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SPECIFICATION FOR APPROVAL

CUSTOMER _____

CERTIFIED
MODEL/TYPE

PPL05102-P9F0

PART NO.

PPL05102MP9F0WKB(RoHS)

APPLICATION _____

CUSTOMER P/N _____

ISSUE DATE

Dec.03.2019

REV. NO. _____

REV. DATE _____

| FOR CUSTOMER APPROVAL | CHECKED BY |
|-----------------------|-----------------------|
| | <i>Haili Gong</i> |
| | APPROVED BY |
| | <i>Huaifang Zhang</i> |





REVISED RECORD SHEET

| REV. NO | REV. DATE | REVISED CONTENT |
|---------|-----------|-----------------|
| | | |

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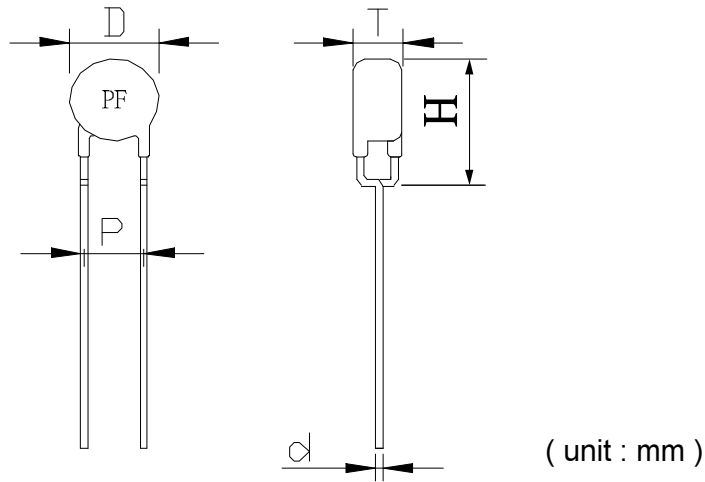
Part Number Code

Example :

PP **L** **05** **102** **M** **P9** **F0** **W** **KB**
 (1) (2) (3) (4) (5) (6) (7) (8) (9)

| No. | Item | Digit | Specification |
|-----|------------------------------|-------|--------------------------------------|
| (1) | Product Type | PP | Thinking overload protection PP type |
| (2) | Type Series | L | Lead type |
| (3) | Size | 05 | φ5mm |
| (4) | Resistance(R ₂₅) | 102 | 10*10 ² Ω=1000 Ω |
| (5) | Tolerance of R ₂₅ | M | ±20% |
| (6) | Curie Temperature | P9 | 90°C typ |
| (7) | Rated Voltage | F0 | 600V |
| (8) | Packaging | W | RoHS compliance &Taping&Reel |
| (9) | Optional Suffix | KB | Silicone coating |

Structure and Dimensions



| Item. | D | T | H | P | d |
|-------|-----|-----|------|-----|------|
| Max | 7.0 | 5.0 | 10.5 | 6.0 | 0.62 |
| Min | 4.5 | 3.0 | --- | 4.0 | 0.58 |

Electrical Characteristics

| Part No. | Curie Temperature | Zero-power Resistance at 25±2°C | Rated Voltage | Max. Current |
|------------------|---------------------|---------------------------------|----------------------|----------------------|
| | T _c (°C) | R ₂₅ (Ω) | V _R (Vac) | I _{max} (A) |
| PPL05102MP9F0WKB | 90 typ. | 1000±20% | 600 | 0.3 |

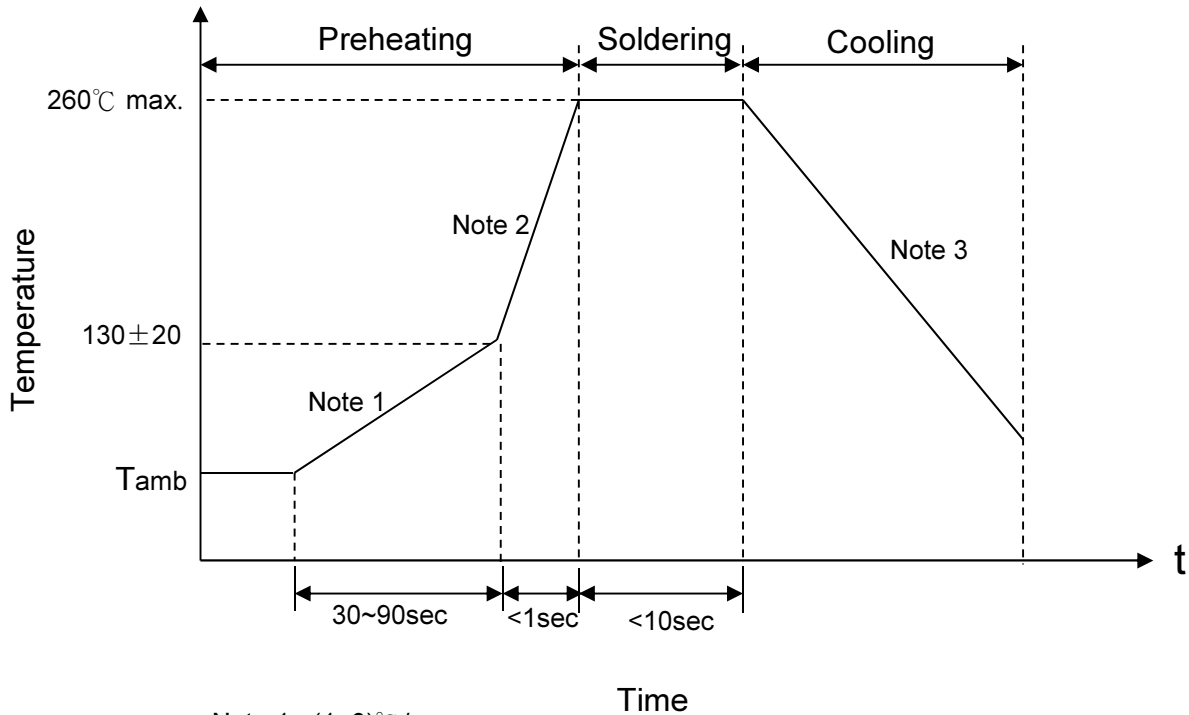
| Part No. | Trip Current at 25±2°C | Non-operating Current at 25±2°C | Operating Temperature Range (V=V _{max}) | Operating Temperature Range (V=0) |
|------------------|------------------------|---------------------------------|---|-----------------------------------|
| | I _t (mA) | I _N (mA) | (°C) | (°C) |
| PPL05102MP9F0WKB | 30 | 15 | 0~+60 | -25~+125 |

Reliability

| Item | Standard | Test conditions / Methods | Specifications | | | | | | | | | | | | | | | |
|--|------------------|---|---|-----------------|---------------------|-----|--------------------|------------|---------------------|------------------|---|---|------------|------------|---|------------------|-----------|---|
| Robustness of Terminations | IEC 60738-1 | Gradually apply the specified force and keep the unit fixed for 10 ± 1 sec. <table style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: center;">Terminal diameter (mm)</td> <td style="text-align: center;">Force T(N)</td> </tr> <tr> <td style="text-align: center;">$0.35 < d \leq 0.5$</td> <td style="text-align: center;">5.0</td> </tr> <tr> <td style="text-align: center;">$0.5 < d \leq 0.8$</td> <td style="text-align: center;">10.0</td> </tr> <tr> <td style="text-align: center;">$0.8 < d \leq 1.25$</td> <td style="text-align: center;">20.0</td> </tr> </table> | Terminal diameter (mm) | Force T(N) | $0.35 < d \leq 0.5$ | 5.0 | $0.5 < d \leq 0.8$ | 10.0 | $0.8 < d \leq 1.25$ | 20.0 | $ \Delta R_{25}/R_{25} \leq 20\%$ No visible damage | | | | | | | |
| Terminal diameter (mm) | Force T(N) | | | | | | | | | | | | | | | | | |
| $0.35 < d \leq 0.5$ | 5.0 | | | | | | | | | | | | | | | | | |
| $0.5 < d \leq 0.8$ | 10.0 | | | | | | | | | | | | | | | | | |
| $0.8 < d \leq 1.25$ | 20.0 | | | | | | | | | | | | | | | | | |
| Solderability | IEC 60738-1 | 245 ± 3 °C , 2 ± 0.5 sec | At least 95% of terminal electrode is covered by new solder | | | | | | | | | | | | | | | |
| Resistance to Soldering Heat | IEC 60738-1 | 260 ± 3 °C , 10 ± 1 sec | $ \Delta R_{25}/R_{25} \leq 20\%$ No visible damage | | | | | | | | | | | | | | | |
| Vibration | IEC 60738-1 | Frequency range: 10~55Hz Amplitude: 0.75mm or 98m/S ² Direction: 3 mutually perpendicular directions Duration : 6HRS(3x2HRS) | $ \Delta R_{25}/R_{25} \leq 20\%$ No visible damage | | | | | | | | | | | | | | | |
| Shock | IEC 60738-1 | Wave: half-sine ΔV : 1.0m/s Acceleration: 50m/s ² Pulse time: 30ms | $ \Delta R_{25}/R_{25} \leq 20\%$ No visible damage | | | | | | | | | | | | | | | |
| Rapid Change of Temperature | IEC 60738-1 | The thermal shock conditions shown below shall be repeated 5 cycles <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Step</th> <th>Temperature(°C)</th> <th>Period(minutes)</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1</td> <td style="text-align: center;">-40 ± 5</td> <td style="text-align: center;">30 ± 3</td> </tr> <tr> <td style="text-align: center;">2</td> <td style="text-align: center;">Room temperature</td> <td style="text-align: center;">5 ± 3</td> </tr> <tr> <td style="text-align: center;">3</td> <td style="text-align: center;">85 ± 5</td> <td style="text-align: center;">30 ± 3</td> </tr> <tr> <td style="text-align: center;">4</td> <td style="text-align: center;">Room temperature</td> <td style="text-align: center;">5 ± 3</td> </tr> </tbody> </table> | Step | Temperature(°C) | Period(minutes) | 1 | -40 ± 5 | 30 ± 3 | 2 | Room temperature | 5 ± 3 | 3 | 85 ± 5 | 30 ± 3 | 4 | Room temperature | 5 ± 3 | $ \Delta R_{25}/R_{25} \leq 20\%$ No visible damage |
| Step | Temperature(°C) | Period(minutes) | | | | | | | | | | | | | | | | |
| 1 | -40 ± 5 | 30 ± 3 | | | | | | | | | | | | | | | | |
| 2 | Room temperature | 5 ± 3 | | | | | | | | | | | | | | | | |
| 3 | 85 ± 5 | 30 ± 3 | | | | | | | | | | | | | | | | |
| 4 | Room temperature | 5 ± 3 | | | | | | | | | | | | | | | | |
| Climatic Sequence | IEC 60738-1 | Dry heat: 125 °C for 16 hrs Damp heat first cycle: 40°C , 95% R.H , cycle time: 24 hrs Cold: -40°C for 2 hrs Damp heat (cyclic), remaining cycles: 5 cycles Test according to IEC60068-2-30 | $ \Delta R_{25}/R_{25} \leq 20\%$ No visible damage | | | | | | | | | | | | | | | |
| Damp Heat, Steady State | IEC 60738-1 | 40 ± 2 °C, 90~95%RH, 1000±2hrs | $ \Delta R_{25}/R_{25} \leq 20\%$ No visible damage | | | | | | | | | | | | | | | |
| Endurance at Maximum Operating Temperature and Maximum Voltage | IEC 60738-1 | UCT=60°C , VR, $I_t \leq I \leq I_{max}$, 1000±2hrs | $ \Delta R_{25}/R_{25} \leq 20\%$ No visible damage | | | | | | | | | | | | | | | |
| Endurance at Maximum Voltage | IEC 60738-1 | 25 ± 5 °C , VR, $I_t \leq I \leq I_{max}$ 1min. on and 5min. Off ×100cycles | $ \Delta R_{25}/R_{25} \leq 20\%$ No visible damage | | | | | | | | | | | | | | | |

Soldering Recommendation

■ Wave Soldering Profile



- Note 1 : (1~3)°C/sec
- Note 2 : Approx. 200°C/sec
- Note 3 : 5°C/sec Max

■ Recommended Reworking Conditions with Soldering Iron

| Item | Conditions |
|-----------------------------------|--------------|
| Temperature of Soldering Iron-tip | 360°C (max.) |
| Soldering Time | 3 sec (max.) |
| Distance from Thermistor | 2 mm (min.) |

RoHS Compliant Declaration

We hereby declare that the components delivered to your company are compliant with RoHS directive 2015/863/EU.

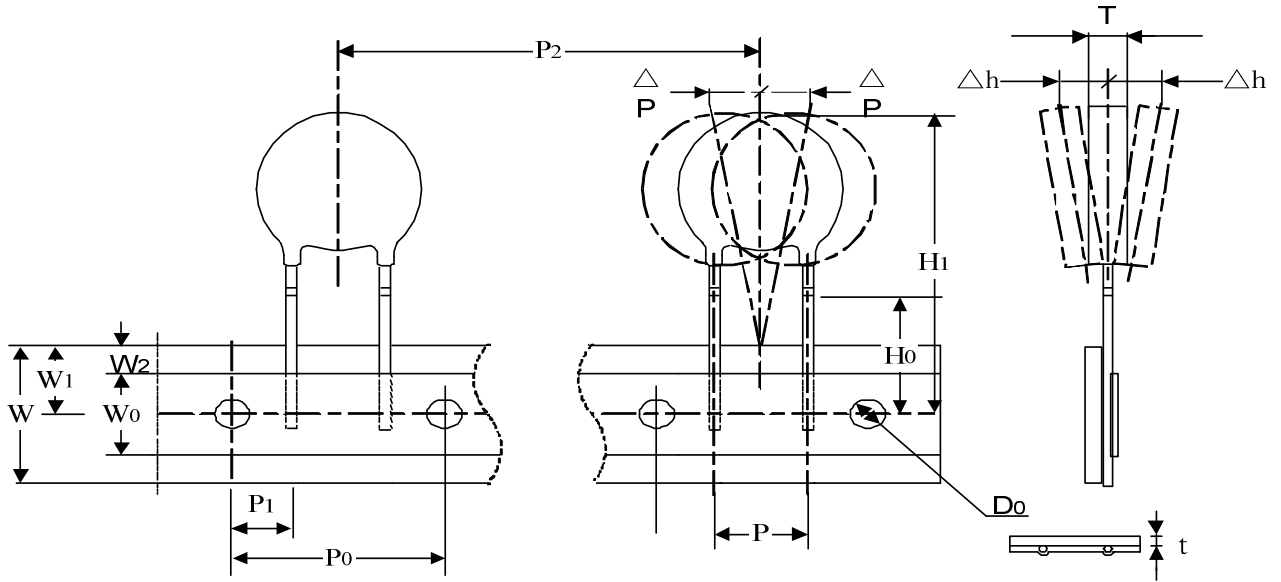
Warehouse Storage Conditions of Products

(I) Storage Conditions :

- 1.Storage Temperature : $-10^{\circ}\text{C} \sim +40^{\circ}\text{C}$
- 2.Relative Humidity : $\leq 75\% \text{RH}$
- 3.Keep away from corrosive atmosphere and sunlight.

(II) Period of Storage : 1 year

Taping and Dimensions

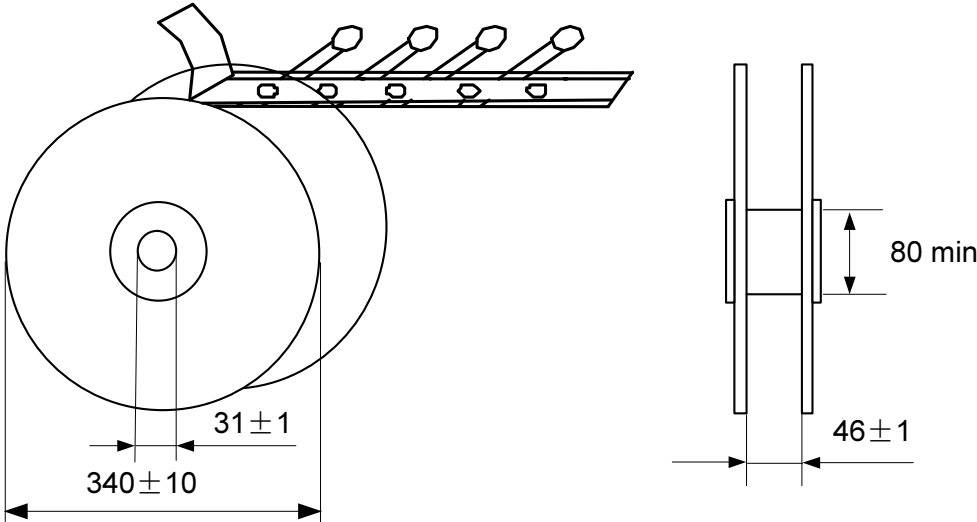


(unit : mm)

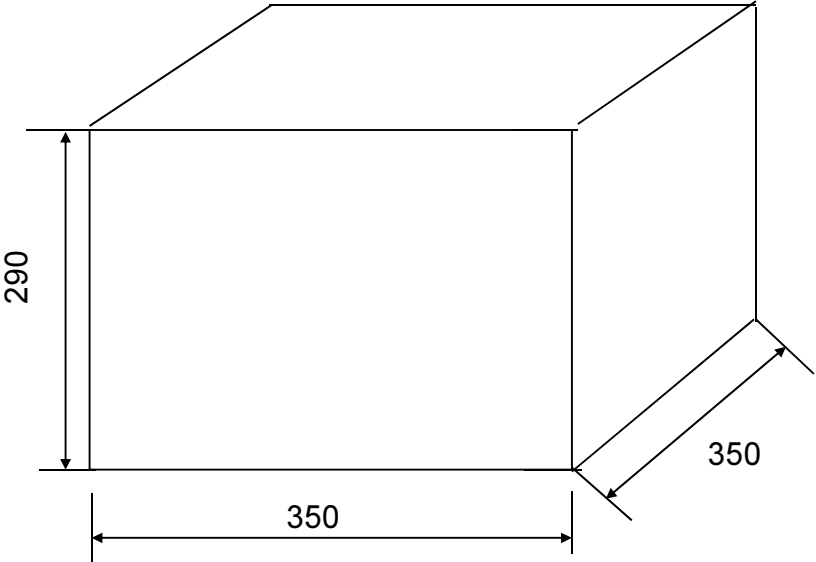
| ITEM | P ₀ | P | P ₁ | H ₀ | W ₀ | W ₁ | W ₂ | W | T _{max} | ΔP _{max} | Δh _{max} | D ₀ | t | P ₂ | H1 _{max} | |
|------|----------------|----|----------------|----------------|----------------|----------------|----------------|----|------------------|-------------------|-------------------|----------------|------|----------------|-------------------|--|
| Nor. | 12.7 | 5 | 3.85 | 16 | 12 | 9 | 3 | 18 | 4 | 1.0 | 2.0 | 4 | 0.6 | 12.7 | 27 | |
| ToL. | ±0.3 | ±1 | ±1 | ±0.5 | ±1.5 | ±1 | ±1 | ±1 | ±1 | --- | --- | ±0.2 | ±0.2 | ±1 | --- | |

Standard Packing

(1) : Quantity (1000pcs /reel)



(2) Outer Box : (5 Reel /Carton)



(Unit:mm)

Safety Approvals (Certified Model/Type :PPL05102-P9F0)



* UL 1434 / cUL recognized (File # E138827)

Certificates

- (1) IATF 16949 certificate
- (2) ISO 9001 certificate

Test Report

- (1) RoHS test report