> <td>2012</td> <td>1.2</td> <td>4.0</td> <td>1.65</td> </tr> <tr> <td>3216</td> <td>2.2</td> <td>5.0</td> <td>2.0</td> </tr> <tr> <td>4520</td> <td>3.5</td> <td>7.0</td> <td>2.5</td> </tr> <tr> <td>4532</td> <td>3.5</td> <td>7.0</td> <td>3.7</td> </tr> </tbody> </table><br>Fig. b. | Size | a | b | C | 0603 | 0.3 | 0.9 | 0.3 | 1005 | 0.4 | 1.5 | 0.5 | 1608 | 1.0 | 3.0 | 1.2 | 2012 | 1.2 | 4.0 | 1.65 | 3216 | 2.2 | 5.0 | 2.0 | 4520 | 3.5 | 7.0 | 2.5 | 4532 | 3.5 | 7.0 | 3.7 |
| Size | a                                       | b   | C  |   |   |   |      |     |     |     |      |     |     |     |      |     |     |     |      |     |     |      |      |     |     |     |      |     |     |     |      |     |     |     |  |      |   |   |   |      |     |     |     |      |     |     |     |      |     |     |     |      |     |     |      |      |     |     |     |      |     |     |     |      |     |     |     |
| 0603 | 0.3                                     | 0.9   | 0.3  |   |   |   |      |     |     |     |      |     |     |     |      |     |     |     |      |     |     |      |      |     |     |     |      |     |     |     |      |     |     |     |  |      |   |   |   |      |     |     |     |      |     |     |     |      |     |     |     |      |     |     |      |      |     |     |     |      |     |     |     |      |     |     |     |
| 1005 | 0.4                                     | 1.5   | 0.5  |   |   |   |      |     |     |     |      |     |     |     |      |     |     |     |      |     |     |      |      |     |     |     |      |     |     |     |      |     |     |     |  |      |   |   |   |      |     |     |     |      |     |     |     |      |     |     |     |      |     |     |      |      |     |     |     |      |     |     |     |      |     |     |     |
| 1608 | 1.0                                     | 3.0   | 1.2  |   |   |   |      |     |     |     |      |     |     |     |      |     |     |     |      |     |     |      |      |     |     |     |      |     |     |     |      |     |     |     |  |      |   |   |   |      |     |     |     |      |     |     |     |      |     |     |     |      |     |     |      |      |     |     |     |      |     |     |     |      |     |     |     |
| 2012 | 1.2                                     | 4.0   | 1.65   |   |   |   |      |     |     |     |      |     |     |     |      |     |     |     |      |     |     |      |      |     |     |     |      |     |     |     |      |     |     |     |  |      |   |   |   |      |     |     |     |      |     |     |     |      |     |     |     |      |     |     |      |      |     |     |     |      |     |     |     |      |     |     |     |
| 3216 | 2.2                                     | 5.0   | 2.0  |   |   |   |      |     |     |     |      |     |     |     |      |     |     |     |      |     |     |      |      |     |     |     |      |     |     |     |      |     |     |     |  |      |   |   |   |      |     |     |     |      |     |     |     |      |     |     |     |      |     |     |      |      |     |     |     |      |     |     |     |      |     |     |     |
| 4520 | 3.5                                     | 7.0   | 2.5  |   |   |   |      |     |     |     |      |     |     |     |      |     |     |     |      |     |     |      |      |     |     |     |      |     |     |     |      |     |     |     |  |      |   |   |   |      |     |     |     |      |     |     |     |      |     |     |     |      |     |     |      |      |     |     |     |      |     |     |     |      |     |     |     |
| 4532 | 3.5                                     | 7.0   | 3.7  |   |   |   |      |     |     |     |      |     |     |     |      |     |     |     |      |     |     |      |      |     |     |     |      |     |     |     |      |     |     |     |  |      |   |   |   |      |     |     |     |      |     |     |     |      |     |     |     |      |     |     |      |      |     |     |     |      |     |     |     |      |     |     |     |
| Size | a                                       | b   | C  |   |   |   |      |     |     |     |      |     |     |     |      |     |     |     |      |     |     |      |      |     |     |     |      |     |     |     |      |     |     |     |  |      |   |   |   |      |     |     |     |      |     |     |     |      |     |     |     |      |     |     |      |      |     |     |     |      |     |     |     |      |     |     |     |
| 0603 | 0.3                                     | 0.9   | 0.3  |   |   |   |      |     |     |     |      |     |     |     |      |     |     |     |      |     |     |      |      |     |     |     |      |     |     |     |      |     |     |     |  |      |   |   |   |      |     |     |     |      |     |     |     |      |     |     |     |      |     |     |      |      |     |     |     |      |     |     |     |      |     |     |     |
| 1005 | 0.4                                     | 1.5   | 0.5  |   |   |   |      |     |     |     |      |     |     |     |      |     |     |     |      |     |     |      |      |     |     |     |      |     |     |     |      |     |     |     |  |      |   |   |   |      |     |     |     |      |     |     |     |      |     |     |     |      |     |     |      |      |     |     |     |      |     |     |     |      |     |     |     |
| 1608 | 1.0                                     | 3.0   | 1.2  |   |   |   |      |     |     |     |      |     |     |     |      |     |     |     |      |     |     |      |      |     |     |     |      |     |     |     |      |     |     |     |  |      |   |   |   |      |     |     |     |      |     |     |     |      |     |     |     |      |     |     |      |      |     |     |     |      |     |     |     |      |     |     |     |
| 2012 | 1.2                                     | 4.0   | 1.65   |   |   |   |      |     |     |     |      |     |     |     |      |     |     |     |      |     |     |      |      |     |     |     |      |     |     |     |      |     |     |     |  |      |   |   |   |      |     |     |     |      |     |     |     |      |     |     |     |      |     |     |      |      |     |     |     |      |     |     |     |      |     |     |     |
| 3216 | 2.2                                     | 5.0   | 2.0  |   |   |   |      |     |     |     |      |     |     |     |      |     |     |     |      |     |     |      |      |     |     |     |      |     |     |     |      |     |     |     |  |      |   |   |   |      |     |     |     |      |     |     |     |      |     |     |     |      |     |     |      |      |     |     |     |      |     |     |     |      |     |     |     |
| 4520 | 3.5                                     | 7.0   | 2.5  |   |   |   |      |     |     |     |      |     |     |     |      |     |     |     |      |     |     |      |      |     |     |     |      |     |     |     |      |     |     |     |  |      |   |   |   |      |     |     |     |      |     |     |     |      |     |     |     |      |     |     |      |      |     |     |     |      |     |     |     |      |     |     |     |
| 4532 | 3.5                                     | 7.0   | 3.7  |   |   |   |      |     |     |     |      |     |     |     |      |     |     |     |      |     |     |      |      |     |     |     |      |     |     |     |      |     |     |     |  |      |   |   |   |      |     |     |     |      |     |     |     |      |     |     |     |      |     |     |      |      |     |     |     |      |     |     |     |      |     |     |     |
| 12   | Solderability of Termination            | 90% of the terminations are to be soldered evenly and continuously.   | Immerse the test capacitor into a methanol solution containing rosin for 3 to 5 seconds, preheat it 150 to 180°C for 2 to 3 minutes and immerse it into SAC305(Sn96.5Ag3.0Cu0.5) solder of $245 \pm 5^\circ C$ for $3 \pm 1$ seconds.  |   |   |   |      |     |     |     |      |     |     |     |      |     |     |     |      |     |     |      |      |     |     |     |      |     |     |     |      |     |     |     |  |      |   |   |   |      |     |     |     |      |     |     |     |      |     |     |     |      |     |     |      |      |     |     |     |      |     |     |     |      |     |     |     |
| 13   | Resistance to Soldering Heat            | Appearance<br>No marking defects<br>Cap. Change<br>NP0 within $\pm 2.5\%$ or 0.25pF (whichever is larger)<br>X5R/X6S/X7R/X7S/X7T/X7U within $\pm 7.5\%$<br>Y5V within $\pm 20\%$<br>Q/D.F.<br>If $C \leq 30pF$ , $DF \leq 1/(400+20C)$<br>If $C > 30pF$ , $DF \leq 0.1\%$<br>I.R.<br>I.R. $\geq 10,000M\Omega$ or $R_C R \geq 500\Omega \cdot F$ (whichever is smaller)   | To satisfy the specified initial spec.<br>I.R. $\geq 10,000M\Omega$ or $R_C R \geq 500\Omega \cdot F$ (whichever is smaller)   |   |   |   |      |     |     |     |      |     |     |     |      |     |     |     |      |     |     |      |      |     |     |     |      |     |     |     |      |     |     |     |  |      |   |   |   |      |     |     |     |      |     |     |     |      |     |     |     |      |     |     |      |      |     |     |     |      |     |     |     |      |     |     |     |
|      |   |   | *Preheat the capacitor at 120 to 150°C for 1 minute.<br>Immerse the capacitor in a SAC305(Sn96.5Ag3.0Cu0.5) solder solution at $270 \pm 5^\circ C$ for $10 \pm 1$ seconds. Let sit at room temperature for $24 \pm 2$ hours, then measure.<br>* Preheat 150 to 200°C for size $\geq 3216$ .<br>*High dielectric constant type:<br>Initial measurement : perform a heat treatment at $150 \pm 0/-10^\circ C$ for one hour and then let sit for $24 \pm 2$ hours at room temperature. Perform the initial measurement. |   |   |   |      |     |     |     |      |     |     |     |      |     |     |     |      |     |     |      |      |     |     |     |      |     |     |     |      |     |     |     |  |      |   |   |   |      |     |     |     |      |     |     |     |      |     |     |     |      |     |     |      |      |     |     |     |      |     |     |     |      |     |     |     |

|    | Item                                 | Specification           |   | Test Method  |  |
|----|--------------------------------------|-------------------------|---|--|--|
|    |                                      | Temp. compensation type | High dielectric constant type   |  |  |
| 14 | Temperature cycle<br>(Thermal shock) | Appearance              | No marking defects  |  | Solder the capacitor to supporting jig (Glass epoxy board) and perform the five cycles according to the four heat treatments listed in the following table. Let sit for 24±2hrs at room temperature, then measure.<br>Step 1: Minimum operating temperature 30±3min<br>Step 2: Room temperature 2~3 min<br>Step 3: Maximum operating temperature 30±3min<br>Step 4: Room temperature 2~3min<br>*High dielectric constant type:<br>Initial measurement: perform a heat treatment at 150±10°C for one hour and then let sit for 24±2 hours at room temp. Perform the initial measurement.          |
|    |                                      | Cap. Change             | NPO within ±2.5% or 0.25pF ( whichever is larger )  | X5R/X6S/X7R/X7S/X7T within ±7.5%<br>X7U within ±30%<br>Y5V within ±20%             |  |
|    |                                      | Q/D.F.                  | If C ≤ 30pF, DF ≤ 1/(400+20C)<br>If C > 30pF, DF ≤ 0.1%   | To satisfy the specified initial spec.   |  |
|    |                                      | I.R.                    | I.R. ≥ 10GΩ or R <sub>C</sub> R ≥ 500Ω-F.<br>(whichever is smaller)   | I.R. ≥ 10GΩ or R <sub>C</sub> R ≥ 500Ω-F.<br>(whichever is smaller)                |  |
| 15 | Humidity load                        | Appearance              | No marking defects  |  | Apply the rated voltage at 40±2°C and 90 to 95% humidity for 500±12 hours. The charge / discharge current is less than 50mA.<br>[Temperature compensation type]<br>Remove and let sit for 24±2 hours at room temperature, then measure.<br>[High dielectric constant type]<br>*Initial measurement<br>Perform a heat treatment at 150+0/-10°C for one hour and then let sit for 24±2 hours at room temperature.<br>Perform the initial measurement.<br>*Measurement after test<br>Perform a heat treatment and then let sit for 24±2 hours at room temperature, then measure.                    |
|    |                                      | Cap. Change             | NPO within ±7.5% or 0.75pF ( whichever is larger )  | X5R/X6S/X7R/X7S/X7T/X7U within ±12.5%<br>Y5V within ±30%                           |  |
|    |                                      | Q/D.F.                  | If C > 30pF, DF ≤ 0.5%<br>If C ≤ 30pF, DF ≤ 1/(100+10xC/3)<br>C in pF   | X5R/X6S/X7R/X7S/X7T/X7U 200% max of initial spec.<br>Y5V 150% max of initial spec. |  |
|    |                                      | I.R.                    | I.R. ≥ 500MΩ or R <sub>C</sub> R ≥ 25Ω-F.<br>(whichever is smaller)   | I.R. ≥ 500MΩ or R <sub>C</sub> R ≥ 25Ω-F.<br>(whichever is smaller)                |  |
| 16 | High temperature load life test      | Appearance              | No marking defects  |  | Apply 200% of the rated voltage for 1000±12 hours at the maximum operating temperature ± 3°C. The charge / discharge current is less than 50mA.<br>[Temperature compensation type]<br>Remove and let sit for 24±2 hours at room temperature, then measure.<br>[High dielectric constant type]<br>*Initial measurement<br>Perform a heat treatment at 150+0/-10°C for one hour and then let sit for 24±2 hours at room temperature.<br>Perform the initial measurement.<br>*Measurement after test<br>Perform a heat treatment and then let sit for 24±2 hours at room temperature, then measure. |
|    |                                      | Cap. Change             | NPO within ±7.5% or 0.75pF ( whichever is larger )  | X5R/X6S/X7R/X7S/X7T/X7U within ±12.5%<br>Y5V within ±30%                           |  |
|    |                                      | Q/D.F.                  | If C > 30pF, DF ≤ 0.3%<br>If 10pF < C ≤ 30pF, DF ≤ 1/(275+5xC/2)<br>If C ≤ 10pF, DF ≤ 1/(200+10C),<br>C in pF | X5R/X6S/X7R/X7S/X7T/X7U 200% max of initial spec.<br>Y5V 150% max of initial spec. |  |
|    |                                      | I.R.                    | More than 1GΩ or R <sub>C</sub> R ≥ 50Ω-F (whichever is less.)  | More than 1GΩ or R <sub>C</sub> R ≥ 50Ω-F (whichever is less.)                     |  |



● General Purpose (II)

| Item | Specification  | Test Method  |      |   |   |      |     |     |     |      |     |     |     |      |     |     |     |      |     |     |      |      |     |     |     |      |     |     |     |      |     |     |     |  |
|------|--|--|------|---|---|------|-----|-----|-----|------|-----|-----|-----|------|-----|-----|-----|------|-----|-----|------|------|-----|-----|-----|------|-----|-----|-----|------|-----|-----|-----|--|
| 1    | <b>Operation Temperature Range</b><br>X5R: -55 to 85 °C<br>X6S: -55 to 105 °C<br>X7R/X7S/X7T/X7U: -55 to 125 °C<br>Y5V: -30 to 85 °C   | ---  |      |   |   |      |     |     |     |      |     |     |     |      |     |     |     |      |     |     |      |      |     |     |     |      |     |     |     |      |     |     |     |  |
| 2    | <b>Rated Voltage</b>   | Shown in the table of "Part Number & Characteristic"   |      |   |   |      |     |     |     |      |     |     |     |      |     |     |     |      |     |     |      |      |     |     |     |      |     |     |     |      |     |     |     |  |
| 3    | <b>Appearance</b>  | No defects or abnormalities.   |      |   |   |      |     |     |     |      |     |     |     |      |     |     |     |      |     |     |      |      |     |     |     |      |     |     |     |      |     |     |     |  |
| 4    | <b>Dimensions</b>  | Within the specified dimension.  |      |   |   |      |     |     |     |      |     |     |     |      |     |     |     |      |     |     |      |      |     |     |     |      |     |     |     |      |     |     |     |  |
| 5    | <b>Dielectric Strength</b>   | No defects or abnormalities.   |      |   |   |      |     |     |     |      |     |     |     |      |     |     |     |      |     |     |      |      |     |     |     |      |     |     |     |      |     |     |     |  |
| 6    | <b>Insulation Resistance ( I.R.)</b>   | No failure shall be observed when 250% of the rated voltage is applied between the terminations for 1 to 5 seconds. The charge and discharge current is less than 50mA.  |      |   |   |      |     |     |     |      |     |     |     |      |     |     |     |      |     |     |      |      |     |     |     |      |     |     |     |      |     |     |     |  |
| 7    | <b>Capacitance</b>   | The insulation resistance shall be measured with a DC voltage not exceeding the rated voltage at 25°C and 75%RH max, and within 1 minute of charging, provided the charge/discharge current is less than 50 mA.  |      |   |   |      |     |     |     |      |     |     |     |      |     |     |     |      |     |     |      |      |     |     |     |      |     |     |     |      |     |     |     |  |
| 8    | <b>Q/Dissipation Factor ( D.F.)</b>  | The capacitance / D.F. shall be measured at 25°C at the frequency and voltage shown in the table of "Part Number & Characteristic".  |      |   |   |      |     |     |     |      |     |     |     |      |     |     |     |      |     |     |      |      |     |     |     |      |     |     |     |      |     |     |     |  |
| 9    | <b>Capacitance Temperature Characteristics</b>   | Shown in the table of "Part Number & Characteristic"   |      |   |   |      |     |     |     |      |     |     |     |      |     |     |     |      |     |     |      |      |     |     |     |      |     |     |     |      |     |     |     |  |
| 10   | <b>Termination Strength</b>  | Capacitance change<br>X5R/X7R within ±15% , X6S/X7S within ±22%<br>X7U: -56% to + 22%<br>X7T: -33% to + 22%<br>Y5V: -82% to + 22%  |      |   |   |      |     |     |     |      |     |     |     |      |     |     |     |      |     |     |      |      |     |     |     |      |     |     |     |      |     |     |     |  |
| 11   | <b>Deflection (Bending Strength)</b>   | No removal of the terminations or marking defect.<br>Apply a parallel force of 5N to a PCB mounted sample for 10±1sec. *2N for 0603 (EIA 0201).  |      |   |   |      |     |     |     |      |     |     |     |      |     |     |     |      |     |     |      |      |     |     |     |      |     |     |     |      |     |     |     |  |
| 12   | <b>Solderability of Termination</b>  | No cracking or marking defects shall occur at 1mm deflection.<br>Capacitance change:<br>X5R, X6S, X7R, X7S, X7T, X7U :within ±12.5%<br>Y5V: within±20%   |      |   |   |      |     |     |     |      |     |     |     |      |     |     |     |      |     |     |      |      |     |     |     |      |     |     |     |      |     |     |     |  |
| 13   | <b>Resistance to Soldering Heat</b>  | Solder the capacitor to the test jig (glass epoxy boards) shown in Fig.a using a SAC305(Sn96.5Ag3.0Cu0.5) solder (then let sit for 24±2 hours for X5R, X6S, X7R, X7S, X7T, X7U and Y5V).<br>Then apply a force in the direction shown in Fig.b. The soldering shall be done with the reflow method and shall be conducted with care so that the soldering is uniform and free of defects such as heat shock.                       |      |   |   |      |     |     |     |      |     |     |     |      |     |     |     |      |     |     |      |      |     |     |     |      |     |     |     |      |     |     |     |  |
|      | (Unit in mm)<br> <table border="1" data-bbox="774 1176 981 1355"> <thead> <tr> <th>Size</th> <th>a</th> <th>b</th> <th>C</th> </tr> </thead> <tbody> <tr> <td>0603</td> <td>0.3</td> <td>0.9</td> <td>0.3</td> </tr> <tr> <td>1005</td> <td>0.4</td> <td>1.5</td> <td>0.5</td> </tr> <tr> <td>1608</td> <td>1.0</td> <td>3.0</td> <td>1.2</td> </tr> <tr> <td>2012</td> <td>1.2</td> <td>4.0</td> <td>1.65</td> </tr> <tr> <td>3216</td> <td>2.2</td> <td>5.0</td> <td>2.0</td> </tr> <tr> <td>4520</td> <td>3.5</td> <td>7.0</td> <td>2.5</td> </tr> <tr> <td>4532</td> <td>3.5</td> <td>7.0</td> <td>3.7</td> </tr> </tbody> </table>  | Size   | a    | b | C | 0603 | 0.3 | 0.9 | 0.3 | 1005 | 0.4 | 1.5 | 0.5 | 1608 | 1.0 | 3.0 | 1.2 | 2012 | 1.2 | 4.0 | 1.65 | 3216 | 2.2 | 5.0 | 2.0 | 4520 | 3.5 | 7.0 | 2.5 | 4532 | 3.5 | 7.0 | 3.7 |  |
| Size | a  | b  | C    |   |   |      |     |     |     |      |     |     |     |      |     |     |     |      |     |     |      |      |     |     |     |      |     |     |     |      |     |     |     |  |
| 0603 | 0.3  | 0.9  | 0.3  |   |   |      |     |     |     |      |     |     |     |      |     |     |     |      |     |     |      |      |     |     |     |      |     |     |     |      |     |     |     |  |
| 1005 | 0.4  | 1.5  | 0.5  |   |   |      |     |     |     |      |     |     |     |      |     |     |     |      |     |     |      |      |     |     |     |      |     |     |     |      |     |     |     |  |
| 1608 | 1.0  | 3.0  | 1.2  |   |   |      |     |     |     |      |     |     |     |      |     |     |     |      |     |     |      |      |     |     |     |      |     |     |     |      |     |     |     |  |
| 2012 | 1.2  | 4.0  | 1.65 |   |   |      |     |     |     |      |     |     |     |      |     |     |     |      |     |     |      |      |     |     |     |      |     |     |     |      |     |     |     |  |
| 3216 | 2.2  | 5.0  | 2.0  |   |   |      |     |     |     |      |     |     |     |      |     |     |     |      |     |     |      |      |     |     |     |      |     |     |     |      |     |     |     |  |
| 4520 | 3.5  | 7.0  | 2.5  |   |   |      |     |     |     |      |     |     |     |      |     |     |     |      |     |     |      |      |     |     |     |      |     |     |     |      |     |     |     |  |
| 4532 | 3.5  | 7.0  | 3.7  |   |   |      |     |     |     |      |     |     |     |      |     |     |     |      |     |     |      |      |     |     |     |      |     |     |     |      |     |     |     |  |
|      | <b>Appearance</b>  | No marking defects   |      |   |   |      |     |     |     |      |     |     |     |      |     |     |     |      |     |     |      |      |     |     |     |      |     |     |     |      |     |     |     |  |
|      | <b>Cap. Change</b>   | X5R/X6S/X7R/X7S/X7T/X7U within ±7.5%<br>Y5V within ±20%  |      |   |   |      |     |     |     |      |     |     |     |      |     |     |     |      |     |     |      |      |     |     |     |      |     |     |     |      |     |     |     |  |
|      | <b>D.F.</b>  | To satisfy the specified initial spec.   |      |   |   |      |     |     |     |      |     |     |     |      |     |     |     |      |     |     |      |      |     |     |     |      |     |     |     |      |     |     |     |  |
|      | <b>I.R.</b>  | R <sub>C</sub> R ≥ 50Ω-F.  |      |   |   |      |     |     |     |      |     |     |     |      |     |     |     |      |     |     |      |      |     |     |     |      |     |     |     |      |     |     |     |  |
|      |  | *Preheat the capacitor at 120 to 150°C for 1 minute.<br>Immerse the capacitor in a SAC305(Sn96.5Ag3.0Cu0.5) solder solution at 270±5°C for 10±1 seconds. Let sit at room temperature for 24±2 hours, then measure.<br>* Preheat 150 to 200°C for size ≥3216.<br>* Initial measurement : perform a heat treatment at 150+0/-10°C for one hour and then let sit for 24±2 hours at room temperature. Perform the initial measurement. |      |   |   |      |     |     |     |      |     |     |     |      |     |     |     |      |     |     |      |      |     |     |     |      |     |     |     |      |     |     |     |  |

| Item |                                      | Specification | Test Method   |
|------|--------------------------------------|---------------|---|
| 14   | Temperature cycle<br>(Thermal shock) | Appearance    | Solder the capacitor to supporting jig (Glass epoxy board) and perform the five cycles according to the four heat treatments listed in the following table.<br>Let sit for 24±2hrs at room temperature, then measure.<br>Step 1: Minimum operating temperature      30±3min<br>Step 2: Room temperature                              2-3 min<br>Step 3: Maximum operating temperature      30±3min<br>Step 4: Room temperature                              2-3min<br>* Initial measurement: perform a heat treatment at 150±10°C for one hour and then let sit for 24±2 hours at room temp. Perform the initial measurement. |
|      |                                      | Cap. Change   |   |
|      |                                      | Q/D.F.        |   |
|      |                                      | I.R.          |   |
| 15   | Humidity load                        | Appearance    | Apply the rated voltage at 40±2°C and 90 to 95% humidity for 500±12 hours. The charge / discharge current is less than 50mA.<br><br>*Initial measurement<br>Perform a heat treatment at 150+0/-10°C for one hour and then let sit for 24±2 hours at room temperature.<br>Perform the initial measurement.<br>*Measurement after test<br>Perform a heat treatment and then let sit for 24±2 hours at room temperature, then measure.   |
|      |                                      | Cap. Change   |   |
|      |                                      | Q/D.F.        |   |
|      |                                      | I.R.          |   |
| 16   | High temperature<br>load life test   | Appearance    | Apply 150% of the rated voltage for 1000±12 hours at the maximum operating temperature ± 3°C. The charge / discharge current is less than 50mA.<br><br>*Initial measurement<br>Perform a heat treatment at 150+0/-10°C for one hour and then let sit for 24±2 hours at room temperature.<br>Perform the initial measurement.<br>*Measurement after test<br>Perform a heat treatment and then let sit for 24±2 hours at room temperature, then measure.<br>* Some of the parts are applicable in rated voltage *100%. Please refer to "Part Number & Characteristic" with (II)* labeled in "Test Spec."                        |
|      |                                      | Cap. Change   |   |
|      |                                      | D.F.          |   |
|      |                                      | I.R.          |   |

## Package

- Tape and reel packaging**

Tape and reel packaging is currently the most promising system for high-speed production. A typical 180mm (7 inch) diameter reel contains 1,500 to 15,000 capacitors, 250mm (10 inch) contains 10,000 capacitors, and 330mm (13 inch) contains 10,000 to 50,000 capacitors. Three standard sizes are available in taped and reeled package either with paper carrier tapes or embossed tapes.

### 【Paper tape specifications】



| SYMBOL | PRODUCT SIZE CODE |        |                      |        |                         |        |                         |        |                         |        | UNIT |
|--------|-------------------|--------|----------------------|--------|-------------------------|--------|-------------------------|--------|-------------------------|--------|------|
|        | C0603(0201)       |        | C1005(0402) Standard |        | C1005(0402) Special (1) |        | C1005(0402) Special (2) |        | C1005(0402) Special (3) |        |      |
|        | SIZE              | TOL.   | SIZE                 | TOL.   | SIZE                    | TOL.   | SIZE                    | TOL.   | SIZE                    | TOL.   |      |
| A      | 0.38              | ± 0.04 | 0.65                 | ± 0.10 | 0.70                    | ± 0.10 | 0.72                    | ± 0.10 | 0.80                    | ± 0.10 | mm   |
| B      | 0.68              | ± 0.04 | 1.15                 | ± 0.10 | 1.19                    | ± 0.10 | 1.25                    | ± 0.10 | 1.35                    | ± 0.10 | mm   |
| F      | 3.5               | ± 0.05 | 3.5                  | ± 0.05 | 3.5                     | ± 0.05 | 3.5                     | ± 0.05 | 3.5                     | ± 0.05 | mm   |
| P      | 2                 | ± 0.10 | 2                    | ± 0.10 | 2                       | ± 0.10 | 2                       | ± 0.10 | 2                       | ± 0.10 | mm   |
| W      | 8                 | ± 0.20 | 8                    | ± 0.20 | 8                       | ± 0.20 | 8                       | ± 0.20 | 8                       | ± 0.20 | mm   |

| SYMBOL | PRODUCT SIZE CODE (EIA) |       |                          |       |                            |       |              |       |              |       | UNIT |
|--------|-------------------------|-------|--------------------------|-------|----------------------------|-------|--------------|-------|--------------|-------|------|
|        | C1608(0603) Standard    |       | C1608 (0603) Special (1) |       | C1608 (0603) Special (2/3) |       | C2012 (0805) |       | C3216 (1206) |       |      |
|        | SIZE                    | TOL.  | SIZE                     | TOL.  | SIZE                       | TOL.  | SIZE         | TOL.  | SIZE         | TOL.  |      |
| A      | 1.0                     | ±0.2  | 1.0                      | ±0.2  | 1.1                        | ±0.2  | 1.5          | ±0.2  | 1.9          | ±0.2  | mm   |
| B      | 1.8                     | ±0.2  | 1.8                      | ±0.2  | 1.9                        | ±0.2  | 2.3          | ±0.2  | 3.6          | ±0.2  | mm   |
| F      | 3.5                     | ±0.05 | 3.5                      | ±0.05 | 3.5                        | ±0.05 | 3.5          | ±0.05 | 3.5          | ±0.05 | mm   |
| P      | 4                       | ±0.1  | 4                        | ±0.1  | 4                          | ±0.1  | 4            | ±0.1  | 4            | ±0.1  | mm   |
| W      | 8                       | ±0.2  | 8                        | ±0.2  | 8                          | ±0.2  | 8            | ±0.2  | 8            | ±0.2  | mm   |

**【 Embossed tape specifications 】**

1mm and 4mm and 8mm pitch tape



For  $W=8\text{mm}$ :  $T_1=2.5\text{mm max.}$

For  $W=12\text{mm}$ :  $T_1=4.5\text{mm}$

| DIMENSION<br>(mm) | PRODUCT SIZE CODE  |                    |                    |                    |                    |                    |
|-------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
|                   | 4 mm tape          |                    |                    |                    | 8 mm tape          |                    |
|                   | 1608<br>(0603)     | 2012<br>(0805)     | 3216<br>(1206)     | 3225<br>(1210)     | 4520<br>(1808)     | 4532<br>(1812)     |
| $P_1$             | $4\pm 0.1$         | $4\pm 0.1$         | $4\pm 0.1$         | $4\pm 0.1$         | $8\pm 0.1$         | $8\pm 0.1$         |
| $P_0$             | $4\pm 0.1$         | $4\pm 0.1$         | $4\pm 0.1$         | $4\pm 0.1$         | $4\pm 0.1$         | $4\pm 0.1$         |
| $P_2$             | $2\pm 0.05$        | $2\pm 0.05$        | $2\pm 0.05$        | $2\pm 0.05$        | $2\pm 0.05$        | $2\pm 0.05$        |
| $A$               | $1.2\pm 0.2$       | $1.45\pm 0.2$      | $1.9\pm 0.2$       | $2.8\pm 0.2$       | $2.3\pm 0.2$       | $3.6\pm 0.2$       |
| $B$               | $2.0\pm 0.2$       | $2.3\pm 0.2$       | $3.5\pm 0.2$       | $3.6\pm 0.2$       | $4.9\pm 0.2$       | $4.9\pm 0.2$       |
| $W$               | $8\pm 0.3$         | $8\pm 0.2$         | $8\pm 0.2$         | $8\pm 0.2$         | $12\pm 0.2$        | $12\pm 0.2$        |
| $E$               | $1.75\pm 0.1$      | $1.75\pm 0.1$      | $1.75\pm 0.1$      | $1.75\pm 0.1$      | $1.75\pm 0.1$      | $1.75\pm 0.1$      |
| $F$               | $3.5\pm 0.05$      | $3.5\pm 0.05$      | $3.5\pm 0.05$      | $3.5\pm 0.05$      | $5.5\pm 0.05$      | $5.5\pm 0.05$      |
| $D$               | 1.5<br>(+0.1/-0.0) | 1.5<br>(+0.1/-0.0) | 1.5<br>(+0.1/-0.0) | 1.5<br>(+0.1/-0.0) | 1.5<br>(+0.1/-0.0) | 1.5<br>(+0.1/-0.0) |
| $T_1$             | 1.4 max.           | 2.5 max.           | 2.5 max.           | 2.5 max.           | 4.5                | 4.5                |
| $T_2$             | $0.25\pm 0.1$      | $0.305\pm 0.1$     | $0.30\pm 0.1$      | $0.30\pm 0.1$      | $0.30\pm 0.1$      | $0.30\pm 0.1$      |

**【Reel specifications】**



| TAPE WIDTH (mm) | G (mm)         | T max. (mm) | D (mm) |
|-----------------|----------------|-------------|--------|
| 4               | $5.0 \pm 1.5$  | 8.0         | 180    |
| 8               | $10.0 \pm 1.5$ | 14.5        | 180    |
| 8               | $10.0 \pm 1.5$ | 14.5        | 250    |
| 8               | $10.0 \pm 1.5$ | 14.5        | 330    |
| 12              | $14.0 \pm 1.5$ | 18.5        | 180    |

MLCC

**【Thickness and Packing Amount】**

| Thickness |           |              | Amount per reel |                   |              |          |
|-----------|-----------|--------------|-----------------|-------------------|--------------|----------|
| Code      | Spec.(mm) | Size (EIA)   | 180 mm (7")     |                   | 330 mm (13") |          |
|           |           |              | Paper           | Embossed          | Paper        | Embossed |
| Z         | 0.20      | 0402 (01005) | 20K             | 40K <sup>#1</sup> |              |          |
| A         | 0.30      | 0603 (0201)  | 15K             |                   | 50K          |          |
|           |           | 1005 (0402)  | 15K             |                   | 50K          |          |
| B         | 0.50      | 1005 (0402)  | 10K             |                   | 50K          |          |
| Q         | 0.45      | 1005 (0402)  | 10K             |                   | 50K          |          |
|           |           | 1608 (0603)  | 4K              |                   | 15K          |          |
| C         | 0.60      | 2012 (0805)  | 4K              |                   | 15K          |          |
|           |           | 3216 (1206)  | 4K              |                   | 15K          |          |
| D         | 0.80      | 1608 (0603)  | 4K              | 4K                | 15K          |          |
| E         | 0.85      | 2012 (0805)  | 4K              |                   | 15K          |          |
|           |           | 3216 (1206)  | 4K              |                   | 15K          |          |
|           |           | 3225 (1210)  |                 | 3K                |              | 10K      |
| I         | 0.95      | 4532 (1812)  |                 | 1K                |              |          |
|           |           | 2012 (0805)  |                 | 3K                |              |          |
| F         | 1.15      | 3216 (1206)  |                 | 3K                |              |          |
|           |           | 4520 (1808)  |                 | 3K                |              | 10K      |
| G         | 1.25      | 3216 (1206)  |                 | 3K                |              | 10K      |
|           |           | 2012 (0805)  |                 | 2K/3K             |              | 10K      |
|           |           | 3216 (1206)  |                 | 3K                |              | 10K      |
|           |           | 3225 (1210)  |                 | 3K                |              |          |
|           |           | 4520 (1808)  |                 | 2K/3K             |              |          |
|           |           | 4532 (1812)  |                 | 1K                |              |          |
| L         | 1.60      | 3225 (1210)  |                 | 3K                |              |          |
|           |           | 3216 (1206)  |                 | 2K                |              |          |
|           |           | 4520 (1808)  |                 | 2K                |              |          |
|           |           | 4532 (1812)  |                 | 1K                |              |          |
| N         | 2.00      | 3216 (1206)  |                 | 2K/3K             |              |          |
|           |           | 3225 (1210)  |                 | 1K/2K             |              |          |
|           |           | 4520 (1808)  |                 | 1K                |              |          |
|           |           | 4532 (1812)  |                 | 1K                |              |          |
| P         | 2.50      | 3225 (1210)  |                 | 500pcs/1K         |              |          |

#1: 4mm width 1mm pitch Embossed Taping

**【Packing Rule】**

| EIA SIZE | Tape         | Reel Size | Reels/Box | Boxes/ Carton |
|----------|--------------|-----------|-----------|---------------|
| 01005    | Emboss       | 7"        | 8         | 12            |
| 01005    | Paper        | 7"        | 5         | 12            |
| 0201     | Paper        | 7"        | 5         | 12            |
| 0402     | Paper        | 7"        | 5         | 12            |
| 0603     | Paper/Emboss | 7"        | 5         | 12            |
| 0805     | Paper/Emboss | 7"        | 5         | 12            |
| 1206     | Paper/Emboss | 7"        | 5         | 12            |
| 1210     | Emboss       | 7"        | 5         | 12            |
| 1808     | Emboss       | 7"        | 5         | 12            |
| 1812     | Emboss       | 7"        | 5         | 12            |

## Others

### 【Storage】

1. The chip capacitors shall be packaged in carrier tapes or bulk cases.
2. Keep storage place temperatures from +5°C to +35°C, humidity from 45 to 70% RH.
3. The storage atmosphere must be free of gas containing sulfur and chlorine. Also, avoid exposing the product to saline moisture. If the product is exposed to such atmospheres, the terminations will oxidize and solderability will be affected.
4. The solderability is assured for 12 months from our final inspection date if the above storage condition is followed.

### 【Circuit Design】

1. Once application and assembly environments have been checked, the capacitor may be used in conformance with the rating and performance, which are provided in both the catalog and the specifications. Exceeding the specifications listed may result in inferior performance. It may also cause a short, open, smoking, or flaming to occur, etc.
2. Please use the capacitors in conformance with the operating temperature provided in both the catalog and the specifications. Be especially cautious not to exceed the maximum temperature. In the situation the maximum temperature set forth in both the catalog and specifications is exceeded, the capacitor's insulation resistance may deteriorate, power may suddenly surge and short-circuit may occur. The loss of capacitance will occur, and may self-heat due to equivalent series resistance when alternating electric current is passed through. As this effect becomes critical in high frequency circuits, please exercise with caution. When using the capacitor in a (self-heating) circuit, please make sure the surface of the capacitor remains under the maximum temperature for usage. Also, please make certain temperature rise remain below 20°C.
3. Please keep voltage under the rated voltage, which is applied to the capacitor. Also, please make certain the peak voltage remains below the rated voltage when AC voltage is super-imposed to the DC voltage. In the situation where AC or pulse voltage is employed, ensure average peak voltage does not exceed the rated voltage. Exceeding the rated voltage provided in both catalog and specifications may lead to defective withstanding voltage or, in worse case situations, may cause the capacitor to burn out.
4. It's is a common phenomenon of high-dielectric products to have a deteriorated amount of static electricity due to the application of DC voltage.

**【Handling】**

Chip capacitors should be handled with care to avoid contamination or damage. The use of vacuum pick-up or plastic tweezers is recommended for manual placement. Tape and reeled packages are suitable for automatic pick and placement machine.

**【Flux】**

1. An excessive amount of flux or too rapid temperature rise can cause solvent burst, solder can generate a large quantity of gas. The gas can spread small solder particles to cause solder balling effect or bridging problem.
2. Flux containing too high of a percentage of halide may cause corrosion of termination unless sufficient cleaning is applied.
3. Use rosin-type flux. Highly acidic flux (halide content less than 0.2wt%) is not recommended.
4. The water soluble flux causes deteriorated insulation resistance between outer terminations unless sufficiently cleaned.

**【Component Spacing】**

For wave soldering components, the spacing must be sufficient far apart to prevent bridging or shadowing. This is not so important for reflow process but enough space for rework should be considered. The suggested spacing for reflow soldering and wave soldering is 0.5mm and 1.0mm, respectively.

**【Solder Fillet】**

Too much solder amount may increase solder stress and cause crack risk. Insufficient solder amount may reduce adhesive strength and cause parts falling off PCB. When soldering, confirm that the solder is placed over 0.2mm of the surface of the terminations.





## 【Recommended Land Pattern Dimensions】

When mounting the capacitor to substrate, it's important to consider that the amount of solder (size of fillet) used has a direct effect upon the capacitor once it's mounted.

1. The greater the amount of solder, the greater the stress to the elements, as this may cause the substrate to break or crack.
2. In the situation where two or more devices are mounted onto a common land, separate the device into exclusive pads by using soldering resist.
3. Land width equal to or less than component. It is permissible to reduce land width to 80% of component width.



| Size mm (EIA) | L x W (mm)<br>(Dimension tolerance) | a (mm)       | b (mm)       | c (mm)       |
|---------------|-------------------------------------|--------------|--------------|--------------|
| 0402 (01005)  | 0.4*0.2                             | 0.16 to 0.20 | 0.12 to 0.18 | 0.20 to 0.23 |
| 0603 (0201)   | 0.6*0.3                             | 0.15 to 0.35 | 0.2 to 0.3   | 0.25 to 0.3  |
| 1005 (0402)   | 1.0*0.5<br>(within±0.10)            | 0.3 to 0.5   | 0.35 to 0.45 | 0.4 to 0.5   |
|               | 1.0*0.5<br>(±0.15 or ±0.20)         | 0.4 to 0.6   | 0.4 to 0.5   | 0.5 to 0.6   |
| 1608 (0603)   | 1.6*0.8<br>(within±0.10)            | 0.7 to 1.0   | 0.6 to 0.8   | 0.7 to 0.8   |
|               | 1.6*0.8<br>(±0.15 or ±0.20)         | 0.8 to 1.1   | 0.7 to 0.9   | 0.8 to 0.9   |
| 2012 (0805)   | 2.0*1.25                            | 1.0 to 1.3   | 0.7 to 0.9   | 1.0 to 1.2   |
| 3216 (1206)   | 3.2*1.6                             | 2.1 to 2.5   | 1.0 to 1.2   | 1.3 to 1.6   |
| 3225 (1210)   | 3.2*2.5                             | 2.1 to 2.5   | 1.0 to 1.2   | 2.0 to 2.5   |
| 4520 (1808)   | 4.5*2.0                             | 3.2 to 3.8   | 1.2 to 1.4   | 1.7 to 2.0   |
| 4532 (1812)   | 4.5*3.2                             | 3.2 to 3.8   | 1.2 to 1.4   | 2.7 to 3.2   |

## 【Resin Mold】

If a large amount of resin is used for molding the chip, cracks may occur due to contraction stress during curing. To avoid such cracks, use a low shrinkage resin. The insulation resistance of the chip will degrade due to moisture absorption. Use a low moisture absorption resin. Check carefully that the resin does not generate a decomposition gas or reaction gas during the curing process or during normal storage. Such gases may crack the chip capacitor or damage the device itself.

## 【Soldering Profile for SMT Process with SnPb Solder Paste】

### Reflow Soldering



The difference between solder and chip surface should be controlled as following table. The rate of preheat should not exceed 4°C/sec and a target of 2°C/sec is preferred.

| Chip Size  | 3216 and smaller                  | 3225 and above                    |
|------------|-----------------------------------|-----------------------------------|
| Preheating | $\Delta T \leq 150^\circ\text{C}$ | $\Delta T \leq 130^\circ\text{C}$ |

**Wave Soldering**



| Chip Size  | 3216 and smaller                  | 3225 and above |
|------------|-----------------------------------|----------------|
| Preheating | $\Delta T \leq 150^\circ\text{C}$ | -              |

**Soldering Iron**



| Chip Size  | 3216 and smaller                  | 3225 and above                    |
|------------|-----------------------------------|-----------------------------------|
| Preheating | $\Delta T \leq 190^\circ\text{C}$ | $\Delta T \leq 130^\circ\text{C}$ |

MLCC

**[Soldering]**

**Reflow Soldering for Lead free Termination**



The difference between solder and chip surface should be controlled as following table. The rate of preheat should not exceed 4°C/sec and a target of 2°C/sec is preferred.

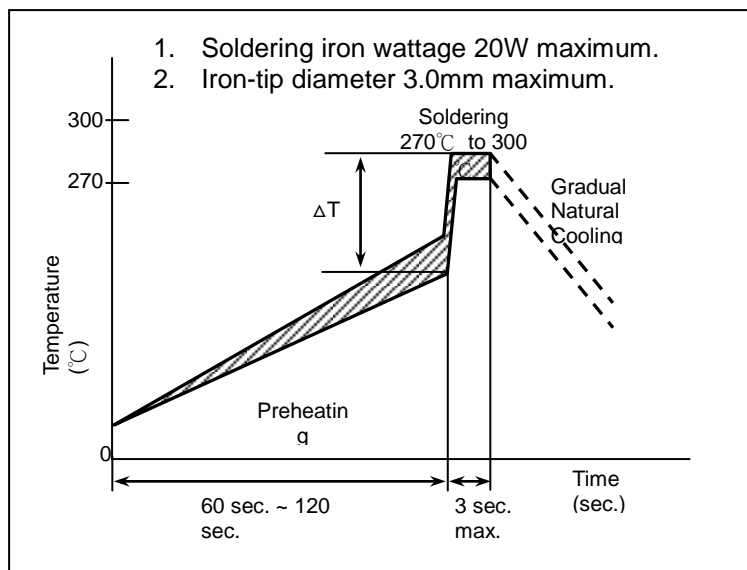
| Chip Size  | 3216 and smaller                  | 3225 and above                    |
|------------|-----------------------------------|-----------------------------------|
| Preheating | $\Delta T \leq 150^\circ\text{C}$ | $\Delta T \leq 130^\circ\text{C}$ |

**Flow Soldering for Lead free Termination**



| Chip Size  | 3216 and smaller                  | 3225 and above |
|------------|-----------------------------------|----------------|
| Preheating | $\Delta T \leq 150^\circ\text{C}$ | -              |

## Soldering Iron



| Chip Size  | 3216 and smaller                  | 3225 and above                    |
|------------|-----------------------------------|-----------------------------------|
| Preheating | $\Delta T \leq 190^\circ\text{C}$ | $\Delta T \leq 130^\circ\text{C}$ |

### 【Chip Layout and Breaking PCB】

- To layout the SMD capacitors for reducing bend stress from board deflection of PCB. The following are examples of Hood and bad layout.



- When breaking PCB, the layout should be noted that the mechanical stresses are depending on the position of capacitors. The following example shows recommendation for better design.



**【Temperature Coefficient】**

- Class 1 (Temperature Compensation series)



- Class 2 (High Dielectric Constant Series)



**[DC Voltage Coefficient]**



**[Aging Rate]**

The capacitance and dissipation factor of class 2 capacitors decreases with time. It is known as 'aging' that follows a logarithmic law and expressed in terms of an aging constant. Aging is caused by a gradual re-alignment of the crystalline structure of the ceramic. The aging constant is defined as the percentage loss of capacitance at a 'time decade'. The law of capacitance aging is expressed as following equation:



$$C_{t2} = C_{t1} \times (1 - k \times \log_{10}(t_2/t_1))$$

$C_{t1}$ : Capacitance after  $t_1$  hours of start aging.

$C_{t2}$ : Capacitance after  $t_2$  hours of start aging.

$k$ : aging constant (capacitance decrease per decade)

$t_1, t_2$ : time in hours from start of aging.

A typical curve of aging rate is shown in following figure.

When heating the capacitors above Curie temperature (130°C~150°C) the capacitance can be re-new. So capacitance of class 2 capacitors will be complete de-aged by soldering process; subsequently a new aging process begins.

Because of aging, it is specified an age for measurement to meet the prescribed tolerance for class 2 capacitors. Normally, 1000 hours ( $t_2=1000$  hrs) is defined.

**【Peeling Off Force】**

Peeling off force: 0.1N to 1.0 N\* in the direction shown as below.

The peeling speed: 300±10 mm/min



1. The taped tape on reel is wound clockwise. The sprocket holes are to the right as the tape is pulled toward the user.
2. There are minimum 150 mm as the leader and minimum 40 mm empty tape as the tail is attached to the end of the tape.



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[C1608X7R1E334K](#) [C2012C0G2A472J](#) [2220J2K00562KXT](#) [1812J2K00332KXT](#) [CDR31BX103AKWR](#) [CDR33BX104AKUR](#)  
[CDR33BX683AKUS](#) [CGA2B2C0G1H010C](#) [CGA2B2C0G1H040C](#) [CGA2B2C0G1H050C](#) [CGA2B2C0G1H060D](#) [CGA2B2C0G1H070D](#)  
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