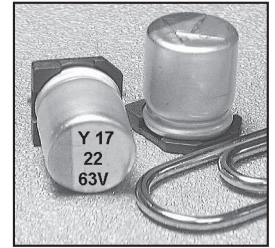


# Hybrid Aluminum Electrolytic Capacitors

NSPE-Y Series

- CYLINDRICAL V-CHIP CONSTRUCTION FOR SURFACE MOUNTING
  - HIGH TEMPERATURE RANGE (+135°C)
  - LOW ESR AND HIGH RIPPLE CURRENT
  - 6.3x8 ~ 10x12.8mm CASE SIZES
  - REFLOW SOLDERING RATED TO +260°C (ALL SIZES)
  - **MEETS THE REQUIREMENTS OF AEC-Q200\***
- \*Contact NIC for supporting test data

Available with Wide  
Anti-Vibration  
Terminations



## CHARACTERISTICS

|   |                    |  |    |    |    |
|---|--------------------|--|----|----|----|
| Rated Voltage Range                         | 25 ~ 63Vdc         |  |    |    |    |
| Rated Capacitance Range                     | 10 ~ 330μF         |  |    |    |    |
| Operating Temp. Range                       | -55 ~ +135°C       |  |    |    |    |
| Capacitance Tolerance                       | ±20% (M)           |  |    |    |    |
| Max. Leakage Current After 2 Minutes @ 20°C | 0.01CV             |  |    |    |    |
| Working and Surge Voltage Ratings           | W.V. (Vdc)         | 25   | 35 | 50 | 63 |
|   | S.V. (Vdc)         | 32   | 44 | 63 | 79 |
| Tan δ @ 120Hz/20°C                          |                    | 0.16   |    |    |    |
| Impedance Ratio                             | Z -55°C/Z +20°C    | 1 ~ 2.5  |    |    |    |
|   | Z +135°C/Z +20°C   | 0.6 ~ 1.0  |    |    |    |
| Load Life Test @ 135°C and Rated Voltage    | W.V. (Vdc)         | 25   | 35 | 50 | 63 |
|   | Test Duration      | φd = 6.3mm 1000 Hrs. ±12 Hrs., φd ≥ 2000 Hrs. ±12 Hrs. |    |    |    |
|   | Capacitance Change | Within ±30% of initial measured value                  |    |    |    |
|   | Tan δ and ESR      | Less than 200% of specified max. value                 |    |    |    |
|   | Leakage Current    | Less than specified max. value                         |    |    |    |
|   | ESR                | Less than 200% of specified max. value                 |    |    |    |

## STANDARD PRODUCTS AND CASE SIZES Dφ x L (mm)

| PART NUMBER               | Cap. (μF) | Working Voltage | Case Size (D X L) mm | Max. Tan δ 120Hz/20°C | Max. ESR (mΩ) AT 100KHz/20°C | Max. Ripple Current (mA rms) AT 100KHz/135°C | Load Life Hours (+135°C) |
|---------------------------|-----------|-----------------|----------------------|-----------------------|------------------------------|--|--------------------------|
| NSPE-Y680M25V6.3X8NLBYF   | 68        | 25              | 6.3X8                | 0.16                  | 45                           | 780  | 1000                     |
| NSPE-Y151M25V8X10.8NLBYF  | 150       |                 | 8X10.8               | 0.16                  | 27                           | 1060   | 2000                     |
| NSPE-Y271M25V10X10.8NLBYF | 270       |                 | 10X10.8              | 0.16                  | 22                           | 1220   | 2000                     |
| NSPE-Y331M25V10X12.8NLBYF | 330       |                 | 10X12.8              | 0.16                  | 16                           | 1390   | 2000                     |
| NSPE-Y470M35V6.3X8NLBYF   | 47        | 35              | 6.3X8                | 0.16                  | 60                           | 730  | 1000                     |
| NSPE-Y101M35V8X10.8NLBYF  | 100       |                 | 8X10.8               | 0.16                  | 30                           | 1010   | 2000                     |
| NSPE-Y151M35V10X10.8NLBYF | 150       |                 | 10X10.8              | 0.16                  | 23                           | 1180   | 2000                     |
| NSPE-Y221M35V10X12.8NLBYF | 220       |                 | 10X12.8              | 0.16                  | 17                           | 1360   | 2000                     |
| NSPE-Y270M40V6.3X8NLBYF   | 27        | 40              | 6.3X8                | 0.16                  | 70                           | 700  | 1000                     |
| NSPE-Y560M40V8X10.8NLBYF  | 56        |                 | 8X10.8               | 0.16                  | 32                           | 980  | 2000                     |
| NSPE-Y101M40V10X10.8NLBYF | 100       |                 | 10X10.8              | 0.16                  | 24                           | 1150   | 2000                     |
| NSPE-Y121M40V10X12.8NLBYF | 120       |                 | 10X12.8              | 0.16                  | 18                           | 1320   | 2000                     |
| NSPE-Y150M50V6.3X8NLBYF   | 15        | 50              | 6.3X8                | 0.16                  | 80                           | 670  | 1000                     |
| NSPE-Y330M50V8X10.8NLBYF  | 33        |                 | 8X10.8               | 0.16                  | 35                           | 940  | 2000                     |
| NSPE-Y560M50V10X10.8NLBYF | 56        |                 | 10X10.8              | 0.16                  | 25                           | 1110   | 2000                     |
| NSPE-Y820M50V10X12.8NLBYF | 82        |                 | 10X12.8              | 0.16                  | 19                           | 1270   | 2000                     |
| NSPE-Y100M63V6.3X8NLBYF   | 10        | 63              | 6.3X8                | 0.16                  | 100                          | 590  | 1000                     |
| NSPE-Y220M63V8X10.8NLBYF  | 22        |                 | 8X10.8               | 0.16                  | 40                           | 870  | 2000                     |
| NSPE-Y330M63V8X10.8NLBYF  | 33        |                 | 8X10.8               | 0.16                  | 40                           | 870  | 2000                     |
| NSPE-Y330M63V10X10.8NLBYF | 33        |                 | 10X10.8              | 0.16                  | 30                           | 1010   | 2000                     |
| NSPE-Y470M63V10X10.8NLBYF | 47        |                 | 10X10.8              | 0.16                  | 30                           | 1010   | 2000                     |
| NSPE-Y560M63V10X12.8NLBYF | 56        |                 | 10X12.8              | 0.16                  | 22                           | 1150   | 2000                     |

### PRECAUTIONS

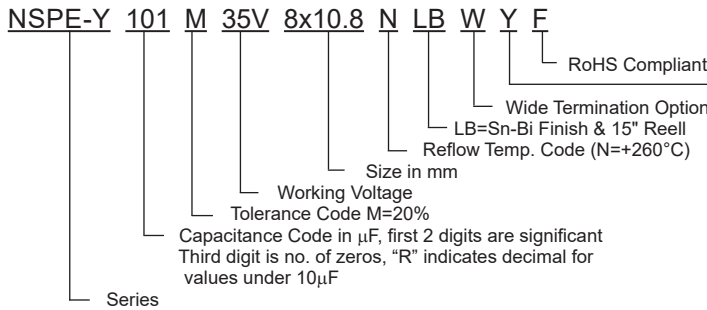
Please review the notes on correct use, safety and precautions found at <https://www.niccomp.com/resource/files/aluminum/AlumApplInfoCautions.pdf>  
If in doubt or uncertainty, please review your specific application - process details with NIC's technical support personnel: [tpmg@niccomp.com](mailto:tpmg@niccomp.com)



### RIPPLE CURRENT FREQUENCY CORRECTION FACTORS

| Capacitance (μF) | Frequency        |                  |                    |            |
|------------------|------------------|------------------|--------------------|------------|
|                  | 100Hz ≤ F < 1KHz | 1KHz ≤ F < 10KHz | 10KHz ≤ F < 100KHz | 100KHz ≤ F |
| C ≤ 4.7          | 0.03             | 0.30             | 0.65               | 1.00       |
| 4.7 < C ≤ 33     | 0.05             | 0.32             | 0.67               | 1.00       |
| 33 < C           | 0.10             | 0.35             | 0.70               | 1.00       |

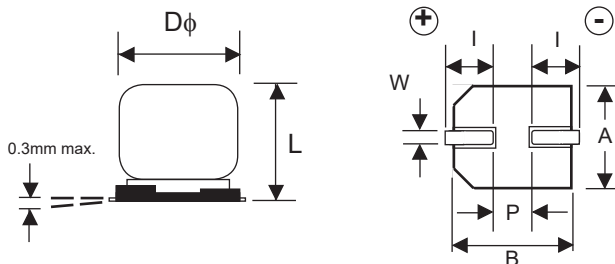
### PART NUMBER SYSTEM



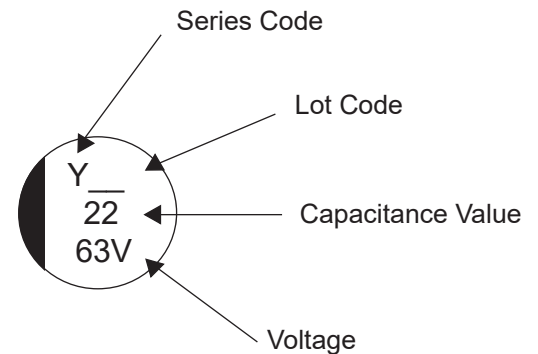
Suitable for automotive equipment, sourced to special production and inspection at IATF-16949 certified production site

### DIMENSIONS (mm)

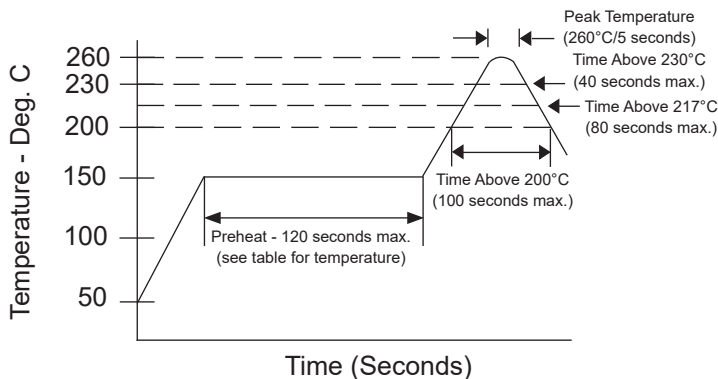
| Case Size | Dφ ±0.5 | L max. | A, B ±0.2 | W         | I ±0.2 | P ±0.2 |
|-----------|---------|--------|-----------|-----------|--------|--------|
| 6.3X8     | 6.3     | 8      | 6.6       | 0.5 ~ 0.8 | 2.5    | 2.2    |
| 8x10.8    | 8.0     | 10.8   | 8.3       | 0.7 ~ 1.0 | 2.9    | 3.2    |
| 10x10.8   | 10      | 10.8   | 10.3      | 1.0 ~ 1.4 | 3.2    | 4.6    |
| 10x12.8   | 10      | 12.8   | 10.3      | 1.0 ~ 1.4 | 3.2    | 4.6    |



### Part Marking

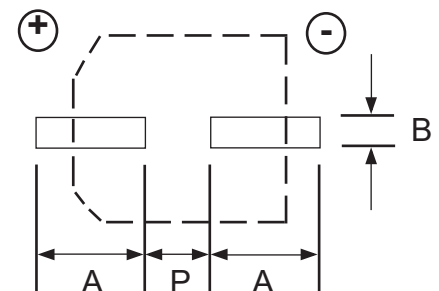


### RECOMMENDED REFLOW SOLDERING PROFILE\*



### LAND PATTERN DIM. (mm)

| Case Dia. | A   | B   | P   |
|-----------|-----|-----|-----|
| 6.3       | 1.8 | 1.8 | 3.6 |
| 8         | 4.1 | 2.1 | 2.8 |
| 10        | 4.4 | 2.5 | 4.3 |



### PEAK TEMPERATURE AND DURATION

| Diameter   | Preheat (120 sec. max.) | Time above 200°C | Time above 217°C | Time above 230°C | Peak Temperature |
|------------|-------------------------|------------------|------------------|------------------|------------------|
| 6.3 ~ 10mm | 150°C ~ 190°C           | 100 sec. max.    | 80 sec. max.     | 40 sec. max.     | 260°C/5 sec.     |

\*Two reflow passes are permissible with a cool down to room temperature required between the first and second pass.



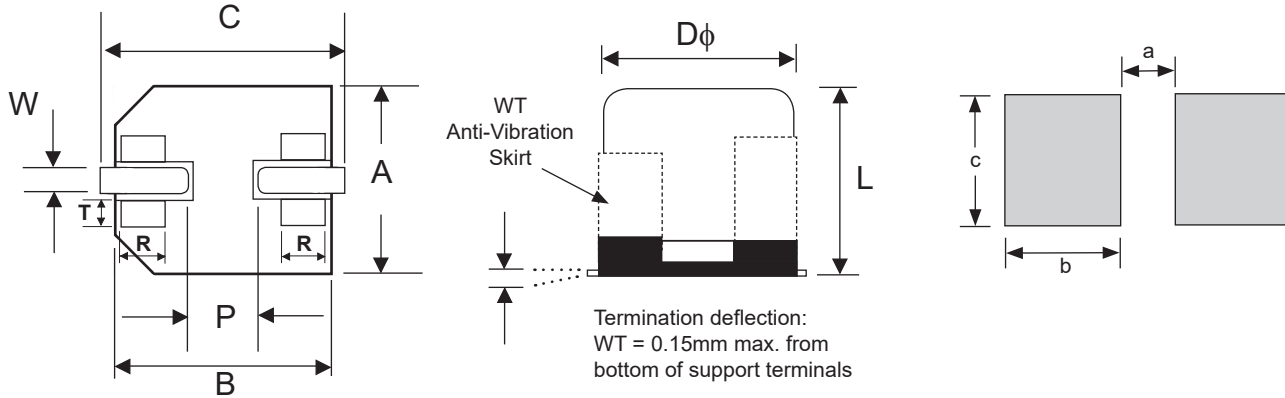
## W (WIDE TERMINATIONS) COMPONENT DIM. (mm)

| Case Size | D $\phi$ $\pm 0.5$ | L max. | A, B $\pm 0.2$ | C $\pm 0.2$ | P     | W         | R     | T     |
|-----------|--------------------|--------|----------------|-------------|-------|-----------|-------|-------|
| 6.3x8     | 6.3                | 8.3    | 6.6            | 7.3         | (2.2) | 0.5 ~ 0.8 | (1.7) | (0.7) |
| 8x10.8    | 8.0                | 11.2   | 8.3            | 9.0         | (3.2) | 0.7 ~ 1.0 | (0.7) | (1.3) |
| 10x10.8   | 10.0               | 11.2   | 10.3           | 11.0        | (4.6) | 1.0 ~ 1.4 | (0.7) | (1.3) |
| 10x12.8   | 10.0               | 13.5   | 10.3           | 11.0        | (4.6) | 1.0 ~ 1.4 | (0.7) | (1.3) |

(Reference dimensions)

## W (WIDE TERMINATIONS) LAND PATTERN DIM. (mm)

| Case Size | a   | b   | c   |
|-----------|-----|-----|-----|
| 6.3x8     | 1.6 | 4.0 | 3.0 |
| 8x10.8    | 2.5 | 4.5 | 4.7 |
| 10x10.8   | 3.8 | 4.8 | 4.7 |
| 10x12.8   | 3.8 | 4.8 | 4.7 |

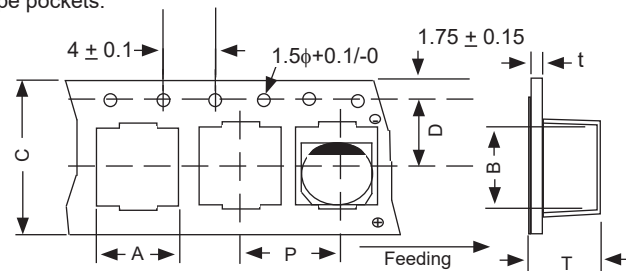


| W (Wide Terminations) Anti-Vibration Test |   |
|---|---|
| Test Method                               | Direction: X, Y, Z axis<br>Frequency & Duration: 5 to 2000Hz reciprocation for 20 minutes, 2 hours each direction<br>Peak to Peak Amplitude: 5mm<br>Peak Acceleration: 30G<br>Sweep Type: Log |
| $\Delta$ Capacitance                      | Within $\pm 10\%$ of initial value  |
| Tangent of Loss                           | $\leq$ Specified value  |
| Leakage Current                           | $\leq$ Specified value  |

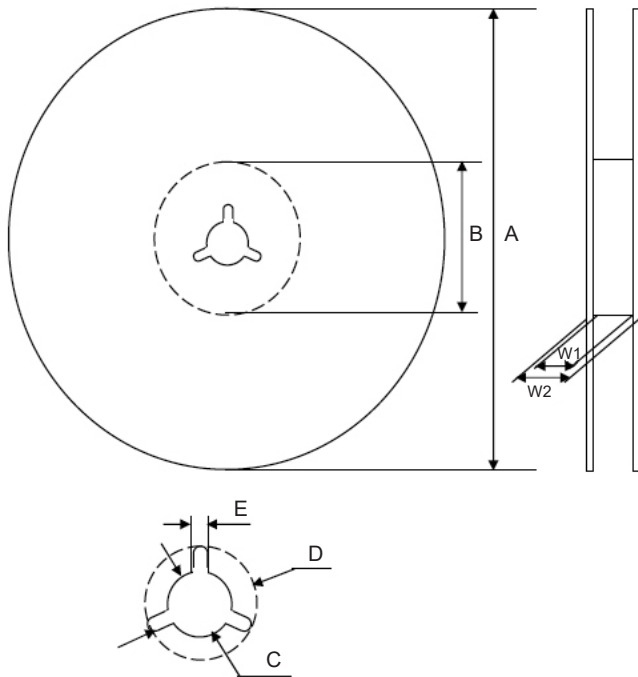
## TAPING SPECIFICATIONS (mm)

- Both Leader and Trailer tape: Minimum 40mm (1.57") empty carrier tape pockets.
- Leader tape: Approximately 20cm of cover tape at leader.
- Connection: Maximum 3 connections (slices) per reel.

| Case Size | A $\pm 0.5$ | B $\pm 0.5$ | C $\pm 0.3$ | D $\pm 0.1$ | P $\pm 0.1$ | T $\pm 0.2$ | t max. |
|-----------|-------------|-------------|-------------|-------------|-------------|-------------|--------|
| 6.3X8     | 7.0         | 7.0         | 16.0        | 7.5         | 12.0        | 8.2         | 0.6    |
| 8X10.8    | 8.7         | 8.7         | 24.0        | 11.5        | 16.0        | 11.1        | 0.6    |
| 10X10.8   | 10.7        | 10.7        | 24.0        | 11.5        | 16.0        | 11.2        | 0.6    |
| 10X12.8   | 10.7        | 10.7        | 24.0        | 11.5        | 16.0        | 13.3        | 0.6    |



V-Chip 15" (380mm) Reels (LBF suffix)



Dimensions (mm)

| Case Size                | Tape Width | W1          | W2          |
|--------------------------|------------|-------------|-------------|
| 6.3x8                    | 16.0       | 16.5 ~ 18.5 | 19.5 ~ 24.0 |
| 8x10.8, 10x10.8, 10x12.8 | 24.0       | 24.5 ~ 26.5 | 27.5 ~ 32.0 |

| Case Size                | Tape Width | A                     | B                  | C                      | D                      | E                |
|--------------------------|------------|-----------------------|--------------------|------------------------|------------------------|------------------|
| 6.3x8                    | 16.0       | $\phi 380$<br>$\pm 2$ | $\phi 80 \sim 105$ | $\phi 13$<br>$\pm 0.5$ | $\phi 21$<br>$\pm 1.0$ | 2.0<br>$\pm 0.5$ |
| 8x10.8, 10x10.8, 10x12.8 | 24.0       |                       |                    |                        |                        |                  |

| Color |
|-------|
| Black |

| Case Size | Qty per Reel |
|-----------|--------------|
|           | 15" (380mm)  |
| 6.3X8     | 900          |
| 8X10.8    | 500          |
| 10X10.8   | 500          |
| 10X12.8   | 400          |

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[NDTM106K25F1TRF](#) [NACZ221M50V10X10.5TR13F](#) [NCM15X7R103K50F](#) [NCD103M1KVZ5UF](#) [NRSS682M25V18X35.5F](#)  
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