



久亦電子有限公司

JOEY ELECTRONICS CO., LTD.

塑膠薄膜電容器規格承認書

SPECIFICATION OF PLASTIC FILM CAPACITOR FOR APPROVAL

立创商城

客 戶 名 稱 : 深 圳 市 立 创 电 子 商 务 有 限 公 司  
( Customer )  
項 目 : 4PS 系 列  
( Item )  
客 戶 料 號 :  
( Customer Part No )  
久 亦 料 號 :  
( Joey Parts No )  
送 樣 日 期 :  
( Date )  
備 注 :  
( Remark )

CUSTOMER APPROVAL 廠商認可

請確認後簽回，若不簽回，視同默認。

PLEASE SIGNATURE AFTER CHECKING , NO SIGNATURE IS EQUAL PRETERMIT.

承認章 ( Approved By )

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|---------------------|
| 承認章 ( Approved By ) |
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# 產品編碼說明 Part number code system

## 1.各型號電容 Capacitor code of types

| ① ② ③            |         | ④ ⑤ ⑥                  |         | ⑦                         | ⑧ ⑨                       |          | ⑩ ⑪ ⑫               |         | ⑬                              | ⑭ ⑮ ⑯        |         |  |  |
|------------------|---------|------------------------|---------|---------------------------|---------------------------|----------|---------------------|---------|--------------------------------|--------------|---------|--|--|
| M E F            |         | 1 0 5                  |         | J                         | 2 E                       |          | 8 A A               |         | 8                              | 2 0 M        |         |  |  |
| <b>品名 Series</b> |         | <b>額定容量 Rated Cap.</b> |         | <b>容差碼 Cap. Tolerance</b> | <b>額定電壓 Rated Voltage</b> |          | <b>腳距碼 (Pitch)P</b> |         | <b>腳型碼 Forming lead shapes</b> |              |         |  |  |
| 型號 Type          | 代碼 Code | 容量(μf) Cap.            | 代碼 Code |                           | 電壓 Voltage                | 代碼 Code  | 腳距 P (mm)           | 代碼 Code | 圖形 Fig.                        | 備註 Note (mm) | 代碼 Code |  |  |
| PEI              | PEI     | 0.0010                 | 102     |                           | 50 VDC                    | 1H       | 5                   | 2       |                                | L≥20 / P±1   | AA      |  |  |
| PEN              | PEN     | 0.0011                 | 112     |                           | 63 VDC                    | 1J       | 7.5                 | 3       |                                | L±1 / P±1    | AS      |  |  |
| MEF              | MEF     | 0.0012                 | 122     |                           | 100 VDC                   | 2A       | 10                  | 4       |                                | L≥20 / P±1   | KA      |  |  |
| MET              | MET     |                        | ...     |                           | 200 VDC                   | 2D       | 12.5                | 5       |                                | L±1 / P±1    | KS      |  |  |
| MEA              | MEA     | 0.010                  | 103     |                           | 250 VDC                   | 2E       | 15                  | 6       |                                | L≥20 / P1±1  | EA      |  |  |
| MEB              | MEB     | 0.011                  | 113     |                           | 400 VDC                   | 2G       | 20                  | 8       |                                | L±1 / P±1    | ES      |  |  |
| PPN              | PPN     | 0.012                  | 123     |                           | 450 VDC                   | 2L       | 22.5                | 9       |                                | L≥20 / P1±1  | WA      |  |  |
| MPP              | MPP     |                        | ...     |                           | 500 VDC                   | 2H       | 25                  | A       |                                | L±1 / P±1    | WS      |  |  |
| MPT              | MPT     | 0.100                  | 104     |                           | 520VDC                    | 2B       | 27.5                | B       |                                | L≥20 / P1±1  | NA      |  |  |
| MPA              | MPA     | 0.110                  | 114     |                           | 630 VDC                   | 2J       | 32.5                | D       |                                | L±1 / P±1    | NS      |  |  |
| MPB              | MPB     |                        | ...     |                           | 800 VDC                   | 2K       | 35                  | E       |                                | P+0.8~-0.2   | AT      |  |  |
| X1               | XX1     | 1.0                    | 105     |                           | 1000 VDC                  | 3A       | 37.5                | F       |                                | P+0.8~-0.2   | KT      |  |  |
| X2               | XX2     |                        | ...     |                           | 1200 VDC                  | 3B       | 42.5                | H       |                                | P+0.8~-0.2   | ET      |  |  |
| MinBox           | MIB     |                        |         |                           | 1250 VDC                  | 3M       | 3                   | P       |                                |              |         |  |  |
| MES              | MES     |                        |         |                           | 1500 VDC                  | 3C       | 4                   | Q       |                                |              |         |  |  |
| MPS              | MPS     |                        |         |                           | 1600 VDC                  | 3V       | 6                   | S       |                                |              |         |  |  |
| KPS              | KPS     |                        |         |                           | 1800 VDC                  | 3W       | 7                   | R       |                                |              |         |  |  |
| MPH              | MPH     |                        |         |                           | 2000 VDC                  | 3D       | 8                   | W       |                                |              |         |  |  |
| MHS              | MHS     |                        |         | 2500 VDC                  | 3E                        | 16       | X                   |         |                                |              |         |  |  |
| KHS              | KHS     |                        |         | 3000 VDC                  | 3F                        | 21       | Y                   |         |                                |              |         |  |  |
| KES              | KES     |                        |         | 300 VAC                   | A1                        | 31.5     | Z                   |         |                                |              |         |  |  |
| PPS              | PPS     |                        |         | 275 VAC                   | A2                        | 43.5     | V                   |         |                                |              |         |  |  |
| 2PS              | 2PS     |                        |         | 100 VAC                   | A3                        | 橫軸 Axial | 0                   |         |                                |              |         |  |  |
| 3PS              | 3PS     |                        |         | 160 VAC                   | A4                        |          |                     |         |                                |              |         |  |  |
| 4PS              | 4PS     |                        |         | 200 VAC                   | A5                        |          |                     |         |                                |              |         |  |  |
| 5PS              | 5PS     |                        |         | 250 VAC                   | A6                        |          |                     |         |                                |              |         |  |  |
| 6PS              | 6PS     |                        |         | 450 VAC                   | A7                        |          |                     |         |                                |              |         |  |  |
| VPF              | VPF     |                        |         | 310VAC                    | AE                        |          |                     |         |                                |              |         |  |  |
| VPB              | VPB     |                        |         | 330VAC                    | A9                        |          |                     |         |                                |              |         |  |  |

| 腳長(mm)   | 代碼  |
|----------|-----|
| 3.2      | 032 |
| 直腳(L≥20) | 20M |
| 編帶(TAP)  | 000 |

第⑩碼⑬碼為腳距碼  
 第⑩碼為原始腳距碼  
 第⑬碼為整形後腳距碼

一. Scope: this specification applied to capacitor for type "4PS"  
(Metallized polypropylene film capacitor)

二. Applications

\*Widely used in high voltage and frequency and pulse circuit

\*Snubber and SCR commutating circuits

\*Deflection circuits in TV sets ( s- correction and fly- back tuning ) and monitors

\*Lamp capacitor for electronic ballast and compact lamps

三. Climatic

\*Max. Operating temperatur : 110°C

\*Climatic category ( IEC 60068-1) : 55/105/56

四. Features

\*Double sided meallized polypropylene film , series non- wound construction

\*Low loss at high frequency

\*Small inherent temperature rise

\*Plastic case , flame retardent epoxy resin sealing

五. Working voltage : 4PS ( 630 ~ 2500 VDC )

六. Capacitance range : ( 0.01uF ~ 0.33uF )

七. Capacitance tolerance :  $\pm 5\%$ (J), $\pm 10\%$ (K)

八. Constructions & Show

\*Constructions

A : Elenent ( Metallized polypropylene film )

B : Metals

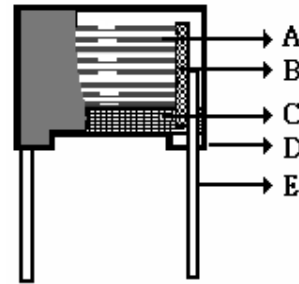
C : Epoxy resing

D : Plastic Case

E : Wire

\*Shows :

Capacitor's shows,it's shown. Attached drawing



九. Marking :

Capacitor is marking on body for following items

**W 473 J**

**4PS 1000**

A : Capacitance tolerance

B : Capacitance

C : Manufacture's name and trade mark

(we use " W " as our registered trand mark)

D : Work voltage

E : Type name

十. Standard testing condition:

Capacitors may be measured at temperature  $20 \pm 5^\circ\text{C}$

And humidity :  $65 \pm 5\%$ RH

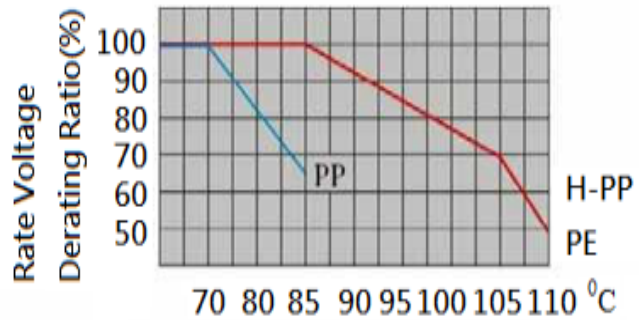
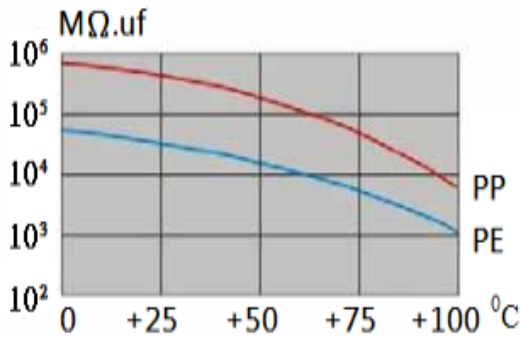
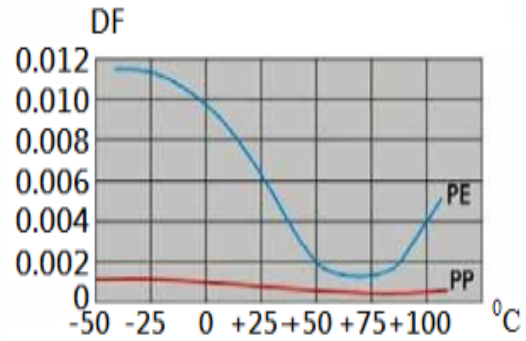
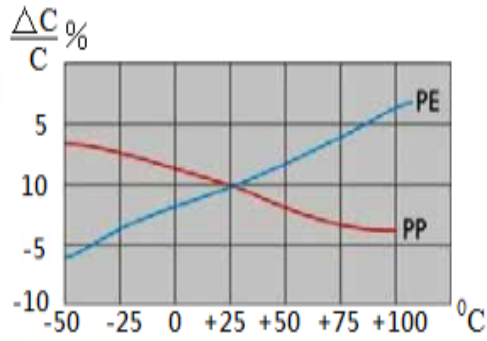
## 十一. Technical data

|   |  |                                   |
|---|--|-----------------------------------|
| Operating temperature range   | Max. operating temperature $T_{op, max}$   | +110°C                            |
|   | Upper category temperature $T_{max}$   | +105°C                            |
|   | Lower category temperature $T_{op min}$  | -55°C                             |
|   | Rated temperature $T_R$  | +85°C                             |
| Dissipation factor $\tan \delta$<br>( in $10^{-3}$ ) at 20°C<br>( upper limit values )                  | at 1kHz  | $\leq 0.6$                        |
|   | at 10kHz   | $\leq 12$                         |
|   | at 100kHz  | $\leq 15.0$                       |
| Insulation resistance $R_{ins}$<br>at 20°C, rel. humidity $\leq 65\%$<br>(minimum as-delivered values ) | 30 G $\Omega$ ( $C_R \leq 0.33\mu F$ )   |                                   |
|   | 10000 s ( $CR < 0.33\mu F$ )   |                                   |
| DC test voltage   | 1.6 * $V_R$ , 2S   |                                   |
| Category voltage $V_C$<br>( continuous operation with $V_{DC}$ at $f \leq 1$ kHz)                       | $T_{op}$ ( °C )  | DC voltage derating               |
|   | $T_{op} \leq 85$   | $V_C = V_R$                       |
|   | $85 < T_{op} \leq 105$   | $V_C = V_R * (165 - T_{op}) / 80$ |
| Operating voltage $V_{op}$ for short operating periods<br>$V_{DC}$ at $f \leq 1$ kHz)                   | $T_{op}$ ( °C )  | DC voltage ( max. hours )         |
|   | $T_{op} \leq 85$   | $V_{OP} = 1.25 * V_R$ (1000 h)    |
|   | $85 < T_{op} \leq 105$   | $V_{OP} = 1.25 * V_C$ (1000 h)    |
| Damp heat test<br>Limit values after damp Heat test   | 56 days / 40°C / 93% relative humidity   |                                   |
|   | Capacitance change   $\Delta C/C$  | $\leq 5\%$                        |
|   | Dissipation factor change $\Delta \tan \delta$   | $\leq 5.0 * 10^{-3}$ (at 1kHz )   |
|   | Insulation resistance $R_{ins}$  | $\geq 50\%$ initial limit value   |
| Reliability   |  |                                   |
| Failure rate $\lambda$  | 1 fit ( $\leq 1.0 * 10^{-9}/h$ ) at $0.5 * V_R$ , 40°C   |                                   |
| Service life $t_{SL}$   | 200 000 h at $0.5 * V_R$ , 85°C  |                                   |
|   | For conversion to other operating conditions and temperatures , refer to chapter "Quality , 2Reliability". |                                   |
| Failure criteria  | Short circuit or open circuit  |                                   |
| Total failure   | Capacitance change   $\Delta C/C$  | $> 10\%$                          |
| Failure due to variation of parameters  | Dissipation factor $\tan \delta$   | $< 4$ . Upper limit values        |
|   | Insulation resistance $R_{ins}$  | $< 1500 M \Omega$                 |

十二. Product electrical characteristic graph 產品電氣特性圖

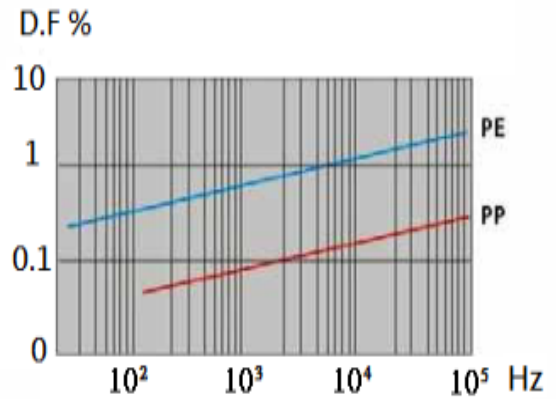
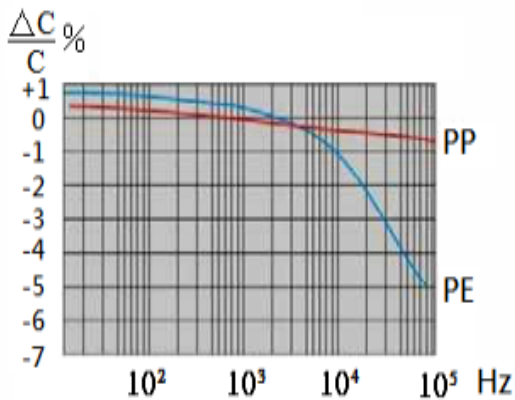
溫度性能

Temperature Characteristics



頻率性能

Frequency Characteristics



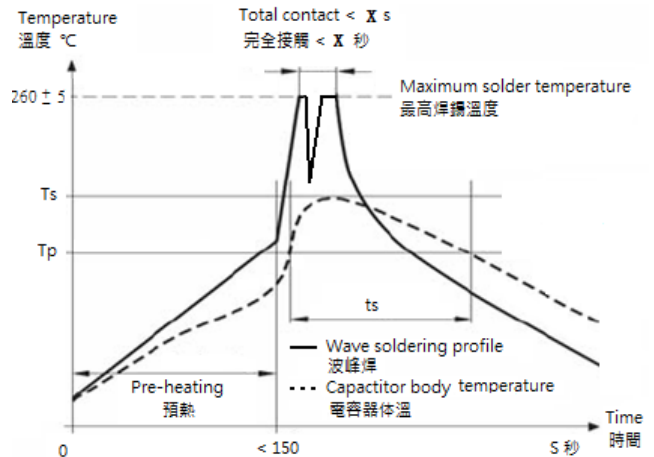
### 十三. Soldering suggestions - 焊接建議

When soldering a capacitor, heat in soldering is conducted to the element of the capacitor from wire lead and an enclosure, and hence it should be noted that soldering under high temperature and a long period may cause deterioration or breakdown of capacitors. Characteristic or Be sure to solder within the following temperature condition range.

當焊接電容時，焊錫熱會通過引線端子高溫及封裝層傳遞到電容素子，因此必須注意高溫及長時間焊接引起的電容器特性衰減或損壞，請確認焊錫在以下溫度範圍內。

Ts : Capacitor body maximum temperature at wave soldering  
電容器本體最高波峰焊溫度

Tp : Capacitor body maximum temperature at pre-heating  
電容器本體最高預熱溫度



Body temperature should follow the description below  
電容器本體溫度應該符合以下描述：

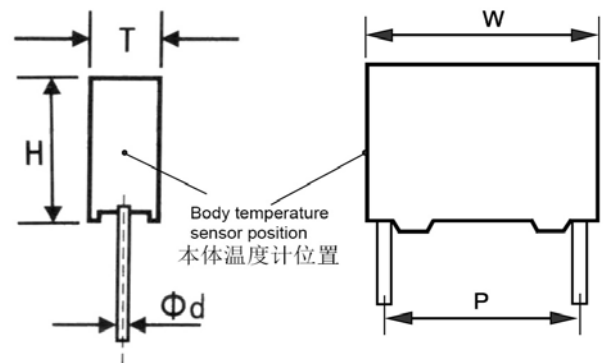
PP 聚丙烯電容器

During pre-heating :  $T_p \leq 115^\circ\text{C}$

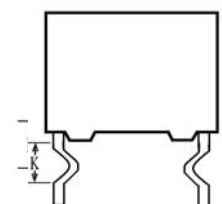
During soldering :  $T_s \leq 120^\circ\text{C}$  ,  $t_s \leq 45\text{ s}$

預熱期間溫度 :  $T_p \leq 115^\circ\text{C}$

焊接期間溫度 :  $T_s \leq 120^\circ\text{C}$  ,  $t_s \leq 45\text{ s}$



|   |            |     |
|---|------------|-----|
|   | X s        | X s |
| T 產品厚度 $\geq 6\text{mm}$                            | 10 s       |     |
| $6\text{mm} > T$ 產品厚度 $\geq 5\text{mm}$ 且 K 3.5mm   | 10 s       |     |
| $6\text{mm} > T$ 產品厚度 $\geq 5\text{mm}$             |            | 5 s |
| $5\text{mm} > T$ 產品厚度 $\geq 4.5\text{mm}$ 且 K 3.5mm |            | 5 s |
| <b>OPP P &lt; 7.5mm 或 T 產品厚度 &lt; 4.5 mm</b>        | <b>3 s</b> |     |



十四. When SMD components are used together with leaded ones, the film capacitors should not pass into the SMD adhesive curing. The leaded components should be assembled after the SMD curing step.

當SMD元件與引腳式元件一起使用時，薄膜電容器不應進入SMD粘合劑固化爐。引腳式部件應在SMD固化步驟之後組裝。

十五. Leaded film capacitors are not suitable for reflow soldering.

引腳式薄膜電容器不適合回流焊。

十六. In order to ensure proper conditions for manual or selective soldering, the body temperature of the capacitor ( $T_s$ ) must be  $\leq 120^\circ\text{C}$

為了確保手動或選擇性焊接的適當條件，電容器 ( $T_s$ ) 的本體溫度必須是  $\leq 120^\circ\text{C}$

十七. One recommended condition for manual soldering is that the tip of the soldering iron should be  $< 360^\circ\text{C}$  and the soldering contact time should be no longer than 3 seconds.

手工焊接的一個推薦條件是烙鐵的頂端應該是  $< 360^\circ\text{C}$ ，焊接接觸時間不應超過3秒。

十八. TESTING EQUIPMENT 檢測設備:

(一) CAPACITANCE AND 容量和損耗角 (CAP& DF) :

1. UAD TECH 1689 LCR METER.
2. TAI WAN ZENTECH 1062 LCR METER.
3. TAI WAN ZENTECH 1063 LCR METER.
4. TAI WAN ZENTECH 1075 LCR METER.

(二) INSULATION RESISTANCE 絕緣阻抗 (IR) :

1. DAN BRIDGE 602 METER
2. ZENTECH 705 IR METER.

(三) DIELECTRIC STRENGTH 耐電壓 (TV) :

1. ZENTECH 902
2. TAI WAN EXTECH 7450

(四) AUTO SORTING MACHINES 自動分選機(選別機)

1. TAI WAN URANUS SORTING AUTOMATIC
2. TAI WAN WELL DELL SORTING AUTOMATIC

(五) CHARACTERISTICS OF PERMISSIBLE CURRENT TO FREQUENCY 許容電流與頻率特性

1. CHROMA PROGRAMMABLE HF AC TESTER MODEL 11805  
可程式高頻交流測試器11805
2. CHROMA DIGIT MULTIMETER 12061  
六位半數位多功能電表
3. CHROMD CAPACITOR LEAKAGE CURRENT / IR METER MODEL 11200  
電容漏電流/絕緣電阻表11200

(六) RoHS & WITHOUT HALOGEN RoHS和無鹵產品

1. SHIMADZU EDX-LE

十九. ACCEPTABLE QUALITY LEVEL 允收標準 (AQL):

AQL IS ACCORDING TO MIL-STD-105E-II, BY LOT GOING INSPECTION.

允收標準(AQL)是根據MIL-STD-105E-II抽樣方試檢驗

- (一) APPEARANCE AQL : 1.0 AC 外觀不良低於1.0為允收
- (二) DIMENSIONS AQL: 1.0 AC 尺寸不良低於1.0為允收
- (三) MECHANICAL CHARACTERISTICS AQL: 1.0 AC 機械特性不良低於1.0為允收
- (四) ELECTRICAL CHARACTERISTICS AQL: 0.065 (INCLUDE CAP,DF,TV,IR)  
電器特性不良低於 0.065 (包括 CAP,DF,TV,IR)



二十. Manufacturers製造商：JOEY ELECTRONICS CO,LTD. 久亦電子有限公司。  
Origin , including 產地：CHINA P .R .C 中國

二一. The compliance with enviroment requirement 環保要求符合性

- 21.1 Compliance with the requirement of RoHS.符合RoHS要求。
- 21.2 Compliance with the requirement of REACH.符合REACH要求。
- 21.3 Without Halogen ( as required ) 符合無鹵 ( 如要求 ) 。

二二. Storage conditions 存儲條件：

- 22.1 It should be noted that the solderability of the terminals may be deteriorated when Stored bardly in an atmosphere for a long periods.  
請注意，長時間暴露在空氣中會導致引線焊接性能衰減。
- 22.2 It shouldn't be located in particularly high temperature and high humidity , it must Submit to the following conditions ( keeping in the original package) :  
不能放置在高溫和高濕環境中，請遵循以下存儲條件 ( 原包裝下保存 )  
Temperature 溫度：35°C MAX.  
Relative humidity 相對濕度：80% MAX.
- 22.3 Storage period : (from the manufacturing date marked on the label in pachege bag )  
Loose : 12months MAX.  
存儲時間：( 包裝袋上標注的生產日期為準 ) 最長12個月。

二三. Characteristics and test conditions 電氣特性和測試條件：

Test condition : Unless otherwise specified , the standard range of atmospheric Conditions for marking measurements and test is as follows Ambient Temperature  
環境溫度：15~35°C  
Relaive humidity 相對濕度：25~75%  
If there may be any doubt on the results , measurements shall be made within the Following limits.  
如對測試結果有任何疑問，則按以下限制測試：  
Ambient temperature 環境溫度：20 ~ 25 °C  
Relative humidity 環境濕度：60 ~ 70% .