

50V,100V,500V,1KV,2KV HI-K CERAMIC DISC CAPACITOR FOR DOWN SIZE PRODUCT

POE-D04-00-E-12

Ver: 12  
Page: 1 / 16

# PRODUCT SPECIFICATION

**PRODUCT: CERAMIC DISC CAPACITOR**

**50V, 100V, 500V, 1KV, 2KV HI-K  
TYPE: CERAMIC  
CAPACITOR DOWN SIZE PRODUCT**

**CUSTOMER:**

**DOC. NO.: POE-D04-00-E-12**

**Ver.: 12**

**APPROVED BY CUSTOMER**

**VENDOR :**

**WALSIN TECHNOLOGY CORPORATION**

566-1, KAO SHI ROAD, YANG-MEI  
TAO-YUAN, TAIWAN

**PAN OVERSEAS (GUANGZHOU) ELECTRONIC CO.,LTD.**

NO.277,HONG MING ROAD,EASTERN SECTION,  
GUANG ZHOU ECONOMIC AND TECHNOLOGY  
DEVELOPMENT ZONE,CHINA

**MAKER :**

**PAN OVERSEAS (GUANGZHOU) ELECTRONIC CO.,LTD.**

NO.277,HONG MING ROAD,EASTERN SECTION,  
GUANG ZHOU ECONOMIC AND TECHNOLOGY  
DEVELOPMENT ZONE,CHINA

**WALSIN**



|   |                 |                         |
|---|-----------------|-------------------------|
| 50V,100V,500V,1KV,2KV Hi-K CERAMIC DISC CAPACITOR FOR DOWN SIZE PRODUCT | POE-D04-00-E-12 | Ver: 12<br>Page: 2 / 16 |
|---|-----------------|-------------------------|

### Record of change

| Date       | Version | Description   | page                            |
|------------|---------|---|---------------------------------|
| 2008.6.3   | 1       | 1. D15-00-E-09 (before) → POE-D04-00-E-01 (1 <sup>st</sup> edition)   |                                 |
| 2008.8.22  | 2       | 1. Revised diameter<br>2. Complete lead code<br>3. Add last SAP code “H” for halogen and Pb free , epoxy resin..  | 5-7<br>16-19<br>8               |
| 2008.12.12 | 3       | 1.Complete lead code of SAP P/N<br>2. Page layout adjustment.<br>3. Added marking when the coating resin is Halogen and Pb free Epoxy.  | 3-7                             |
| 2009.8.5   | 4       | 1. Change PSA & POE logo to Walsin & POE logo.  |                                 |
| 2011/8/24  | 5       | 1. Delete the definition about “Old Part No.”<br>2. Review the diameter dimension code of “Z5U 1KV 332/362” from 060 to be 070.<br>3. Delete the Part No. of “Z5U 50V/100V 223”.  | 5-6<br>7<br>7                   |
| 2011/11/25 | 6       | 1. Review the item Y5P/Z5U/Z5V<br>2. Add the Y5U temperature characteristic   | 7-8<br>4-15                     |
| 2012/11/06 | 7       | 1. Revise the temp.(TCC): Y5P(-25℃ to 85℃/ to 125℃) & Cap. Change(±10% / ±35%)<br>2. Review the OP temp. for Y5P: Y5P : -25℃ ~ +105℃(INCLUDING CAPACITOR'S SELF-HEATING MAX.+20℃)   | 4<br>12-13                      |
| 2013/5/6   | 8       | 1. Review the Lead diameter φ from 0.60 +/-0.06mm to 0.55+/-0.05mm<br>2. Review the “DΦ≤6.0mm shall be omitted.” to “DΦ≤060 shall be omitted.”<br>3. Review the Solderability temperature from 255(+5/-0)℃. to 245±5℃.,Solderability time from 2 ±0.5s to 5±0.5s,   | 6,9<br>8<br>12                  |
| 2013/10/18 | 9       | Review the packing specification  | 10                              |
| 2015/8/4   | 10      | 1. Review the temperature range:Y5P(-25℃ to+105℃)Change (-25℃ to+125℃ )<br>2. review the high temperature loading:FOR 1000(+48/-0) HOURS AT 85 ± 2℃ (FOR Y5U, Z5U, Z5V) / AT 105 ± 3℃ (ONLY FOR Y5P) AND THEN DRIED FOR 12~24 HOURS AND MEASURED.Change FOR 1000(+48/-0) HOURS AT 85 ± 2℃ (FOR Y5U, Z5U, Z5V) / AT 125 ± 3℃ (ONLY FOR Y5P) AND THEN DRIED FOR 12~24 HOURS AND MEASURED. | 11<br>13                        |
| 2015/11/5  | 11      | 1. Review the Available lead code of Lead Configuration.<br>2. Modify the contents of the use of epoxy resin for 1KV products<br>3. Review the Specification and test method<br>4. Review 8. Cautions & notices<br>5. Review 9. Drawing of internal structure and material list   | 5-6<br>7-8<br>12-13<br>14<br>16 |
| 2019/7/26  | 12      | 1. Review the Hole-down tape width (W0) from 11.0mm min. to 8.0mm min.  | 9                               |



|   |                 |                         |
|---|-----------------|-------------------------|
| 50V,100V,500V,1KV,2KV Hi-K CERAMIC DISC CAPACITOR FOR DOWN SIZE PRODUCT | POE-D04-00-E-12 | Ver: 12<br>Page: 4 / 16 |
|---|-----------------|-------------------------|

1. Part number for SAP system(total eighteen code ) :

YP 102 102 K 060 B 20 C 5 B  
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩

① Temperature characteristic :

| Code              | YU(Y5U)        | YP(Y5P)                         | ZU(Z5U)        | ZV(Z5V)   |
|-------------------|----------------|---------------------------------|----------------|-----------|
| Temperature range | -25°C to +85°C | -25°C to +85°C / 85°C to +125°C | +10°C to +85°C |           |
| Cap. change       | -56%~+22%      | ±10% / ±35%                     | -56%~+22%      | -82%~+22% |

② Rated voltage (Vdc) :

| Voltage | 50V | 100V | 500V | 1000V | 2000V |
|---------|-----|------|------|-------|-------|
| Code    | 500 | 101  | 501  | 102   | 202   |

③ Capacitance(pF) :

| Capacitors (pF) | 100 | 470 | 1000 | 2200 | 4700 |
|-----------------|-----|-----|------|------|------|
| Code            | 101 | 471 | 102  | 222  | 472  |

④ Capacitance tolerance : K=±10% 、M=±20% 、Z=+80%-20%

⑤ Nominal body diameter dimension (Ref.to page.7~8 Dφ Code spec.) .

⑥ Code of lead type : Please refer to Item “2.Mechanical”.

⑦ Packing mode and lead’s length (identified by 2-figure code)

| Taping Code | Description                       |
|-------------|-----------------------------------|
| AN          | Ammo / Pitch of component:12.7 mm |

| Bulk Code | Description             |
|-----------|-------------------------|
| 3E        | Lead’s length L : 3.5mm |
| 04        | Lead’s length L : 4.0mm |
| 4E        | Lead’s length L : 4.5mm |
| 20        | Lead’s length L : 20mm  |

⑧ Length tolerance

| Code | Description  |            |
|------|--|------------|
| A    | ±0.5 mm(Only for short kink lead code “D / X / H”) | Short lead |
| B    | ±1.0 mm  | Short lead |
| C    | Min.   | Long lead  |
| D    | Taping special purpose                             | Taping     |

⑨ Pitch

| Code | Description                  | Code | Description |
|------|------------------------------|------|-------------|
| 5    | 5.0±0.8mm (For Bulk)         | 7    | 7.5 ±1mm    |
| 5    | 5.0+0.8mm-0.2mm (For Taping) | 0    | 10.0 ±1mm   |
| 2    | 2.5 ±0.8 mm                  |      |             |

⑩ Coating code

| Code | Description                              |
|------|--|
| P    | Halogen free and Pb free, phenolic resin |
| A    |  |
| B    | Epoxy Resin , Pb free                    |
| H    | Halogen free and Pb free , epoxy resin   |

|   |                 |                         |
|---|-----------------|-------------------------|
| 50V,100V,500V,1KV,2KV Hi-K CERAMIC DISC CAPACITOR FOR DOWN SIZE PRODUCT | POE-D04-00-E-12 | Ver: 12<br>Page: 5 / 16 |
|---|-----------------|-------------------------|

**2. Mechanical:**

Available lead code, Example:

(unit: mm)

| Lead type                             | SAP P/N (13-17) digits              | Pitch (F)                           | Lead length (L)                 | Available rated voltage | Packing   | Lead configuration |
|---------------------------------------|-------------------------------------|-------------------------------------|---------------------------------|-------------------------|-----------|--------------------|
| Lead style : B<br>Straight long lead  | B20C2                               | 2.5 ± 0.8                           | 20 MIN.                         | 50V,500V, 1KV,2KV       | Bulk      |                    |
|                                       | B20C5                               | 5.0 ± 0.8                           | 20 MIN.                         |                         |           |                    |
|                                       | B20C6                               | 6.4 ± 1.0                           | 20 MIN.                         |                         |           |                    |
|                                       | B20C7                               | 7.5 ± 1.0                           | 20 MIN.                         | 50V                     | Tap. Ammo |                    |
|                                       | B20C0                               | 10 ± 1.0                            | 20 MIN.                         |                         |           |                    |
|                                       | BAND5                               | 5.0 <sup>+0.8</sup> <sub>-0.2</sub> | Taping Spec.<br>(Ref.to page.9) |                         |           |                    |
| BAND2                                 | 2.5 ± 0.8                           |                                     |                                 |                         |           |                    |
| Lead style : L<br>Straight short lead | L05B2                               | 2.5 ± 0.8                           | 5.0 ± 1.0                       | 50V,500V, 1KV, 2KV      | Bulk      |                    |
|                                       | L4EB5                               | 5.0 ± 0.8                           | 4.5 ± 1.0                       |                         |           |                    |
|                                       | L05B5                               | 5.0 ± 0.8                           | 5.0 ± 1.0                       |                         |           |                    |
|                                       | L05B6                               | 6.4 ± 1.0                           | 5.0 ± 1.0                       |                         |           |                    |
|                                       | L4EB7                               | 7.5 ± 1.0                           | 4.5 ± 1.0                       |                         |           |                    |
|                                       | L05B7                               | 7.5 ± 1.0                           | 5.0 ± 1.0                       |                         |           |                    |
|                                       | L4EB0                               | 10 ± 1.0                            | 4.5 ± 1.0                       |                         |           |                    |
| L05B0                                 | 10 ± 1.0                            | 5.0 ± 1.0                           |                                 |                         |           |                    |
| Lead style : H<br>Inside kink lead    | H3EA5                               | 5.0 ± 0.8                           | 3.5 ± 0.5                       | 50V,500V, 1KV, 2KV      | Bulk      |                    |
|                                       | H04A5                               | 5.0 ± 0.8                           | 4.0 ± 0.5                       |                         |           |                    |
|                                       | H4EB5                               | 5.0 ± 0.8                           | 4.5 ± 1.0                       |                         |           |                    |
|                                       | H05B5                               | 5.0 ± 0.8                           | 5.0 ± 1.0                       |                         |           |                    |
|                                       | H20C5                               | 5.0 ± 0.8                           | 20 MIN.                         |                         |           |                    |
|                                       | H3EA7                               | 7.5 ± 1.0                           | 3.5 ± 0.5                       |                         |           |                    |
|                                       | H04A7                               | 7.5 ± 1.0                           | 4.0 ± 0.5                       |                         |           |                    |
|                                       | H4EB7                               | 7.5 ± 1.0                           | 4.5 ± 1.0                       |                         |           |                    |
|                                       | H05B7                               | 7.5 ± 1.0                           | 5.0 ± 1.0                       |                         |           |                    |
|                                       | H20C7                               | 7.5 ± 1.0                           | 20MIN                           |                         |           |                    |
|                                       | H3EA0                               | 10 ± 1.0                            | 3.5 ± 0.5                       |                         |           |                    |
|                                       | H04A0                               | 10 ± 1.0                            | 4.0 ± 0.5                       |                         |           |                    |
|                                       | H4EB0                               | 10 ± 1.0                            | 4.5 ± 1.0                       |                         |           |                    |
|                                       | H05B0                               | 10 ± 1.0                            | 5.0 ± 1.0                       |                         |           |                    |
|                                       | H20C0                               | 10 ± 1.0                            | 20 MIN.                         |                         |           |                    |
| HAND5                                 | 5.0 <sup>+0.8</sup> <sub>-0.2</sub> | Taping SPEC.<br>(Ref.to page.9)     | 50V,500V, 1KV, 2KV              | Tap. Ammo               |           |                    |
| Lead style : X<br>Outside kink lead   | X3EA5                               | 5.0±0.8                             | 3.5 ± 0.5                       | 50V,500V, 1KV, 2KV      | Bulk      |                    |
|                                       | X3EA7                               | 7.5±1.0                             |                                 |                         |           |                    |
|                                       | X3EA0                               | 10±1.0                              |                                 |                         |           |                    |
|                                       | X04A5                               | 5.0±0.8                             | 4.0 ± 0.5                       |                         |           |                    |
|                                       | X04A7                               | 7.5±1.0                             |                                 |                         |           |                    |
|                                       | X04A0                               | 10±1.0                              |                                 |                         |           |                    |
|                                       | X05B5                               | 5.0±0.8                             | 5.0 ± 1.0                       |                         |           |                    |
|                                       | X05B7                               | 7.5±1.0                             |                                 |                         |           |                    |
| X05B0                                 | 10±1.0                              |                                     |                                 |                         |           |                    |

|   |                 |                         |
|---|-----------------|-------------------------|
| 50V,100V,500V,1KV,2KV Hi-K CERAMIC DISC CAPACITOR FOR DOWN SIZE PRODUCT | POE-D04-00-E-12 | Ver: 12<br>Page: 6 / 16 |
|---|-----------------|-------------------------|

| Lead type                                      | SAP P/N (13-17) digits | Pitch (F)                           | Lead length (L)                 | Available rated voltage | Packing      | Lead configuration |
|--|------------------------|-------------------------------------|---------------------------------|-------------------------|--------------|--------------------|
| Lead style : D<br><br>Vertical kink lead       | D04A5                  | 5.0±1.0                             | 4.0 ± 0.5                       | 50V,500V, 1KV, 2KV      | Bulk         |                    |
|  | D04A7                  | 7.5±1.0                             |                                 |                         |              |                    |
|  | D04A0                  | 10±1.0                              |                                 |                         |              |                    |
|  | D3EA5                  | 5.0±0.8                             | 3.5 ± 0.5                       |                         |              |                    |
|  | D3EA7                  | 7.5±1.0                             |                                 |                         |              |                    |
|  | D3EA0                  | 10±1.0                              |                                 |                         |              |                    |
|  | DAND5                  | 5.0 <sup>+0.8</sup> <sub>-0.2</sub> | Taping SPEC.<br>(Ref.to page.9) |                         | Tap.<br>Ammo |                    |
| Lead style : M<br><br>Double outside kink lead | M05B5                  | 5.0 ± 0.8                           | 5.0 ± 1.0                       | 50V,500V, 1KV, 2KV      | Bulk         |                    |
|  | M05B7                  | 7.5 ± 1.0                           |                                 |                         |              |                    |
|  | M05B0                  | 10 ± 1.0                            |                                 |                         |              |                    |
|  | M04B5                  | 5.0 ± 0.8                           | 4.0 ± 1.0                       |                         |              |                    |
|  | M04B7                  | 7.5 ± 1.0                           |                                 |                         |              |                    |
|  | M04B0                  | 10 ± 1.0                            |                                 |                         |              |                    |

- ※ Lead diameter  $\phi = 0.55 \pm 0.05$  mm
- ※ Phenolic resin coating for 50V/500V product; Phenolic resin or Epoxy resin coating for 1KV product; Epoxy resin coating for 2KV product.
- ※ **e** (Coating **extension** on leads):
  - For straight lead style: 1.5mmMax when the rated voltage is 50Vdc & 100Vdc;
  - 2.0mmMax when the rated voltage is 500Vdc and 1KVdc;
  - 3.0mmMax when the rated voltage is 2KVdc.
- For kink lead style: not exceed the kink.
- ※ When  $D\phi \geq 11$ mm, only for bulk, but  $D\phi \leq 10$ mm can do Bulk or Taping.



|  |                 |                         |
|--|-----------------|-------------------------|
| <b>50V,100V,500V,1KV,2KV Hi-K CERAMIC DISC CAPACITOR FOR DOWN SIZE PRODUCT</b> | POE-D04-00-E-12 | Ver: 12<br>Page: 7 / 16 |
|--|-----------------|-------------------------|

### 3. Capacitance value vs. rated voltage, product diameter:

| T.C.<br>Rate<br>voltage | Y5P (CLASS II, Temperature:-25°C~+85°C, T.C.C.:±10% & +85°C~+125°C, T.C.C.:±35%) |     |     |     |     |     |      |      |     |     |     |     |      |      |                               |      |     |     |     |     |      |             |     |     |      |      |      |      |  |  |  |  |  |  |
|-------------------------|--|-----|-----|-----|-----|-----|------|------|-----|-----|-----|-----|------|------|-------------------------------|------|-----|-----|-----|-----|------|-------------|-----|-----|------|------|------|------|--|--|--|--|--|--|
|                         | 50V, 100V  |     |     |     |     |     |      | 500V |     |     |     |     |      |      | 1KV                           |      |     |     |     |     |      | 2KV         |     |     |      |      |      |      |  |  |  |  |  |  |
| Dφ<br>(Code)            | 040  | 050 | 060 | 070 | 080 | 090 | 100  | 040  | 050 | 060 | 070 | 080 | 090  | 100  | 110                           | 130  | 050 | 060 | 070 | 080 | 100  | 120         | 060 | 080 | 090  | 100  | 130  | 140  |  |  |  |  |  |  |
| D max. (mm)             | 4.5  | 5.5 | 6.5 | 7.5 | 8.5 | 9.5 | 11.0 | 4.5  | 5.5 | 6.5 | 7.5 | 9.0 | 10.0 | 11.0 | 12.0                          | 14.0 | 6.0 | 7.0 | 8.0 | 9.0 | 11.0 | 13.0        | 7.5 | 9.5 | 10.5 | 11.5 | 14.5 | 15.5 |  |  |  |  |  |  |
| T max. (mm)             | 3.5  | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 3.5  | 4.0  | 4.0 | 4.0 | 4.0 | 4.0 | 4.0  | 4.0  | 4.0                           | 4.0  | 4.5 | 4.5 | 4.5 | 4.5 | 4.5  | 4.5         | 4.5 | 4.5 | 4.5  | 4.5  | 4.5  | 4.5  |  |  |  |  |  |  |
| 100                     | 101  |     |     |     |     |     |      | 101  |     |     |     |     |      |      |                               |      | 101 |     |     |     |      |             | 101 |     |      |      |      |      |  |  |  |  |  |  |
| 120                     | 121  |     |     |     |     |     |      | 121  |     |     |     |     |      |      |                               |      | 121 |     |     |     |      |             | 121 |     |      |      |      |      |  |  |  |  |  |  |
| 150                     | 151  |     |     |     |     |     |      | 151  |     |     |     |     |      |      |                               |      | 151 |     |     |     |      |             | 151 |     |      |      |      |      |  |  |  |  |  |  |
| 180                     | 181  |     |     |     |     |     |      | 181  |     |     |     |     |      |      |                               |      | 181 |     |     |     |      |             | 181 |     |      |      |      |      |  |  |  |  |  |  |
| 200                     | 201  |     |     |     |     |     |      | 201  |     |     |     |     |      |      |                               |      | 201 |     |     |     |      |             | 201 |     |      |      |      |      |  |  |  |  |  |  |
| 220                     | 221  |     |     |     |     |     |      | 221  |     |     |     |     |      |      |                               |      | 221 |     |     |     |      |             | 221 |     |      |      |      |      |  |  |  |  |  |  |
| 240                     | 241  |     |     |     |     |     |      | 241  |     |     |     |     |      |      |                               |      | 241 |     |     |     |      |             | 241 |     |      |      |      |      |  |  |  |  |  |  |
| 270                     | 271  |     |     |     |     |     |      | 271  |     |     |     |     |      |      |                               |      | 271 |     |     |     |      |             | 271 |     |      |      |      |      |  |  |  |  |  |  |
| 330                     | 331  |     |     |     |     |     |      | 331  |     |     |     |     |      |      |                               |      | 331 |     |     |     |      |             | 331 |     |      |      |      |      |  |  |  |  |  |  |
| 390                     | 391  |     |     |     |     |     |      | 391  |     |     |     |     |      |      |                               |      | 391 |     |     |     |      |             | 391 |     |      |      |      |      |  |  |  |  |  |  |
| 470                     | 471  |     |     |     |     |     |      | 471  |     |     |     |     |      |      |                               |      | 471 |     |     |     |      |             | 471 |     |      |      |      |      |  |  |  |  |  |  |
| 560                     | 561  |     |     |     |     |     |      | 561  |     |     |     |     |      |      |                               |      | 561 |     |     |     |      |             | 561 |     |      |      |      |      |  |  |  |  |  |  |
| 680                     | 681  |     |     |     |     |     |      | 681  |     |     |     |     |      |      |                               |      | 681 |     |     |     |      |             | 681 |     |      |      |      |      |  |  |  |  |  |  |
| 820                     | 821  |     |     |     |     |     |      | 821  |     |     |     |     |      |      |                               |      | 821 |     |     |     |      |             | 821 |     |      |      |      |      |  |  |  |  |  |  |
| 1000                    | 102  |     |     |     |     |     |      | 102  |     |     |     |     |      |      |                               |      | 102 |     |     |     |      |             | 102 |     |      |      |      |      |  |  |  |  |  |  |
| 1200                    |  | 122 |     |     |     |     |      |      |     | 122 |     |     |      |      |                               |      |     |     | 122 |     |      |             |     |     | 122  |      |      |      |  |  |  |  |  |  |
| 1500                    |  | 152 |     |     |     |     |      |      |     | 152 |     |     |      |      |                               |      |     |     | 152 |     |      |             |     |     | 152  |      |      |      |  |  |  |  |  |  |
| 1800                    |  | 182 |     |     |     |     |      |      |     |     | 182 |     |      |      |                               |      |     |     |     | 182 |      |             |     |     | 182  |      |      |      |  |  |  |  |  |  |
| 2000                    |  | 202 |     |     |     |     |      |      |     |     | 202 |     |      |      |                               |      |     |     |     | 202 |      |             |     |     | 202  |      |      |      |  |  |  |  |  |  |
| 2200                    |  | 222 |     |     |     |     |      |      |     |     | 222 |     |      |      |                               |      |     |     |     | 222 |      |             |     |     | 222  |      |      |      |  |  |  |  |  |  |
| 2700                    |  |     | 272 |     |     |     |      |      |     |     | 272 |     |      |      |                               |      |     |     |     |     | 272  |             |     |     | 272  |      |      |      |  |  |  |  |  |  |
| 3000                    |  |     | 302 |     |     |     |      |      |     |     | 302 |     |      |      |                               |      |     |     |     |     | 302  |             |     |     | 302  |      |      |      |  |  |  |  |  |  |
| 3300                    |  |     | 332 |     |     |     |      |      |     |     |     | 332 |      |      |                               |      |     |     |     |     |      | 332         |     |     |      | 332  |      |      |  |  |  |  |  |  |
| 3900                    |  |     |     | 392 |     |     |      |      |     |     |     | 392 |      |      |                               |      |     |     |     |     |      |             | 392 |     |      |      | 392  |      |  |  |  |  |  |  |
| 4700                    |  |     |     | 472 |     |     |      |      |     |     |     |     | 472  |      |                               |      |     |     |     |     |      |             |     | 472 |      |      |      | 472  |  |  |  |  |  |  |
| 5000                    |  |     |     |     | 502 |     |      |      |     |     |     |     | 502  |      |                               |      |     |     |     |     |      |             |     |     | 502  |      |      |      |  |  |  |  |  |  |
| 5600                    |  |     |     |     | 562 |     |      |      |     |     |     |     | 562  |      |                               |      |     |     |     |     |      |             |     |     |      | 562  |      |      |  |  |  |  |  |  |
| 6800                    |  |     |     |     |     | 682 |      |      |     |     |     |     |      | 682  |                               |      |     |     |     |     |      |             |     |     |      |      | 682  |      |  |  |  |  |  |  |
| 8200                    |  |     |     |     |     |     | 822  |      |     |     |     |     |      |      | 822                           |      |     |     |     |     |      |             |     |     |      |      |      | 822  |  |  |  |  |  |  |
| 10000                   |  |     |     |     |     |     | 103  |      |     |     |     |     |      |      | 103                           |      |     |     |     |     |      |             |     |     |      |      |      | 103  |  |  |  |  |  |  |
| Packing                 | Taping or Bulk   |     |     |     |     |     |      | BULK |     |     |     |     |      |      | Taping or Bulk                |      |     |     |     |     |      | Bulk        |     |     |      |      |      |      |  |  |  |  |  |  |
| Coating                 | Phenolic Resin   |     |     |     |     |     |      |      |     |     |     |     |      |      | Phenolic Resin or Epoxy Resin |      |     |     |     |     |      | Epoxy Resin |     |     |      |      |      |      |  |  |  |  |  |  |

| T.C.<br>Rate<br>voltage | Z5U (CLASS II, Temperature: +10°C~+85°C, T.C.C.: +22~-56%) |     |     |     |     |      |      |     |     |     |     |     |                               |     |      |      |     |     |             |      |      |      |  |  |
|-------------------------|--|-----|-----|-----|-----|------|------|-----|-----|-----|-----|-----|-------------------------------|-----|------|------|-----|-----|-------------|------|------|------|--|--|
|                         | 50V,100V   |     |     |     |     |      | 500V |     |     |     |     |     | 1KV                           |     |      |      |     |     | 2KV         |      |      |      |  |  |
| Dφ(Code)                | 040  | 050 | 060 | 070 | 080 | 100  | 040  | 050 | 060 | 070 | 090 | 050 | 060                           | 070 | 090  | 100  | 060 | 070 | 080         | 090  | 110  | 130  |  |  |
| D max. (mm)             | 4.5  | 5.5 | 6.5 | 7.5 | 8.5 | 10.5 | 4.5  | 5.5 | 6.5 | 7.5 | 9.5 | 6.0 | 7.0                           | 8.0 | 10.0 | 11.0 | 7.5 | 8.5 | 9.5         | 10.5 | 12.5 | 14.5 |  |  |
| T max. (mm)             | 3.5  | 3.5 | 3.5 | 3.5 | 3.5 | 3.5  | 4.0  | 4.0 | 4.0 | 4.0 | 4.0 | 4.5 | 4.5                           | 4.5 | 4.5  | 4.5  | 4.5 | 4.5 | 4.5         | 4.5  | 4.5  | 4.5  |  |  |
| 1000                    |  |     |     |     |     |      |      | 102 |     |     |     |     | 102                           |     |      |      |     |     |             |      | 102  |      |  |  |
| 1200                    |  |     |     |     |     |      |      | 122 |     |     |     |     | 122                           |     |      |      |     |     |             |      | 122  |      |  |  |
| 1500                    |  |     |     |     |     |      |      | 152 |     |     |     |     | 152                           |     |      |      |     |     |             |      | 152  |      |  |  |
| 1800                    |  |     |     |     |     |      |      | 182 |     |     |     |     | 182                           |     |      |      |     |     |             |      |      |      |  |  |
| 2000                    |  | 202 |     |     |     |      |      | 202 |     |     |     |     | 202                           |     |      |      |     |     |             |      |      |      |  |  |
| 2200                    |  | 222 |     |     |     |      |      | 222 |     |     |     |     | 222                           |     |      |      |     |     |             |      |      |      |  |  |
| 2700                    |  | 272 |     |     |     |      |      | 272 |     |     |     |     |                               |     |      |      |     |     |             |      |      |      |  |  |
| 3000                    |  | 302 |     |     |     |      |      |     |     |     |     |     | 302                           |     |      |      |     |     |             |      |      |      |  |  |
| 3300                    |  | 332 |     |     |     |      |      |     |     |     |     |     | 332                           |     |      |      |     |     |             |      |      |      |  |  |
| 3600                    |  | 362 |     |     |     |      |      |     |     |     |     |     | 362                           |     |      |      |     |     |             |      |      |      |  |  |
| 3900                    |  | 392 |     |     |     |      |      |     |     |     |     |     | 392                           |     |      |      |     |     |             |      |      |      |  |  |
| 4700                    |  | 472 |     |     |     |      |      |     |     |     |     |     | 472                           |     |      |      |     |     |             |      |      |      |  |  |
| 5000                    |  |     | 502 |     |     |      |      |     |     |     |     |     | 502                           |     |      |      |     |     |             |      |      |      |  |  |
| 5600                    |  |     |     |     |     |      |      |     |     |     |     |     |                               |     |      |      |     |     |             |      |      |      |  |  |
| 6800                    |  |     |     |     |     |      |      |     |     |     |     |     |                               |     |      |      |     |     |             |      |      |      |  |  |
| 8200                    |  |     |     |     |     | 822  |      |     |     |     |     |     |                               |     |      |      |     |     |             |      |      |      |  |  |
| 10000                   |  |     |     |     |     | 103  |      |     |     |     |     |     |                               |     |      |      |     |     |             |      |      |      |  |  |
| Packing                 | Taping or Bulk   |     |     |     |     |      |      |     |     |     |     |     | Bulk                          |     |      |      |     |     | Bulk        |      |      |      |  |  |
| Coating                 | Phenolic Resin   |     |     |     |     |      |      |     |     |     |     |     | Phenolic Resin or Epoxy Resin |     |      |      |     |     | Epoxy Resin |      |      |      |  |  |

|   |                 |                         |
|---|-----------------|-------------------------|
| 50V,100V,500V,1KV,2KV Hi-K CERAMIC DISC CAPACITOR FOR DOWN SIZE PRODUCT | POE-D04-00-E-12 | Ver: 12<br>Page: 8 / 16 |
|---|-----------------|-------------------------|

| T.C.         | Y5U (CLASS II, Temperature: -25°C~+85°C, T.C.C.: +22~-56%) |     |     |     |      |      |     |     |     |      |                               |     |     |      |      |                |     |     |      |      |      |
|--------------|--|-----|-----|-----|------|------|-----|-----|-----|------|-------------------------------|-----|-----|------|------|----------------|-----|-----|------|------|------|
| Rate voltage | 50V,100V   |     |     |     |      | 500V |     |     |     |      | 1KV                           |     |     |      |      | 2KV            |     |     |      |      |      |
| Dp(Code)     | 050  | 060 | 070 | 080 | 100  | 060  | 070 | 080 | 090 | 100  | 050                           | 060 | 070 | 090  | 110  | 060            | 070 | 080 | 090  | 110  | 140  |
| D max. (mm)  | 5.5  | 6.5 | 7.5 | 8.5 | 10.5 | 6.5  | 7.5 | 8.5 | 9.5 | 10.5 | 6.0                           | 7.0 | 8.0 | 10.0 | 12.0 | 7.5            | 8.5 | 9.5 | 10.5 | 12.5 | 15.5 |
| T max. (mm)  | 3.5  | 3.5 | 3.5 | 3.5 | 3.5  | 4.0  | 4.0 | 4.0 | 4.0 | 4.0  | 4.5                           | 4.5 | 4.5 | 4.5  | 4.5  | 4.5            | 4.5 | 4.5 | 4.5  | 4.5  | 4.5  |
| 1000         |  |     |     |     |      | 102  |     |     |     |      | 102                           |     |     |      | 102  |                |     |     |      |      |      |
| 1200         |  |     |     |     |      |      |     |     |     |      | 122                           |     |     |      | 122  |                |     |     |      |      |      |
| 1500         |  |     |     |     |      |      |     |     |     |      | 152                           |     |     |      |      | 152            |     |     |      |      |      |
| 2000         | 202  |     |     |     |      |      |     |     |     |      |                               |     |     |      |      |                |     |     |      |      |      |
| 2200         | 222  |     |     |     |      | 222  |     |     |     |      |                               | 222 |     |      |      |                |     | 222 |      |      |      |
| 2700         | 272  |     |     |     |      |      | 272 |     |     |      |                               |     | 272 |      |      |                |     | 272 |      |      |      |
| 3000         | 302  |     |     |     |      |      |     |     |     |      |                               |     |     |      |      |                |     |     |      |      |      |
| 3300         | 332  |     |     |     |      |      | 332 |     |     |      |                               |     | 332 |      |      |                |     |     | 332  |      |      |
| 3600         | 362  |     |     |     |      |      |     |     |     |      |                               |     |     |      |      |                |     |     |      |      |      |
| 3900         | 392  |     |     |     |      |      | 392 |     |     |      |                               |     | 392 |      |      |                |     |     | 392  |      |      |
| 4700         | 472  |     |     |     |      |      |     | 472 |     |      |                               |     |     | 472  |      |                |     |     | 472  |      |      |
| 5000         | 502  |     |     |     |      |      |     |     |     |      |                               |     |     |      |      |                |     |     |      |      |      |
| 5600         |  |     |     |     |      |      |     |     |     |      |                               |     |     |      |      |                |     |     |      | 562  |      |
| 6800         |  |     |     |     |      |      |     | 682 |     |      |                               |     |     | 682  |      |                |     |     |      |      |      |
| 8200         |  |     | 822 |     |      |      |     |     |     |      |                               |     |     |      |      |                |     |     |      |      |      |
| 10000        |  |     | 103 |     |      |      |     |     |     | 103  |                               |     |     |      | 103  |                |     |     |      | 103  |      |
| Packing      | Taping or Bulk   |     |     |     |      |      |     |     |     |      | Bulk                          |     |     |      |      | Taping or Bulk |     |     |      |      | Bulk |
| Coating      | Phenolic Resin   |     |     |     |      |      |     |     |     |      | Phenolic Resin or Epoxy Resin |     |     |      |      | Epoxy Resin    |     |     |      |      |      |

| T.C.         | Z5V (CLASS II, Temperature: +10°C~+85°C, T.C.C.: +22~-82%) |     |     |     |      |                               |     |      |             |  |
|--------------|--|-----|-----|-----|------|-------------------------------|-----|------|-------------|--|
| Rate voltage | 50V, 100V  |     |     |     | 500V |                               | 1KV |      | 2KV         |  |
| Dp(Code)     | 050  | 060 | 070 | 080 | 080  | 060                           | 080 | 100  | 120         |  |
| D max. (mm)  | 5.5  | 6.5 | 7.5 | 8.5 | 9.0  | 7.0                           | 9.0 | 11.0 | 13.5        |  |
| T max. (mm)  | 3.5  | 3.5 | 3.5 | 3.5 | 4.0  | 4.5                           | 4.5 | 4.5  | 4.5         |  |
| 1000         | 102  |     |     |     |      |                               |     |      |             |  |
| 1200         | 122  |     |     |     |      |                               |     |      |             |  |
| 1500         | 152  |     |     |     |      |                               | 152 |      |             |  |
| 1800         | 182  |     |     |     |      |                               | 182 |      |             |  |
| 2000         | 202  |     |     |     |      |                               | 202 |      |             |  |
| 2200         | 222  |     |     |     |      |                               | 222 |      |             |  |
| 2700         | 272  |     |     |     |      |                               | 272 |      |             |  |
| 3000         | 302  |     |     |     |      |                               | 302 |      |             |  |
| 3300         | 332  |     |     |     |      |                               |     |      |             |  |
| 3600         | 362  |     |     |     |      |                               |     |      |             |  |
| 3900         | 392  |     |     |     |      |                               |     | 392  |             |  |
| 4700         | 472  |     |     |     |      |                               |     | 472  |             |  |
| 5000         |  |     |     |     |      |                               |     | 502  |             |  |
| 10000        |  | 103 |     |     |      | 103                           |     |      | 103         |  |
| 20000        |  |     | 203 |     |      |                               |     |      |             |  |
| 22000        |  |     |     | 223 |      |                               |     |      |             |  |
| Packing      | Taping or Bulk   |     |     |     |      |                               |     |      | Bulk        |  |
| Coating      | Phenolic Resin   |     |     |     |      | Phenolic Resin or Epoxy Resin |     |      | Epoxy Resin |  |

4. Marking:

|                                    |   |   |
|------------------------------------|---|---|
| Remarks                            |   |   |
| (1). Temp. char.                   | Y5P : Be marked "B"; Z5U(Y5U) : Be marked "E"; Z5V : Shall be omitted                               |   |
| (2). Rated capacitance             | Identified by 3-Figure Code. Ex. 1000pF→"102" , 4700pF→"472"  |   |
| (3). Rated voltage                 | 50V&100V  | Marked with code " " under the rated capacitance. |
|                                    | 500V  | No any marking under the rated capacitance.       |
|                                    | 1000V&2000V   | Marked with code: 1000V→"1KV" , 2000V→"2KV"       |
| (4). Capacitance tolerance         | K=±10%(for Y5P) 、M=±20%(for Z5U&Y5U) 、Z=+80%-20%(for Z5V)   |   |
| (5). Manufacturer's identification | Shall be marked as "UK", but DΦ≤060 shall be omitted.   |   |
| (6). Halogen and Pb free           | There is a " " marking under the code "V" when the coating resin is Halogen free and Pb free Epoxy. |   |

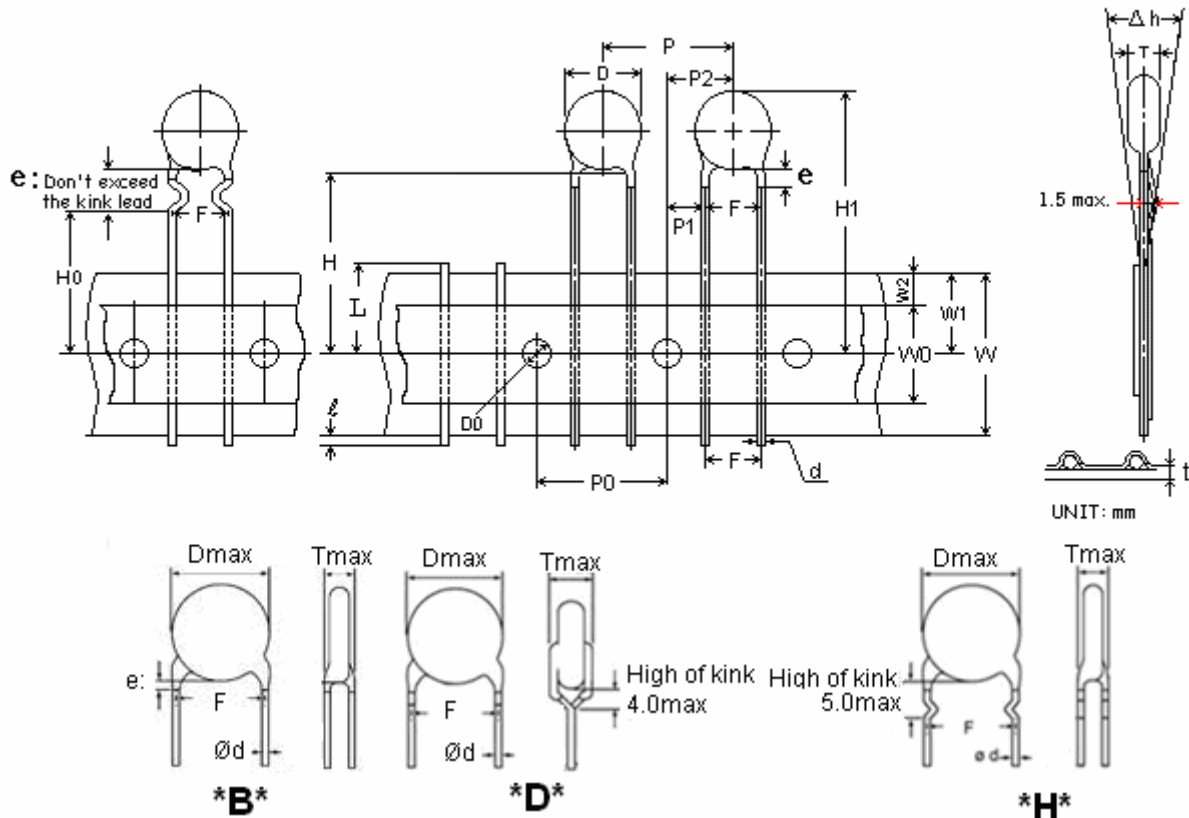


**5. Taping specifications:**

\* Lead spacing:  $F=5.0^{+0.8}_{-0.2}$  (mm)

• 12.7mm pitch/lead spacing 5.0mm taping

Lead code: \*BAND5 & \*DAND5 & \*HAND5

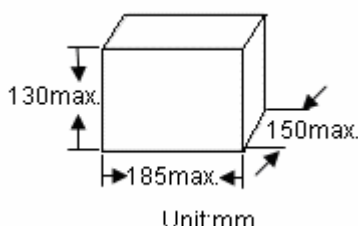
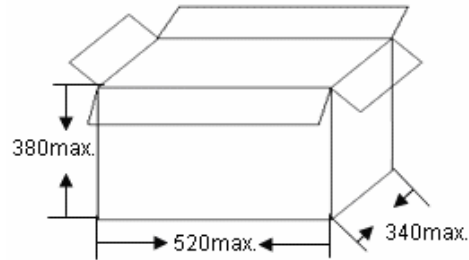
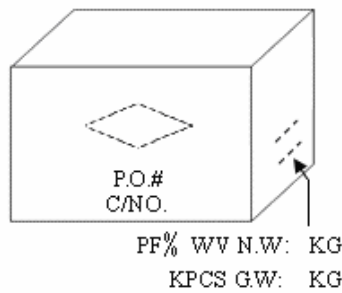
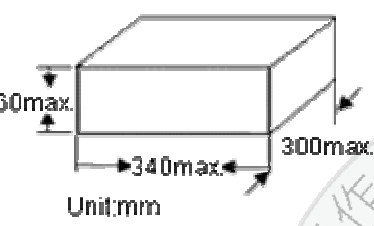
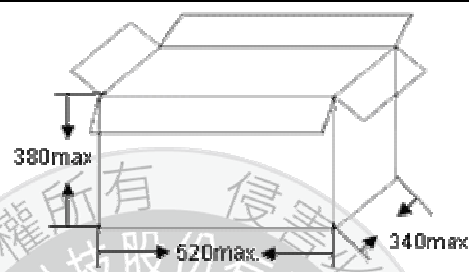
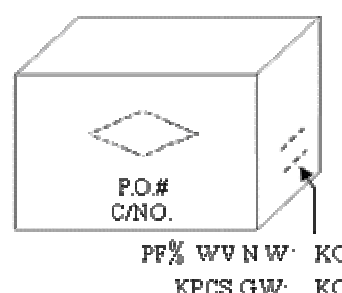


| Item                                 | Symbol                 | Specification   |            | Remarks   |
|--------------------------------------|------------------------|---|------------|---|
|                                      |                        | Value   | Tolerance  |   |
| Body diameter                        | D                      | *   | max.       | See Section "3. Capacitance value vs. rated voltage, product diameter". |
| Body thickness                       | T                      | *   | max.       |   |
| Lead-wire diameter                   | d                      | 0.55  | ±0.05      |   |
| Pitch of component                   | P                      | 12.7  | ±1.0       |   |
| Feed hole pitch                      | P0                     | 12.7  | ±0.3       | Cumulative pitch error: 1.0mm/20 pitch                                  |
| Feed hole center to lead             | P1                     | 3.85  | ±0.7       | To be measured at bottom of clinch                                      |
| Hole center to component center      | P2                     | 6.35  | ±1.3       |   |
| Lead-to-lead distance                | F                      | 5.0   | +0.8,-0.2  |   |
| Component alignment, F-R             | △h                     | 0   | ±2.0       |   |
| Tape width                           | W                      | 18.0  | +1.0,-0.5  |   |
| Hole-down tape width                 | W0                     | 8.0   | min.       |   |
| Hole position                        | W1                     | 9.0   | +0.75,-0.5 |   |
| Hole-down tape position              | W2                     | 3.0   | max.       |   |
| Height of component form tape center | For straight lead type | H   | 20.0       | +1.0 -0.5   |
|                                      | For kinked lead type   | H0  | 16.0       | ±0.5  |
| Component height                     | H1                     | 32.25   | max.       |   |
| Lead-wire protrusion                 | ℓ                      | 2.0   | max.       | Or the end of lead wire may be inside the tape.                         |
| Feed hole diameter                   | D0                     | 4.0   | ±0.2       |   |
| Total tape thickness                 | t                      | 0.7   | ±0.2       | Ground paper: 0.5±0.1 mm  |
| Length of sniped lead                | L                      | 11.0  | max.       |   |
| Coating rundown on leads             | e                      | Please refer to page 6 "e(Coating extension on leads)". |            |   |

|   |                 |                             |
|---|-----------------|-----------------------------|
| 50V,100V,500V,1KV,2KV Hi-K CERAMIC DISC CAPACITOR FOR DOWN SIZE PRODUCT | POE-D04-00-E-12 | Ver: 12<br>Page: 10 /<br>16 |
|---|-----------------|-----------------------------|

## 6. Packing Baggage :

### 6.1 Packing size:

| Type        | Box  | Carton   |
|-------------|--|--|
| Bulk        |  <p>130max.<br/>185max.<br/>150max.<br/>Unit:mm</p> |  <p>380max.<br/>520max.<br/>340max.<br/>Unit:mm</p>  <p>P.O.#<br/>C/NO.<br/>PF% WV N.W.: KG<br/>KPCS G.W.: KG</p>   |
| Ammo taping |  <p>60max.<br/>340max.<br/>300max.<br/>Unit:mm</p> |  <p>380max.<br/>520max.<br/>340max.<br/>Unit:mm</p>  <p>P.O.#<br/>C/NO.<br/>PF% WV N.W.: KG<br/>KPCS G.W.: KG</p> |

### 6.2 Packing quantity:

| Packing type | The code of 14th to 15th in SAP P/N |                                      | MPQ (Kpcs/Box) | Remark         |                |
|--------------|-------------------------------------|--------------------------------------|----------------|----------------|----------------|
| Taping       | AN                                  |                                      | 2              | Phenolic resin |                |
|              | AN                                  |                                      | 1.5            | Epoxy resin    |                |
| Packing type | Lead length                         | Size code of 10th to 12th in SAP P/N | MPQ (Kpcs/Bag) | Kpcs/Box       | Remark         |
| Bulk         | Long lead<br>(L ≥ 16mm)             | 040~070                              | 1              | 3              | Phenolic resin |
|              |                                     | 080~100                              | 1              | 2              | Phenolic resin |
|              |                                     | 050~100                              | 1              | 2              | Epoxy resin    |
|              |                                     | 110~120                              | 0.5            | 1.5            |                |
|              | Short lead<br>(L < 16mm)            | 130~140                              | 0.5            | 1              |                |
|              |                                     | 040~060                              | 1              | 6              |                |
|              |                                     | 070~080                              | 1              | 4              |                |
|              |                                     | 090~100                              | 1              | 3              |                |
|              |                                     | 110~140                              | 1              | 2              |                |

|   |                 |                             |
|---|-----------------|-----------------------------|
| 50V,100V,500V,1KV,2KV Hi-K CERAMIC DISC CAPACITOR FOR DOWN SIZE PRODUCT | POE-D04-00-E-12 | Ver: 12<br>Page: 11 /<br>16 |
|---|-----------------|-----------------------------|

## 7. Specification and test method:

7.1 SCOPE: THIS SPECIFICATION APPLIES TO HI-K CERAMIC TYPE CAPACITOR.

7.2 TEST CONDITIONS :

UNLESS OTHERWISE SPECIFIED, ALL TESTS SHALL BE OPERATED AT THE STANDARD TEST CONDITIONS OF TEMPERATURE 5°C TO 35°C AND RELATIVE HUMIDITY 45% TO 85%. WHEN FAILS A TEST, RETEST BE OPERATED AT THE CONDITIONS OF TEMPERATURE 25°C ± 2°C, RELATIVE HUMIDITY OF 60% TO 70% AND BAROMETRIC PRESSURE 860 TO 1060 MBAR.

7.3 HANDLE PROCEDURE : TO AVOID UNEXPECTED TESTING RESULTS FROM OCCURRING, THE TESTED CAPACITOR MUST BE KEPT AT ROOM TEMPERATURE FOR AT LEAST 30 MINUTES AND COMPLETELY DISCHARGED.

7.4 TEST ITEMS :

| ITEM                              | POST-TEST REQUIREMENTS  | TESTING PROCEDURE  |
|-----------------------------------|---|--|
| APPEARANCE<br>STRUCTURE<br>SIZE   | NO ABNORMALITIES  | AS STATED IN SECTION 3.  |
| MARKING                           |   | AS STATED IN SECTION 4   |
| WITHSTAND<br>VOLTAGE              | BETWEEN TERMINALS:<br>NO ABNORMALITIES  | A. BELOW 1KV: 250% RATED VOLTAGE WITH 50mA MAX. CHARGING CURRENT FOR 1~5 SEC.<br>B. 1KV & ABOVE: 200% RATED VOLTAGE WITH 50mA MAX. CHARGING CURRENT FOR 1~5 SEC.   |
|                                   | BETWEEN TERMINAL AND<br>ENCLOSURE :<br>NO ABNORMALITIES   | SMALL METALLIC BALLS WITH 1mm DIAMETERS SHALL BE PUT ON A VESSEL AND THE TEST CAPACITOR SHALL BE SUBMERGED EXCEPT 2mm FROM THE TOP OF ITS COMPONENT BODY.<br>THE TEST VOLTAGE SHALL BE APPLIED BETWEEN THE SHORT-CIRCUITED TERMINALS AND THE METALLIC BALLS.<br>(APPLY 1.3KV DC VOLTAGE BETWEEN TERMINALS AND ENCLOSURE FOR 1~5 SEC) |
| INSULATION<br>RESISTANCE          | 10000 MΩ MIN  | INSULATION RESISTANCE SHALL BE MEASURED AT 60±5 SECONDS AFTER RATED VOLTAGE APPLIED.<br>RATED VOLTAGE :100V =100V<br>500V & ABOVE = 500V   |
| CAPACITANCE                       | TOLERANCE :<br>K : ±10% M : ±20%<br>Z : +80-20%   | TESTING FREQUENCY: 1 KHZ ± 20%<br>TESTING TEMPERATURE: 25 ± 2°C<br>TESTING VOLTAGE: 1.0~5.0 Vrms   |
| OPERATING<br>TEMPERATURE<br>RANGE | Y5P : -25°C ~ +125°C<br>Y5U: -25°C ~ +85°C<br>Z5U & Z5V: +10°C ~ +85°C  |  |
| TEMPERATURE<br>RANGE              | Y5P : -25°C ~ +125°C (INCLUDING CAPACITOR'S SELF-HEATING MAX.+20°C)<br>Y5U: -25°C ~ +85°C<br>Z5U & Z5V: +10°C ~ +85°C |  |
| DISSIPATION<br>FACTOR<br>(D.F)    | Y5P : BELOW 2.5%<br>Z5U & Y5U : BELOW 2.5%<br>Z5V : BELOW 5.0%  | AS ABOVE STIPULATION OF CAPACITANCE  |

|   |                 |                             |
|---|-----------------|-----------------------------|
| 50V,100V,500V,1KV,2KV Hi-K CERAMIC DISC CAPACITOR FOR DOWN SIZE PRODUCT | POE-D04-00-E-12 | Ver: 12<br>Page: 12 /<br>16 |
|---|-----------------|-----------------------------|

| ITEM                                       | POST-TEST REQUIREMENTS   | TESTING PROCEDURE  |
|--|--|--|
| TEMPERATURE CHARACTERISTIC                 | CAP. CHANGE :<br>Y5P : WITHIN $\pm 10\%$ (-25°C to +85°C) & WITHIN $\pm 35\%$ (85°C to +125°C)<br>Z5U & Y5U : WITHIN -56,+22%<br>Z5V : WITHIN -82,+22% | CAPACITANCE SHALL BE MEASURED AT 25°C. AND CLASSIFIED AS CAP. CHANGE :<br>CLASS Y5P : -25°C ~ +125°C<br>CLASS Y5U : -25°C ~ +85°C<br>CLASS Z5U&Z5V : +10°C ~ +85°C<br><b>Pre-treatment:</b><br>Capacitor shall be stored at 125±3°C for 1hour.then placed at 1room condition for 24±2hours |
| TERMINAL STRENGTH                          | TENSILE STRENGTH :<br>NO BREAKDOWN   | WIRE DIA.0.5 M/M, LOADING WEIGHT 0.5KG FOR 10±1 SECONDS<br>WIRE DIA.0.6 M/M, LOADING WEIGHT 1.0KG FOR 10±1 SECONDS   |
|  | BENDING STRENGTH :<br>NO BREAKDOWN   | WIRE DIA.0.5 M/M, LOADING WEIGHT 0.25 KG<br>WIRE DIA.0.6 M/M, LOADING WEIGHT 0.5 KG (BENDING BACK AND FORTH 90 DEGREE TWICE)   |
| SOLDERABILITY                              | LEAD WIRE SHALL BE SOLDERED OVER 3/4 OF THE CIRCUMFERENTIAL DIRECTION.   | TO COMPLY WITH JIS-C-5102 8.4 SOLDER TEMPERATURE 245±5°C AND DIPPING TIME 5±0.5 SECONDS. FLUX : WEIGHT RATIO OF POSIN 25%  |
| SOLDERING HEAT RESISTANCE                  | APPEARANCE :<br>NO ABNORMALITIES   | LEAD WIRE OR TERMINALS SHALL IMMERSE UP TO 2.0 M/M FORM BODY.<br>(A) BODY DIA. ≤ 5.0mm: INTO THE MOLTEN SOLDER OF WHICH TEMPERATURE: 260(+5/-0)°C FOR 3.0±0.5 SECONDS.<br>(B) BODY DIA. > 5.0mm: INTO THE MOLTEN SOLDER OF WHICH TEMPERATURE 260(+5/-0)°C FOR 5~10 SECONDS.                |
|  | CAP. CHANGE :<br>Y5P : ±5% MAX<br>Z5U & Y5U : ±15% MAX<br>Z5V : ±20%<br><br>WITHSTAND VOLTAGE:<br>(BETWEEN TERMINALS)<br>NO ABNORMALITIES              | THEN LEAVE AT STANDARD TEST CONDITIONS FOR 24±2 HOURS, THEN MEASURED.<br>※ WHEN SOLDERING CAPACITOR WITH A SOLDERING IRON, IT SHOULD BE PERFORMED IN FOLLOWING CONDITIONS.<br>TEMPERATURE OF IRON-TIP: 350~400 °C<br>SOLDERING IRON WATTAGE : 50W MAX.<br>SOLDERING TIME : 3.5 SEC. MAX.   |
| HUMIDITY CHARACTERISTIC (STABLE SITUATION) | APPEARANCE:<br>NO ABNORMALITIES  | CAPACITORS SHALL BE SUBJECTED TO A RELATIVE HUMIDITY OF 90 ~ 95% AT 40±2°C FOR 500(+24/-0) HOURS. THEN DRIED FOR 1~2 HOURS AND MEASURED.   |
|  | CAP. CHANGE :<br>Y5P : ± 15% MAX<br>Z5U & Y5U : ± 20% MAX<br>Z5V : ± 30% MAX   |  |
|  | D.F.<br>Y5P : 5% MAX<br>Z5U & Y5U: 5% MAX<br>Z5V : 7.5% MAX  |  |
|  | INSULATION RESISTANCE :<br>1000MΩ MIN.   |  |

※ 1 "room condition" Temperature:15~35, Relative humidity: 45~75%, Atmospheric pressure:86~106kPa

|   |                 |                             |
|---|-----------------|-----------------------------|
| 50V,100V,500V,1KV,2KV Hi-K CERAMIC DISC CAPACITOR FOR DOWN SIZE PRODUCT | POE-D04-00-E-12 | Ver: 12<br>Page: 13 /<br>16 |
|---|-----------------|-----------------------------|

| ITEM                           | POST-TEST REQUIREMENTS   | TESTING PROCEDURE   |
|--------------------------------|--|---|
| HUMIDITY<br>LOADING            | APPEARANCE:<br>NO ABNORAMLITIES  | CAPACITORS SHALL BE SUBJECTED TO A RELATIVE HUMIDITY OF 90 ~ 95% AT 40 ± 2°C FOR 500(+24/-0) HOURS WITH RATED VOLTAGE APPLIED WITH 50mA MAX., THEN DRIED FOR 1~2 HOURS AND MEASURED.<br><br>Pre-treatment:<br>Capacitor shall be stored at 125±3°C for 1hour.then placed at※ 1room condition for 24±2hours  |
|                                | CAP. CHANGE :<br>Y5P : ±15% MAX<br>Z5U & Y5U: ±20% MAX<br>Z5V : ±30% MAX |   |
|                                | D.F.<br>Y5P : 5% MAX<br>Z5U & Y5U : 5% MAX<br>Z5V : 7.5% MAX             |   |
|                                | INSULATION RESISTANCE<br>500 MΩ MIN.                                     |   |
| HIGH<br>TEMPERATURE<br>LOADING | APPEARANCE :<br>NO ABNORMALITIES   | CAPACITORS SHALL BE SUBJECTED TO A TEST OF<br>(A) BELOW 1KV: 200% RATED VOLTAGE WITH 50mA MAX.<br>(B) 1KV & ABOVE: 150% RATED VOLTAGE WITH 50mA MAX.<br>FOR 1000(+48/-0) HOURS AT 85 ± 2°C (FOR Y5U, Z5U, Z5V) / AT 125 ± 3°C (ONLY FOR Y5P) AND THEN DRIED FOR 12~24 HOURS AND MEASURED.<br><br>Pre-treatment:<br>Capacitor shall be stored at 125±3°C for 1hour.then placed at※ 1room condition for 24±2hours |
|                                | CAP. CHANGE :<br>Y5P : ±15% MAX<br>Z5U & Y5U: ±20% MAX<br>Z5V : ±30% MAX |   |
|                                | D.F.<br>Y5P : 4% MAX<br>Z5U & Y5U: 4% MAX<br>Z5V : 7.5% MAX              |   |
|                                | INSULATION RESISTANCE :<br>1000 MΩ MIN.                                  |   |
| TEMPERATURE<br>CYCLING         | APPEARANCE :<br>NO ABNORMALITIES   | CAPACITORS SHALL BE SUBJECTED TO:<br>-25±3°C (30±3min) → 25°C (3min) → 85±3°C (30±3min) → 25°C (3min) FOR 5 CYCLE.<br><br>Pre-treatment:<br>Capacitor shall be stored at 125±3°C for 1hour.then placed at※ 1room condition for 24±2hours  |
|                                | CAP. CHANGE :<br>Y5P : ±15% MAX<br>Z5U & Y5U: ±20% MAX<br>Z5V : ±30% MAX |   |
|                                | D.F.<br>Y5P : 5% MAX<br>Z5U & Y5U: 5% MAX<br>Z5V : 7.5% MAX              |   |
|                                | INSULATION RESISTANCE :<br>1000 MΩ MIN.                                  |   |

※ 1 "room condition" Temperature: 15~35, Relative humidity: 45~75%, Atmospheric pressure: 86~106kPa



|   |                 |                             |
|---|-----------------|-----------------------------|
| 50V,100V,500V,1KV,2KV Hi-K CERAMIC DISC CAPACITOR FOR DOWN SIZE PRODUCT | POE-D04-00-E-12 | Ver: 12<br>Page: 14 /<br>16 |
|---|-----------------|-----------------------------|

**8. Cautions & notices:**

※**Application:** DC or Low frequency High Voltage circuits.

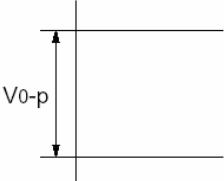
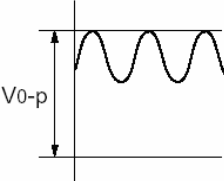
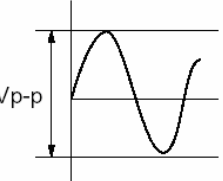
As coupling and decoupling capacitors for such application where higher losses and a reduced capacitance stability are required.

**8.1. Caution (Rating)**

I. Operating Voltage

When DC-rated capacitors are to be used in AC or ripple current circuits, be sure to maintain the  $V_{p-p}$  value of the applied voltage or the  $V_{0-p}$  which contains DC bias within the rated voltage range.

When the voltage is applied to the circuit, starting or stopping may generate irregular voltage for a transit period because of resonance or switching. Be sure to use a capacitor with a rated voltage range that includes these irregular voltages.

| Voltage                | DC Voltage  | DC+AC Voltage  | AC Voltage  |
|------------------------|---|--|---|
| Positional measurement |  |  |  |

II. Operating Temperature and Self-generated Heat

Keep the surface temperature of a capacitor below the upper limit of its rated operating temperature range. Be sure to take into account the heat generated by the capacitor itself. When the capacitor is used in a high frequency current, pulse current or similar current, it may self-generate heat due to dielectric loss. The frequency of the applied sine wave voltage should be less than 150Hz. The applied voltage load (\*) should be such that the capacitor's self-generated heat is within 20°C at an atmosphere temperature of 25°C. When measuring, use a thermocouple of small thermal capacity-K of  $\phi 0.1\text{mm}$  in conditions where the capacitor is not affected by radiant heat from other components or surrounding ambient fluctuations.

Excessive heat may lead to deterioration of the capacitor's characteristics and reliability. (Never attempt to perform measurement with the cooling fan running. Otherwise, accurate measurement cannot be ensured.)

III. Fail-Safe

When capacitor is broken, failure may result in a short circuit. Be sure to provide an appropriate fail-safe function like a fuse on your product if failure would follow an electric shock, fire or fume.

**8.2. Caution (Storage and operating condition)**

I. Operating and storage environment

The insulating coating of capacitors does not form a perfect seal; therefore, do not use or store capacitors in a corrosive atmosphere, especially where chloride gas, sulfide gas, acid, alkali, salt or the like are present. And avoid exposure to moisture. Before cleaning, bonding or molding this product, verify that these processes do not affect product quality by testing the performance of a cleaned, bonded or molded product in the intended equipment. Store the capacitors where the temperature and relative humidity do not exceed -10 to 40 degrees centigrade and 15 to 85 % for 6 months maximum and use within the period after receiving the capacitors.

**FAILURE TO FOLLOW THE ABOVE CAUTIONS MAY RESULT, WORST CASE, IN A SHORT CIRCUIT AND CAUSE FUMING OR PARTIAL DISPERSION WHEN THE PRODUCT IS USED.**



### 8.3. Caution (Soldering and Mounting)

#### I. Vibration and impact

Do not expose a capacitor or its leads to excessive shock or vibration during use.

#### II. Soldering

When soldering this product to a PCB/PWB, do not exceed the solder heat resistance specification of the capacitor.

Subjecting this product to excessive heating could melt the internal junction solder and may result in thermal shocks that can crack the ceramic element. When soldering capacitor with a soldering iron, it should be performed in following conditions.

Temperature of iron-tip: 400 degrees C. max.

Soldering iron wattage : 50W max.

Soldering time : 3.5 sec. max.

FAILURE TO FOLLOW THE ABOVE CAUTIONS MAY RESULT, WORST CASE, IN A SHORT CIRCUIT AND CAUSE FUMING OR PARTIAL DISPERSION WHEN THE PRODUCT IS USED.

### 8.4. Caution (Handling)

#### Vibration and impact

Do not expose a capacitor or its leads to excessive shock or vibration during use.

FAILURE TO FOLLOW THE ABOVE CAUTIONS MAY RESULT, WORST CASE, IN A SHORT CIRCUIT AND CAUSE FUMING OR PARTIAL DISPERSION WHEN THE PRODUCT IS USED.

### 8.5. Notice

#### 8.5.1. Notice (Soldering and Mounting)

##### Cleaning (ultrasonic cleaning)

To perform ultrasonic cleaning, observe the following conditions.

Rinse bath capacity : Output of 20 watts per liter or less.

Rinsing time : 5 min. maximum.

Do not vibrate the PCB/PWB directly.

Excessive ultrasonic cleaning may lead to fatigue destruction of the lead wires.

#### 8.5.2. Notice (Rating)

##### Capacitance change of capacitor

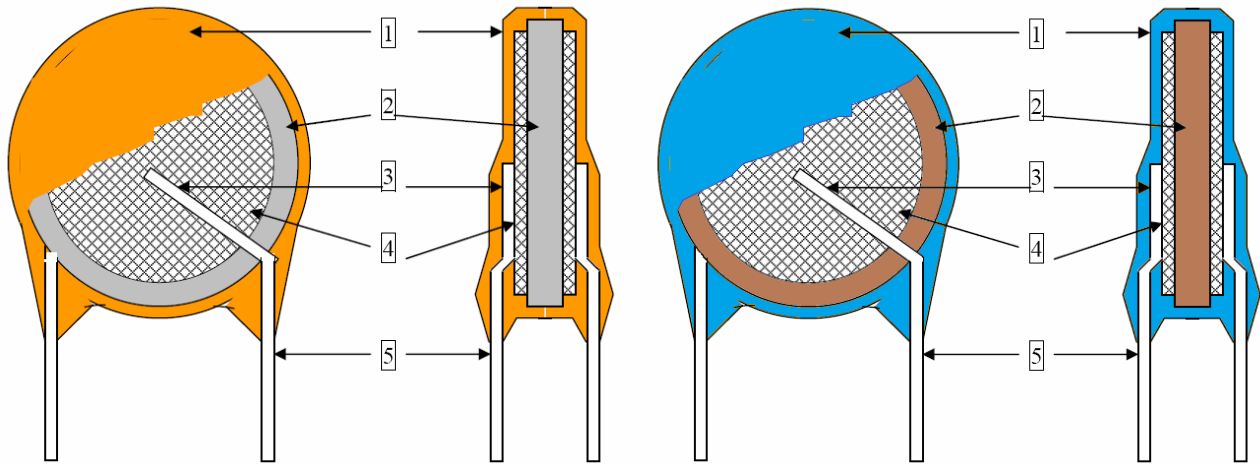
##### Class 2 series:

Capacitors have an aging characteristic, whereby the capacitor continually decreases its capacitance slightly if the capacitor is left on for a long time. Moreover, capacitance might change greatly depending on the surrounding temperature or an applied voltage. So, it is not likely to be suitable for use in a time constant circuit.

Please contact us if you need detailed information.

|   |                 |                             |
|---|-----------------|-----------------------------|
| 50V,100V,500V,1KV,2KV Hi-K CERAMIC DISC CAPACITOR FOR DOWN SIZE PRODUCT | POE-D04-00-E-12 | Ver: 12<br>Page: 16 /<br>16 |
|---|-----------------|-----------------------------|

9. Drawing of internal structure and material list:



(phenolic resin)

(epoxy resin)

| NO. | 部位<br>Part name    | 材質<br>Material                   | 構成部份<br>Component   | 供應商<br>Vendor                    |
|-----|--------------------|----------------------------------|---|----------------------------------|
| 1   | Insulation Coating | Phenolic resin<br>Epoxy resin    | Phenolic resin, Filler, Pigment<br>Epoxy resin, SiO <sub>2</sub> , TiO <sub>2</sub> | Namics<br>Kai Hua                |
| 2   | Dielectric Element | Ceramic                          | BaTiO <sub>3</sub>  | Hua Xing<br>Wang Feng<br>Fenghua |
| 3   | Solder             | Tin-silver                       | Sn97.5-Ag2.5  | Huajun<br>Haili                  |
| 4   | Electrodes         | Ag                               | Silver, Glass frit  | Daejoo<br>Xinguang               |
| 5   | Leads wire         | Tinned copper<br>clad steel wire | Substrate metal: Fe&Cu<br>Surface plating: Sn 100%                                  | Hengtai<br>Wuhu Taililai         |

## X-ON Electronics

Largest Supplier of Electrical and Electronic Components

*Click to view similar products for [Ceramic Disc Capacitors](#) category:*

*Click to view products by [Walsin](#) manufacturer:*

Other Similar products are found below :

[5AU100JCECA](#) [5AU220JCGCA](#) [5AU560JCJCA](#) [HCU180KBCDRTKR](#) [432202101621](#) [101GHR102K](#) [W1X223MCVCF0KR](#) [CC-100N](#)  
[NCD102K1KVY5FF](#) [NCD103M1KVZ5UF](#) [NCD331K1KVY5FF](#) [AOL-1502-02](#) [NCD103M1KVZ5UJTBF](#) [DEF2CLH040CN3A](#)  
[F05B1B331KN0B0SHN0](#) [8903D0](#) [90410-10](#) [YV101103Z060HAND5P](#) [SL102101J060BAND5P](#) [YP202102K080D04A7H](#)  
[ZU501103M090B20C6P](#) [ZU102103M100X05B0P](#) [YP102271K050B20C6P](#) [YP102391K050BAND5P](#) [YP501101K040BAND5P](#)  
[ZU102103M100BAND5H](#) [YP102681K060B20C6P](#) [YP501121K040B20C6P](#) [SL102181J070HAND5P](#) [YP501471K040B20C6P](#)  
[SL102151J070HAND5P](#) [YP501102K050HAND5P](#) [ZU501102M050B20C6P](#) [YP501472K100B20C6P](#) [ZU102103M100B20C0P](#)  
[YV500223Z080HAND5P](#) [CC1H220KA1EDCH4B1100](#) [HGK3FE102MG3BW](#) [HGK3FF152MA3BW](#) [HGK3FE472MG3BW-3085A5](#)  
[SL500330J040B20C2P](#) [SL501510J050B20C6P](#) [SL102221J080HAND5P](#) [YP500103M100HAND5P](#) [YP102101K050B20C5B](#)  
[YP500472K070HAND5P](#) [SL102101J060HAND5H](#) [YP102222K080D20C5B](#) [LN202471K080D3EAEH](#) [S103Z59Y5VP6TK7R](#)