



JYH HSU (JEC) ELECTRONICS LTD.,

Approved/Recognized Type

| Related Standard | | Certificate NO | APProved Monogram |
|---------------------|--------------|----------------|---|
| CQC (China) | IEC 60384-14 | CQC13001103540 |  |
| KC (Korea) | K60384 | SU03044-9001 |  |
| UL(usa) CSA(Canada) | IEC UL 60384 | E356696 |  |
| ENEC (EU) | EN 60384-14 | ENEC-00982-A1 |  |
| VDE (Germany) | EN 60384-14 | 40038642 |  |
| IEC CB | IEC 60384-14 | US-33637-UL | |

Specifications

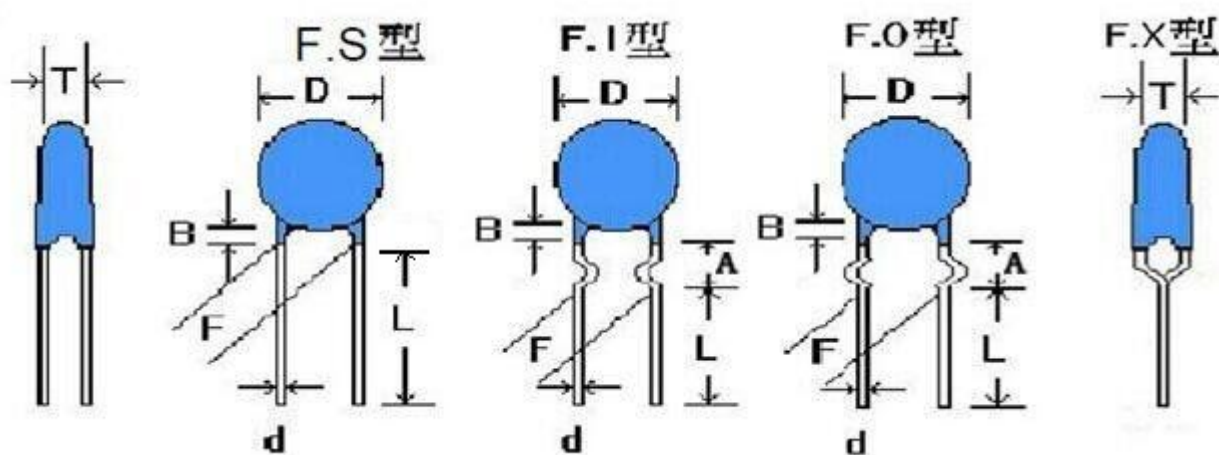
| | | | |
|---------------------------------|----------------------------|--|-----------------------------|
| Operating Temp.Range | -40℃ to +85℃ | | |
| Use temperature range | -40℃ to +125℃ | | |
| Applicable Standards | UL, CSA, CQC, ENEC, VDE | X1 | Y1 |
| | | 400VAC | 400VAC |
| Dielectric Withstanding Voltage | Rted Voltage | | Test Voltage |
| | 400VAC | | 4000 VAC for 1 min. |
| Dissipation Factor (D.F) | Y5P, Y5U | TANδ(DF) ≤ 2.5%, measured at 1KHz±10%, 1.0 — 5.0 Vrms, 25℃ | |
| | Y5V | TANδ(DF) ≤ 5.0%, measured at 1KHz±10%, 1.0 — 5.0 Vrms, 25℃ | |
| Capacitance(C) | Range | 10 pF to 10000 pF. measured at 1KHz±10%, 1.0 — 5.0 Vrms, 25℃ | |
| | Tolerance | ±10% | Y5P |
| | | ±10% | Y5U |
| | | ±20% | |
| | | ±20% | Y5V |
| InsulationResiatance(IR) | 10000 MΩ , 1 min , 100 VDC | | |
| Temperature Characteristics | Type Code | Temp. Coeff. | Temp. Range |
| | Y5P | ±10% | -40℃ to +85℃, -40℃ to +125℃ |
| | Y5V | +30%~-89% | -40℃ to +85℃, -40℃ to +125℃ |
| | Y5U | +22%~-65% | -40℃ to +85℃, -40℃ to +125℃ |

Part Number Configuration:

JD 102 M 2G Y5V S T 10 L

(1) (2) (3) (4) (5) (6) (编带) (7) (8)

- | | |
|------------------------------------|---|
| (1) AC capacitors, safety | (5) Type code: (B)Y5P, (F)Y5V, (E)Y5U |
| (2) Rated capacitance | (6) Lead shape: S(直角), I(内弯), O(外弯), X(前后弯) |
| (3) Tolerance on rated capacitance | (7) Pin pitch : 7.5or9.5or10.0 |
| (4) Rated Voltage | (8) Lead length: 3—25mm |



Dimensions and Tolerance

B=3.0mm max for AA


L=3-27mm

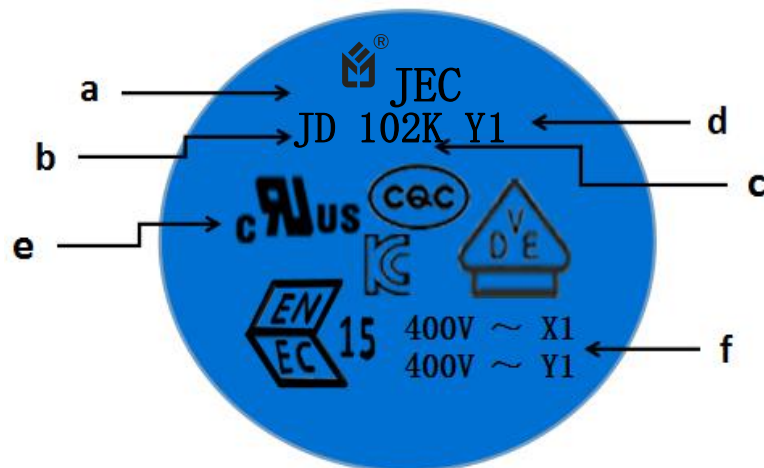
编带详细参数看 P11.

承认规格详细参数 (Approved Spec. Data)

| 品名规格 | D (MAX) | F ± 0.8 | L (MIN) mm | T ± 0.5 mm | d ± 0.05 mm | B | DF | A | 备注 |
|------|---------|-------------|------------|----------------|-----------------|---|----|---|----|
| | | | | | | | | | |
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Marking:

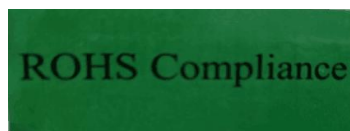
- a. Trademark or Company name 
- b. Product Type JD Series
- c. Nominal Capacitance & Tolerance 471=470pF, K= $\pm 10\%$, M= $\pm 20\%$
- d. Safety Class such as Y1
- e. Recognized Type
- f. Rated Voltage



1. Packing Quantity:

| Packing | Safety | High Voltage | Ceramic |
|-----------|-----------|-------------------|--------------|
| | Capacitor | Capacitor(Y1, Y2) | Capacitor DC |
| Bulk | 1000pcs | 1000pcs | 1000pcs |
| Tape Ammo | 2000pcs | 1500pcs | 2000pcs |

ROHS Compliance , SVHC

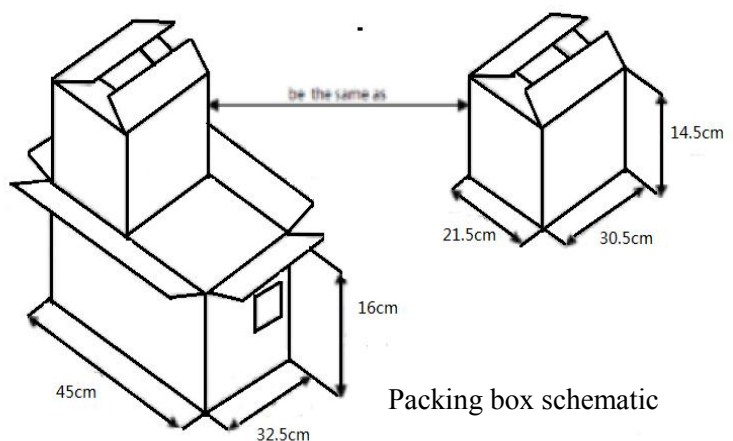


2. Packing information

2.1 the number of plastic bags in each bag is 1000 PCS. Internal label and ROHS qualification label.

2.2 the quantity of each small box is 10k-30k. 1K is a bag. It depends on the product volume.

2.3 each large box can hold two small boxes.

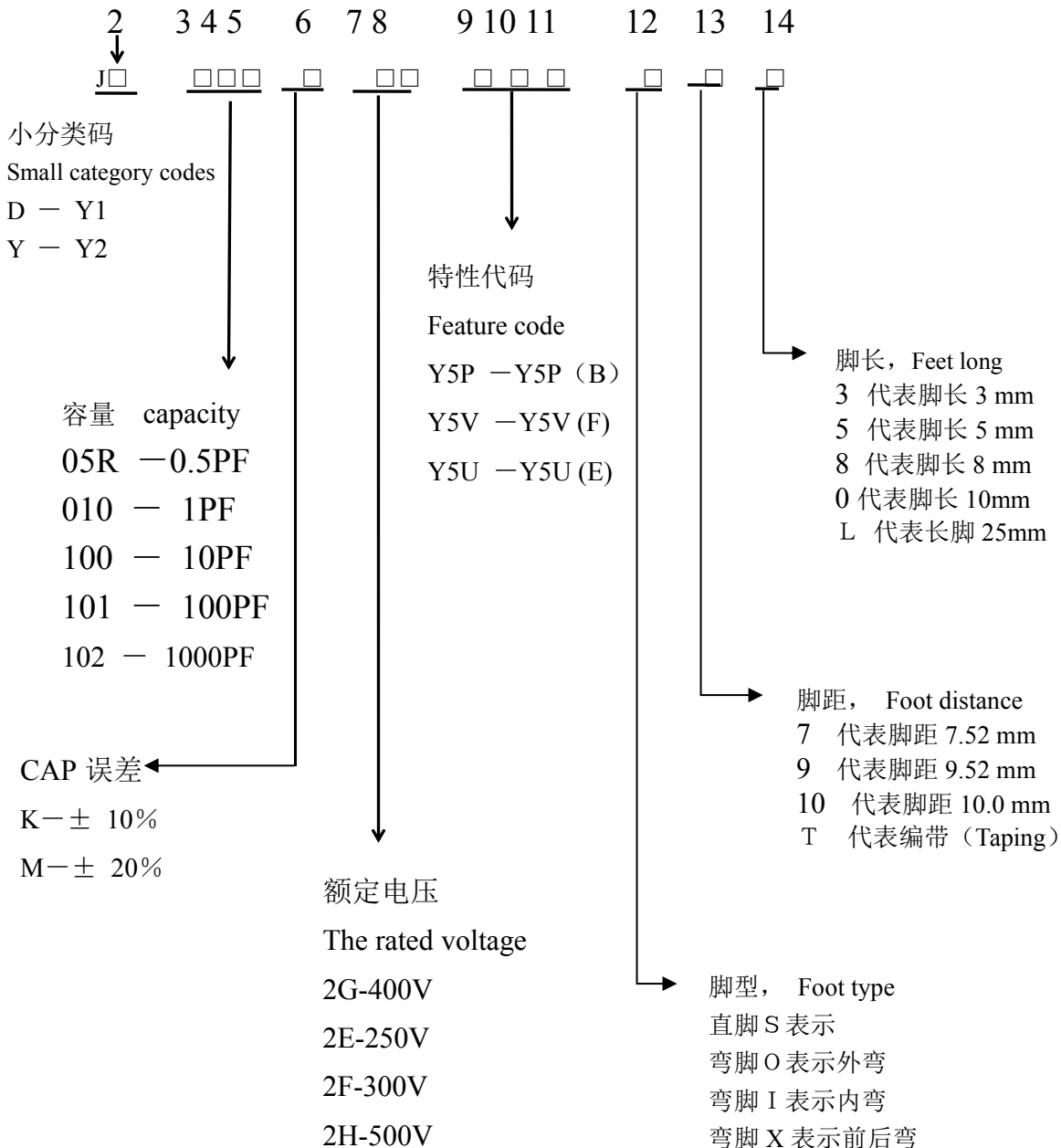


Packing box schematic

料號編碼規定如下:

成品之編碼原則上以十五碼完成，亦以阿拉伯數字與英文字母混合編成，第二碼至第十一碼與瓷片相同。
第一碼以 J 代表自製（取 JEC 商標第一字）

The coding of the finished product is in principle 15 codes, which are mixed with Arabic numerals and English letters Sizes 2 to 11 are the same as the tiles The first code is represented by J (take the first word of JEC trademark)。



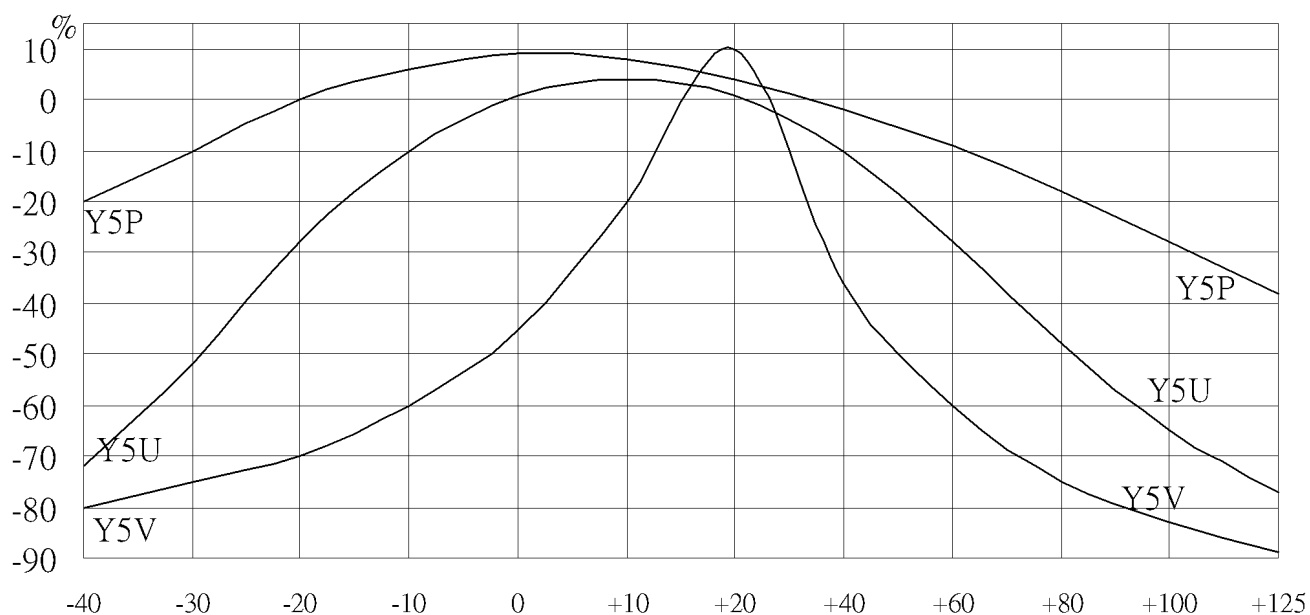
Capacitance and Dimensions:

| Part Number | T.C. | CAP. | TOL. | Dimension(mm) | | | | |
|--------------------------------|--------------------|--------------------|-----------|---------------|---------|------|----------|---------------|
| | | | | D max | F±0.8MM | | T max | Φ d(±0.05) |
| JD10K2GY5P To JD82K2GY5P | ±10% (Y5P) | 10pF To 82PF | K ±10% | 6.8 | 9.5 | 10.0 | 6 | 0.55 |
| JD101K2GY5P | | 100PF | | 6.8 | | | | |
| JD151K2GY5P | | 150PF | | 6.8 | | | | |
| JD221K2GY5P | | 220PF | | 6.8 | | | | |
| JD331K2GY5P | | 330PF | | 7.2 | | | | |
| JD471K2GY5P | | 470PF | | 8.8 | | | | |
| JD561K2GY5P | | 560PF | | 8.8 | | | | |
| JD681K2GY5P | | 680PF | | 9.8 | | | | |
| JD102K2GY5P | | 1000PF | | 10.2 | | | | |
| JD471K2GY5U | +22 ~-65% (Y5U) | 470PF | M±20% | 6.8 | | | | |
| JD561K2GY5U | | 560PF | | 7.8 | | | | |
| JD681K2GY5U | | 680PF | | 7.2 | | | | |
| JD102M2GY5U | | 1000PF | | 7.8 | | | | |
| JD152M2GY5U | | 1500PF | | 9.3 | | | | |
| JD222M2GY5U | | 2200PF | | 10.7 | | | | |
| JD332M2GY5U | | 3300PF | | 13.0 | | | | |
| JD392M2GY5U | | 3900PF | | 15.0 | | | | |
| JD472M2GY5U | | 4700PF | | 15.0 | | | | |
| JD102M2GY5V | +30 ~-89% (Y5V) | 1000PF | M±20% | 6.8 | | | | |
| JD152M2GY5V | | 1500PF | | 7.8 | | | | |
| JD222M2GY5V | | 2200PF | | 8.5 | | | | |
| JD332M2GY5V | | 3300PF | | 10.2 | | | | |
| JD392M2GY5V | | 3900PF | | 11.4 | | | | |
| JD472M2GY5V | | 4700PF | | 11.4/12.0 | | | | |
| JD103M2GY5V | | 10000PF | | 16.5 | | | | |

注：本规格仅作参考，在没有告知的情况下，有可能变更或改进，如有需求请咨询我司。

| EIA TEMPERATURE CHARACTERISTIC CHART | | | |
|--------------------------------------|---|--|--------------|
| First Digit is low Temperature | Second Digit is High Temperature | Last Digit is Capacitance Change Over Temperature Range From +25°C Reading | |
| X: -55°C Y: -25°C Z: +10°C | 4: +65°C 5: +85°C 6: +105°C 7: +125°C 8: +150°C | A | ± 1.0 % |
| | | B | ± 1.5 % |
| | | C | ± 2.2 % |
| | | D | ± 3.3 % |
| | | E | ± 4.7 % |
| | | F | ± 7.5 % |
| | | P | ± 10 % |
| | | R | ± 15 % |
| | | S | ± 22 % |
| | | T | +22 % - 33 % |
| | | U | +22 % - 56 % |
| | | V | +22 % - 82 % |

Capacitance Temperature Characteristics



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Performance & Tests, draw up by IEC 60384-14:2005 and GB/T 6346

"Note: (1) Is was defined according with IEC 60384-14:2005, when for qualification approval and periodic tests, the withstanding test must last to 1 minute, and it belong to destroyed test domain, therefore, after the test, capacitors should be scrap. Withstand voltage test should rise slowly at 150V/s, and test time is counted from when the voltage reaches to experiment requirement." (2)

The test time is more than 1 second at production period, and the rated test voltage is applied.

Capacitors may cause to damage when withstand voltage test repeated."

| NO. | Item | | Characteristic | Test Method | |
|-----|--|--------------------------------|---|-------------|--|
| 1 | Appearance and Dimensions | | Please refer to figures and tables on page 2, 3 and 4. | 1~1 1~2 | "Production line visual inspection must be done in full and remove the defective products." "Dimensions measurement by micrometer and Caliper |
| 2 | Marks | | Must be clean and clear. | 2~1 | Label need to be able endure wiping with Isopropanol |
| 3 | Withstand voltage test (I) | Between terminal | Can not have exceptions. | 3~1 | Rated voltage: 300VAC for Y2, test voltage 2000 VAC or 2600 VAC, time 60s, frequency: 50Hz/60Hz. Rated voltage: 400VAC for Y1, test voltage 4000 VAC, Approval and period test: 60s, Lot inspection 100% and time 2s, discharge current must ≤ 50 mA." |
| | | Between terminal and coating. | Can not have exceptions. | 3~2 | Use metal foil test method: use metal foil wrap around the capacitor body, each end extending at least 5mm, and keep 1mm/1kV distance minimum, between metal foil and terminals. for Y2, test voltage 2300VAC; for Y1, test voltage 4000VAC, test time 60s. |
| 4 | Withstand voltage test(III) (For safety symbol A2) | | (1)Gauze shall not ignite. (2)Capacitors shall not in burned. | 4~1 | According to IEC 60384-14 and GB/T6346 requirements. |
| 5 | Withstand voltage test (IV)(For safety symbol B2) | | (3)Elements and coating must not scattered. (4)Terminals can not be moved away from the mounting position than 3mm. | 5~1 | According to IEC 60384-14 and GB/T6346 requirements. |
| 6 | I R | Between terminals | More than 10000M Ω . | 6~1 | Measured voltage is 500 ± 15 V within 1 minute, and IR keeps within the specified value. |
| | | Between terminals and coating. | More than 10000M Ω . | | |
| 7 | Capacitance | | Within specified tolerance | 7~1 | The Capacitance shall be measured at 25°C, with 1 ± 0.1 kHz and 5Vrms max |
| 8 | Dissipation Factor(D.F) | | B(Y5P) $\tan \leq 2.5\%$ E(Y5U) $\tan \leq 2.5\%$ F(Y5V) $\tan \leq 5.0\%$ | 8~1 | "The Dissipation Factor shall be measured at 25°C with 1 ± 0.1 kHz and 5Vrms max |

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| NO | Item | Characteristic | | | Test Method | | | |
|----|-----------------------------------|--|--|--------------------------|-------------|---|-----------|--------------------------------------|
| 9 | Temperature Characteristic | Temperature Coefficient (T.C. category applicable): | | | 9~1 | Temperature Coefficient (T.C. category applicable): | | |
| | | TYPE Temp.Range | SL | YN | 9~2 | PPM/℃=(Ct2— Ct1) /Ct1*(t2—t1) Ct2: the capacitance of t2 Ct1: the capacitance of t1 t2: 85℃±3℃ t1: 20℃±2℃ | | |
| | | 20~85℃ | + 350~ -1000pp m/℃ | - 800~ -5800 ppm/℃ | | | | |
| | | Temperature characteristics: (High Dielectric applicable) Capacitance change rate within the range: Type B Within ±10% Type E Within +22% —56% Type F Within +30% —80% | | | 9~3 | Temperature phase 1) 20±2℃ → 2) -25±2℃ → 3) 20±2℃ →4) 85±2℃ →5) 20±2℃ Capacitance change: (High Dielectric Category applicable) C.C(%)=(Ctx—Ct20)/Ct20*100 Ctx : Except Temp. phase 1、3、5, The capacitance of any temperature between phase 2 to phase 4. Ct20: The capacitance of phase 3 temp. | | |
| 10 | Robustness of terminations | Tensile | Lead wires not be snapped | | 10~1 | Diameter(mm) | Load(kgs) | Time(sec) |
| | | | Capacitors not be damaged | | | 0.5Φ | 0.5 | 10 |
| | | | | | | 0.6Φ~0.8Φ | 1 | 10 |
| | | | | | 10~2 | Fix the capacitor's body and apply a tensile weight gradually to each lead wire in the radial direction | | |
| | | Bending | Lead wires not be fractured Capacitors not be damaged | | 10~3 | Diameter(mm) | Load(kgs) | Bending angle is 90 more than twice. |
| | | | | | | 0.5Φ | 0.25 | |
| | 0.6Φ~0.8Φ | | | | 0.5 | | | |
| 11 | Vibration resistance | Appearance | No significant abnormal | | 11~1 | Vibration frequency from 10Hz to 55Hz and back to 10Hz, amplitude 1.5mm, period time within 1 minute。 | | |
| | | Cap. Change | Within specification | | | | | |
| | | Q or DF | within initial specification | | | | | |
| 12 | Soldering Heat Resistance | Appearance | No significant abnormal | | 12~1 | Solder temperature 350±10℃ Immersion time 3.0± 0.5sec | | |
| | | Dielectric Strength I | compliance with the characteristic as No.3 | | 12~2 | Placed at room condition for 4~24 hours, and then to measure. | | |
| | | Capacitance change rate | B: within ±10% E: within ±15% F: within ±20% | | 12~3 | | | |

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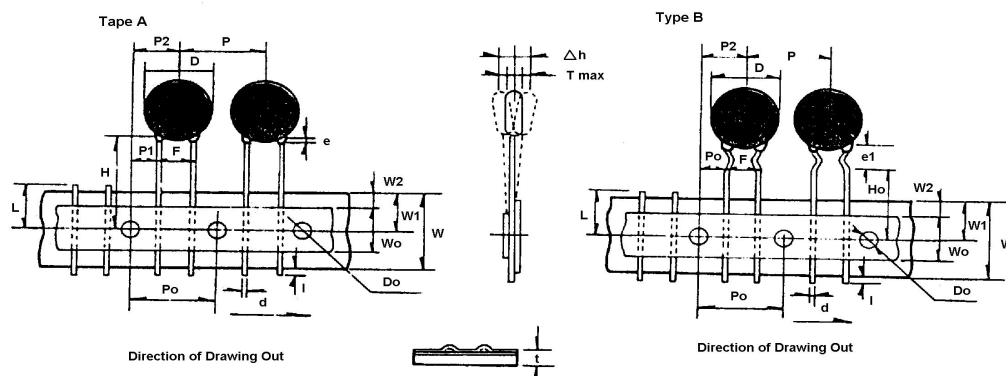
| No | Item | Characteristic | | Test Method | |
|----|-------------------------------|---|--|--------------|--|
| 13 | Solder ability | The round surface of lead wires, there must be 3/4 area welding with the solder.。 | | 13~1 13~2 | Solder temperature 275±10℃ Immersion time 2.0± 0.5sec |
| 14 | Humidity (Under Steady State) | Appearance | No significant abnormal | 14~1 | Temperature: 40±2℃ |
| | | Dielectric Strength I | Must meet the requirements of No.3 | 14~2 | Humidity: 90~95%RH |
| | | I R | More than the 1/2 value of No.6 requirements. | 14~3 | Time: 500±12 Hrs |
| | | | | 14~4 | Remove & placed at room condition for 1~2 hours, and then to measure. |
| | | Capacitance change rate | Type B within ±15% Type E within ±20% Type F within ±30% | | |
| | | Dissipation Factor (D.F) | Type B & E, under 5%. Type F, under 7.5% | | |
| 15 | Damp heat loading | Appearance | No significant abnormal | 15~1 | Temperature: 40±2℃ |
| | | Dielectric Strength I | Must meet the requirements of No.3 | 15~2 | Humidity: 90~95%RH |
| | | I R | More than the 1/2 value of No.6 requirements. | 15~3 | Time: 500±12 Hrs |
| | | | | 15~4 | Voltage: AC 180Vrms |
| | | Capacitance change rate | Type B within ±15% Type E within ±20% Type F within ±30% | 15~5 15~6 | Current: Less than 50mA Remove & placed at room condition for 1~2 hours, and then to measure. |
| | | Dissipation Factor (D.F) | Type B & E, under 5% Type F, under 7.5%. | | |

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| No | Item | Characteristic | | Test Method | | |
|----|---------------------------|--------------------------|---|--|--|--|
| 16 | Endurance | Appearance | | No significant abnormal | 16~1 | Temperature: 85±3℃; 125±5℃ Time: 1000±12 Hrs Voltage: rated voltage of 1.7UR Current: less than 50mA Remove & placed at room condition for 1~2 hours, and then to measure. |
| | | Dielectric Strength I | | "Must meet the requirements of No.3 | 16~2 | |
| | | I R | Between terminals | More than the 1/2 value of No.6 requirements. | 16~3 | |
| | | | Between terminal&coating | | 16~4 | |
| | | Capacitance change rate | | Type B within ±15% Type E within ±20% Type F within ±30% | 16~5 | |
| | | Dissipation Factor (D.F) | | Type B & E, under 5% Type F, under 7.5% | | |
| | | 17 | Flame Test | | Applicable safety symbols A2, B2. | |
| 18 | Solvent Resistance (Body) | | After the test must meet the standards of its electrical properties | | The capacitor should be immersed into a isopropyl alcohol for 5±0.5 minutes, then removed and placed for 48 hrs. at room condition before post measurements. | |
| 19 | Solvent Resistance (Mark) | | Marks should be legible | | Use cotton yarn dips isopropyl alcohol, by force 5±0.5 N/1 cm^2, 1 second round trip twice to wipe mark on the body, and run 5 cycles. | |

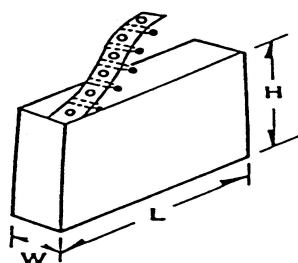
TAPING SPECIFICATIONS

Taping (Radial)--Lead Spacing $F=7.5\pm0.8$ or 10.0 ± 0.8



| Item | | Code | Dimensions (mm) | Item | | Code | Dimensions (mm) |
|-----------------------------------|--------------|------|----------------------------|-----------------------------|--|------|------------------------|
| Taping Pitch | | P | 12.7 ± 1.0 | Lead Protrusion | | l | $+0.5\sim1.0$ |
| Guide Pitch | | Po | 12.7 ± 1.0 | Diameter of Feed Hole | | Do | 4.0 ± 0.3 |
| Lead Spacing | | F | 7.5 ± 0.8 9.5 ± 0.8 | Diameter of Lead | | d | $0.55+0.06$ -0.05 |
| Feed Hole Position Capacitor Body | | P2 | 6.35 ± 1.3 | Total Thickness of Tape | | t | 0.7 ± 0.2 |
| Feed Hole Position Capacitor Lead | | P1 | 3.85 ± 0.7 | Thickness of Capacitor Body | | T | Differ in each product |
| Diameter Of ISO | | D | See table of each series | Alignment to FR. Direction | | Δ h | 0 ± 2.0 |
| | | | | Length of snapped Lead | | L | $11.0+0 -1.0$ |
| Width Of Base Tape | | W | 18.0 ± 0.5 | Width of Hold-down Tape | | Wo | 12.5 |
| Feed Hole Vertical Position | | W1 | $9.0+0.75 -0.05$ | Hold-down Tape Position | | W2 | 1.5 ± 1.5 |
| Taping Height | For Straight | Ho | 16.0 ± 0.5 | Coating Extention | | e | 3.0 以下 |
| | For Crimp | H | $20+1.5 -1.0$ | | | e1 | up to center of crimp |

AMMO PACK



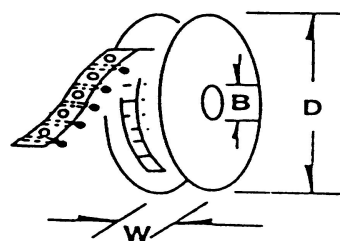
$$H = 241\pm5 \text{ mm}$$

$$L = 332\pm5 \text{ mm}$$

$$W = 42\pm3 \text{ mm}$$

Acceptable to standard radial type cartridge.

REE



$$D \leq 354(13.93)$$

$$B \geq 21(.83") \text{ but } \leq 30(1.18")$$

$$W \leq 55(2.16)$$

Acceptable to standard radial type cartridge with a few extra accessories. Reeled axials are also acceptable to standard axial type cartridge with a few accessories.