CPTC Thermistor: Twin SMD Type PPL Series
Overload Protection for Telecom Application

■ Features

1. RoHS compliant
2. Two resistance-matched PTCs in a plastic housing
3. Wide resistance range in telecom area from 10 to 50Ω
4. Agency recognition: UL/cUL/TUV
5. Compliant with ITU-T standards
6. Operating temperature range：0 ~ +60℃ (V=Vmax)
   -25 ~ +125℃ (V=0)

■ Recommended Applications

1. Cable Modem, ADSL Modem with VOIP
2. Customer Premise Equipment (CPE)
3. Central Office (CO)
4. Access Equipment (AE)
5. Main Distribution Frame (MDF)
6. Public Switched Telephone Network (PSTN)
7. Exchanger

■ Part Number Code

P	P	L	0	7	5	0	0	M	A	0	C	0			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

Product Code	
PPL	PTC Thermistor for Overload Protection

Dimensions	
07	ϕ 7mm

Resistance (R_{25})	
7R0	7Ω
100	10Ω
500	50Ω

Tolerance of R_{25}	
K	±10%
L	±15%
M	±20%
H	±25%
N	±30%
Y	Special

Curie temperature	
P8	80℃
A0	100℃
A2	120℃
A4	140℃

Voltage	
A4	140V_{AC}
B5	250V_{AC}
C0	300V_{AC}

Internal Control Code

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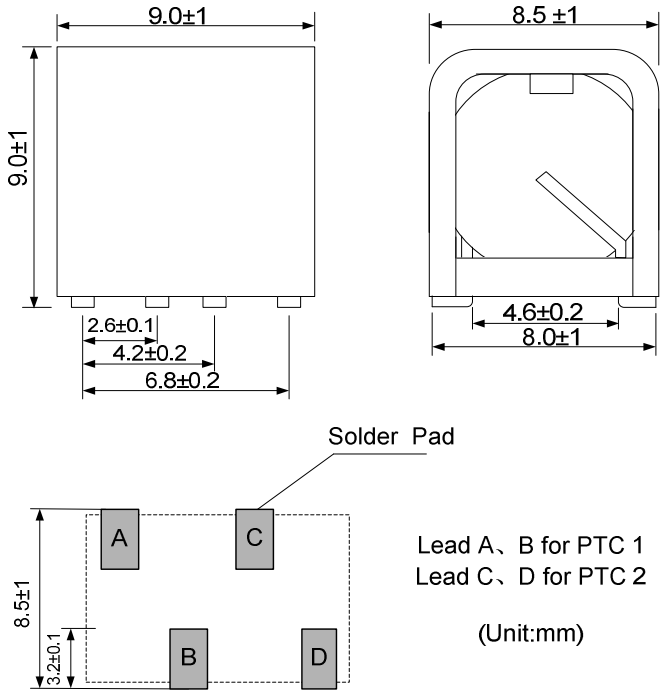
■ Structure and Dimensions



■ Characteristics

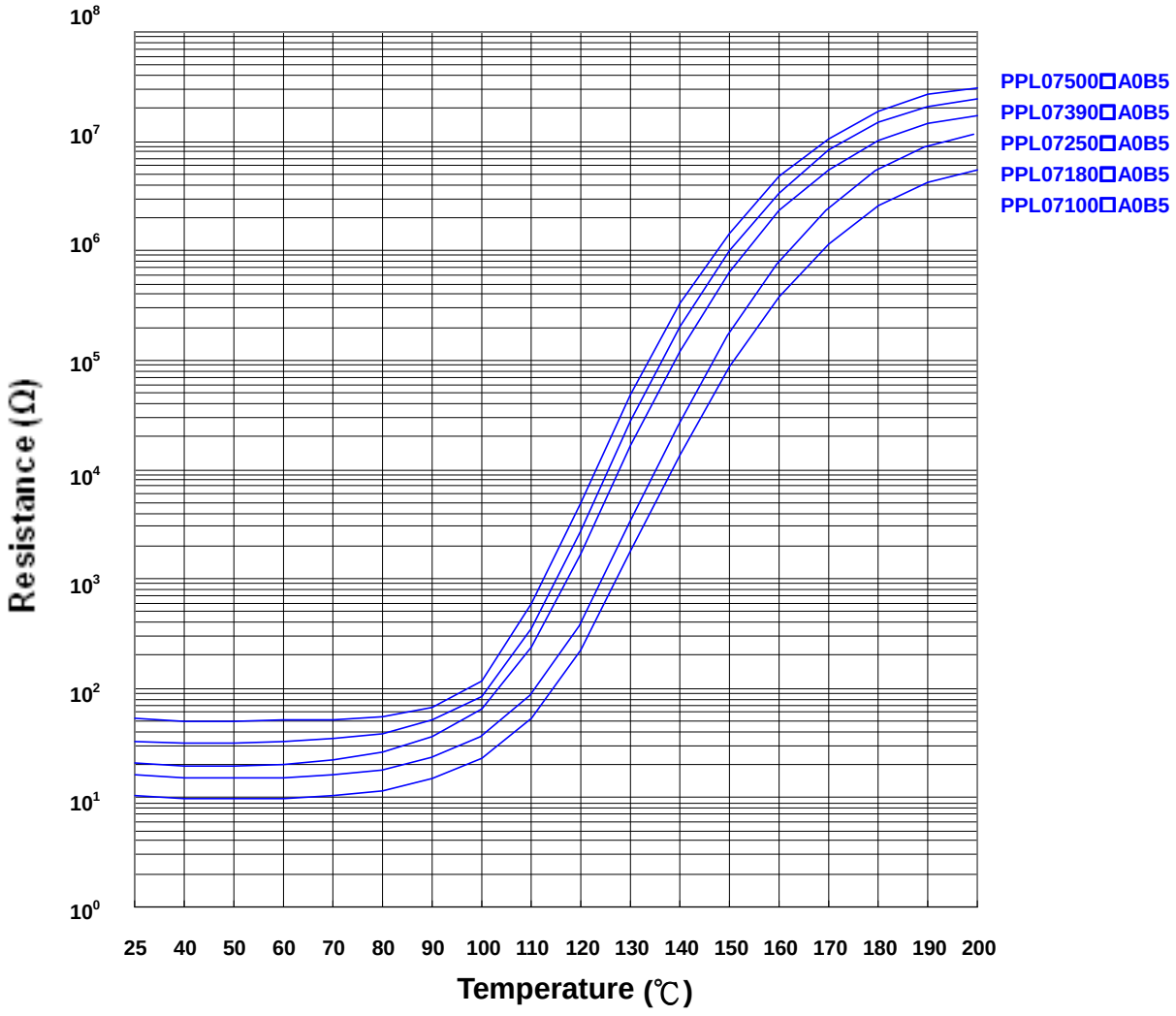
Part No.	Nominal Zero-power Resistance	Resistance Matching In Housing	Non-operating Current at 25℃	Non-operating Current at 40℃	Trip Current at 25℃	Responding Time（s）			Max Voltage	Max. Current	Safety Approvals	
	R_{25} (Ω)	$\lvert R_1-R_2 \rvert$ (Ω)	I_N (mA) @25℃	I_N (mA) @40℃	I_t (mA) @25℃	3A→ 0.5A	1A→ 0.5A	0.5A→ 0.15A	(V_{AC})	I_{max}(A)	UL/ cUL	TUV
PPL07100□A0B5-Y	10	±0.5	130	120	390	0.8	8.0	35	250	2.5	√	√
PPL07180□A0B5-Y	18		110	100	330	0.4	2.5	10	250	3	√	√
PPL07250□A0B5-Y	25		90	80	225	0.35	2.0	10	250	3	√	√
PPL07390□A0B5-Y	39		70	65	180	0.3	1.0	4.0	250	3	√	√
PPL07500□A0C0-Y	50		60	55	165	0.15	0.8	3.5	300	3	√	√

Note1: □=Tolerance of R_{25}

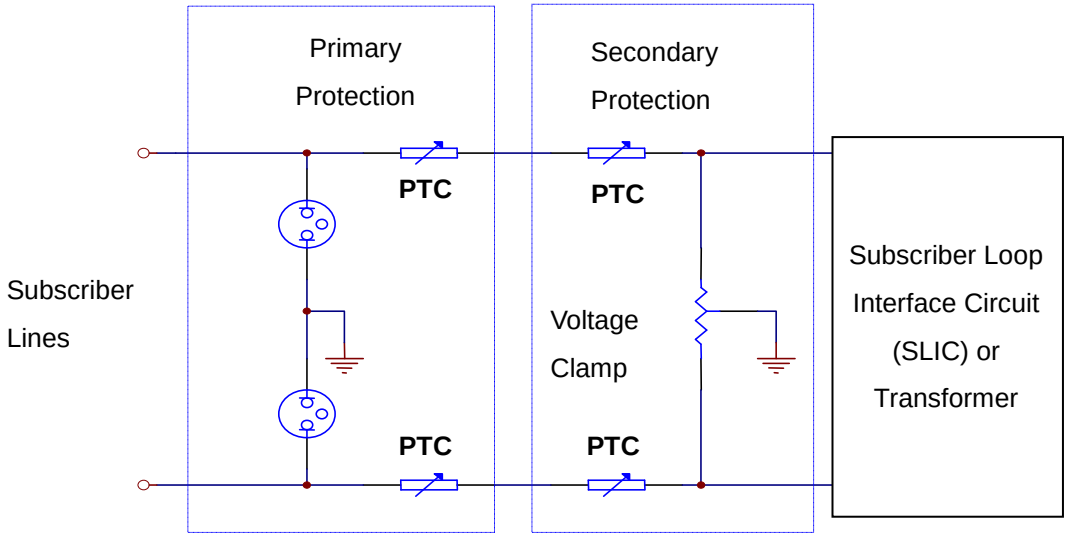
Note2: UL/cUL File No. E138827

TUV File No. R 50171789

R-T Characteristic Curves (Typical)

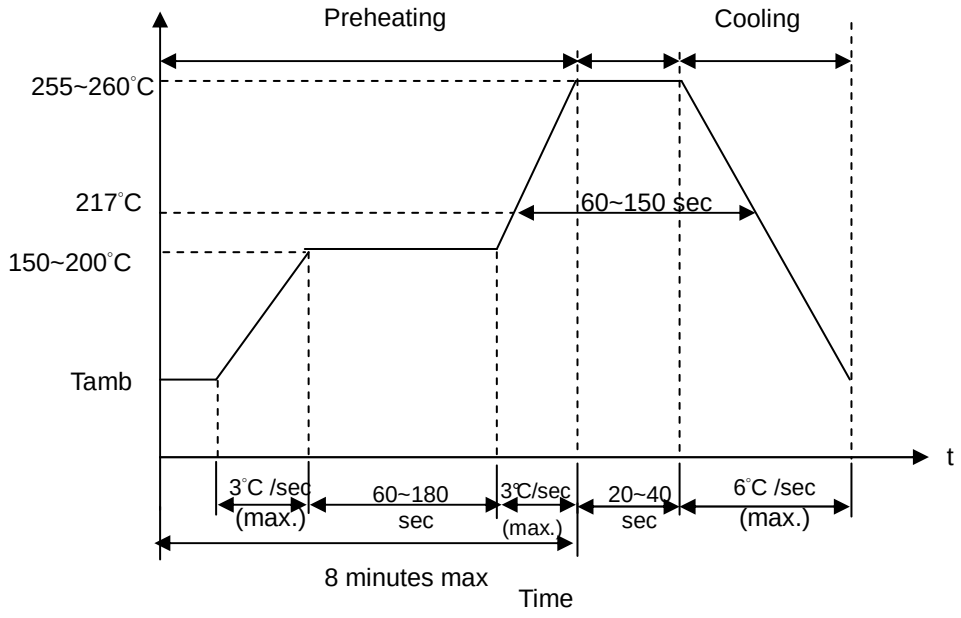


■ Circuit for Typical Application



■ Soldering Recommendation

● IR-Reflow Soldering Profile



● Recommended Reworking Conditions With Soldering Iron

Item	Conditions
Temperature of Soldering Iron-tip	360℃ (max.)
Soldering Time	3 sec (max.)
Diameter of Soldering Iron-tip	Φ3mm (max.)

■ Reliability

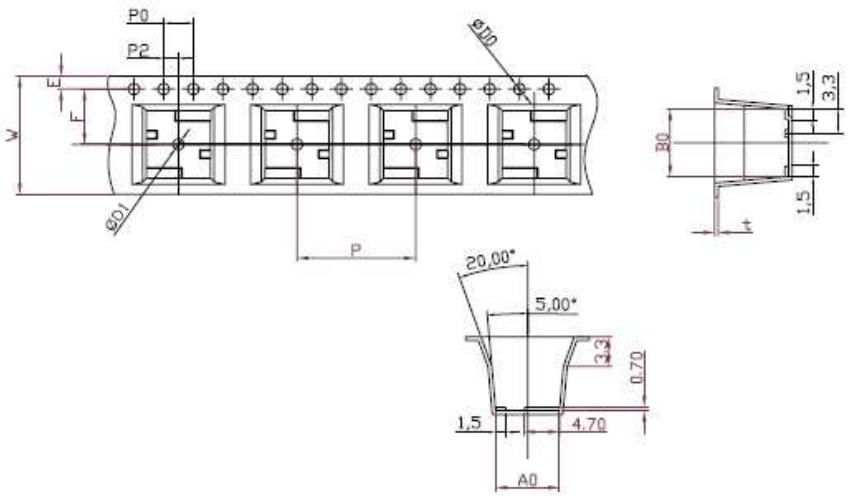
<table>
<tr><th>Item</th><th>Standard</th><th>Test conditions / Methods</th><th>Specifications</th></tr>
<tr><td>Solderability</td><td>IEC60068-2-58</td><td>245±5℃ , 3±0.3 sec.</td><td>At least 95% of terminal electrode is covered by new solder</td></tr>
<tr><td>Resistance to Soldering Heat</td><td>IEC60068-2-58</td><td>255±5℃ ,10±1 sec.</td><td>｜△R/R25｜≦20%
No visible damage</td></tr>
<tr><td>Vibration</td><td>IEC60068-2-6</td><td>Frequency range: 10~55Hz
Amplitude: 0.75mm or 98m/S2
Direction: 3 mutually perpendicular directions, 2hrs each.</td><td>｜△R/R25｜≦20%
No visible damage</td></tr>
<tr><td>Shock</td><td>IEC60068-2-27</td><td>Wave: half-sine ⊿V:1.0m/s
Acceleration: 50m/s2 Pulse time:30ms</td><td>｜△R/R25｜≦20%
No visible damage</td></tr>
<tr><td>Rapid Change of Temperature</td><td>IEC60068-2-14</td><td>The rapid change conditions shown below shall be repeated 5 cycles.
<table>
<tr><th>Step</th><th>Temperature(℃)</th><th>Period(minutes)</th></tr>
<tr><td>1</td><td>-40 ± 3</td><td>30 ± 3</td></tr>
<tr><td>2</td><td>Room temperature</td><td>5 ± 3</td></tr>
<tr><td>3</td><td>85 ± 2</td><td>30 ± 3</td></tr>
<tr><td>4</td><td>Room temperature</td><td>5 ± 3</td></tr>
</table></td><td>｜△R/R25｜≦20%
No visible damage</td></tr>
<tr><td>Climatic Sequence</td><td>IEC60738-1</td><td>+40 ℃, 20%R.H X 24hrs →100 ℃ X 16hrs→25℃ X 2hrs→
+40 ℃, 95%R.HX 24hrs→ 0 ℃ X 2hrs→+40 ℃, 95%R.HX 24hrs→
25 ℃ X (1~2)hrs</td><td>｜△R/R25｜≦20%
No visible damage</td></tr>
<tr><td>High Temperature Storage</td><td>IEC60068-2-2</td><td>60℃, for 1000 hrs</td><td>｜△R/R25｜≦20%
No visible damage</td></tr>
<tr><td>High Temperature Continuous Load</td><td>IEC60738-1</td><td>60℃, Vmax, It<I<Imax for 1000 hrs</td><td>｜△R/R25｜≦20%
No visible damage</td></tr>
<tr><td>Damp Heat, Steady State</td><td>IEC60068-2-3</td><td>40±2℃, 90~95%RH, for 1000±2 hrs</td><td>｜△R/R25｜≦20%
No visible damage</td></tr>
<tr><td>Over Current</td><td>Specification Standard</td><td>220Vrms, 3A, 60s on and 600s off , ×20 cycles</td><td>｜△R/R25｜≦20%
No visible damage</td></tr>
<tr><td>Power Contact</td><td>ITU-T K.20 9.4</td><td>230Vrms,10Ω, 15Min</td><td>｜△R/R25｜≦20%
No visible damage</td></tr>
<tr><td>Lightning Surge</td><td>ITU-T K30 4.2.5</td><td>DC:1.0KV， 10/1000μs,25A,×30 cycles
DC:1.5KV， 10/310μs,37.5A,x10cycles</td><td>｜△R/R25｜≦20%
No visible damage</td></tr>
<tr><td>Power Induction</td><td>Specification Standard</td><td>650Vrms, 600Ω, 1s on and 60s off ×10 cycles</td><td>｜△R/R25｜≦20%
No visible damage</td></tr>
</table>

■ Packaging

● Taping Specification

(Unit: mm)

Index	Nominal dimensions	Tolerance
W	16.00	±0.30
P	16.00	±0.10
E	1.75	±0.10
F	7.50	±0.10
P2	2.00	±0.10
P0	4.00	±0.10
D0	1.50	+0.10/-0.00
D1	1.50	+0.10/-0.00
A0	8.4	±0.10
B0	8.9	±0.10
K0	9.3	±0.10
t	0.5	±0.05

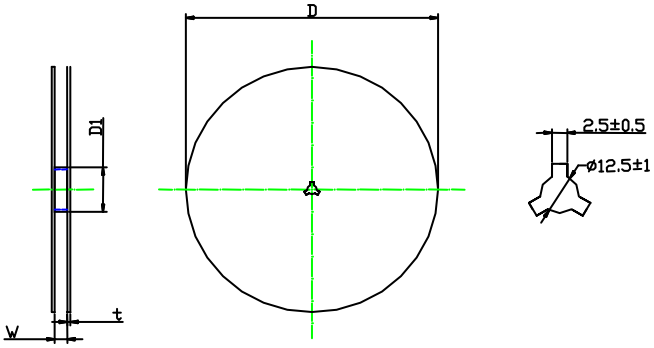


■ Quantity

Reel packing: 400 pcs / reel

(Unit: mm)

Item	Nominal dimensions	Tolerance
D	330	±5
W	17.5	±0.5
t	5	±0.5
D1	75	±1.5



■ Storage condition of products

- Storage Conditions :
  1. Storage Temperature : -10℃~+40℃
  2. Relative Humidity : ≦75%RH
  3. Keep away from corrosive atmosphere and sunlight.
- Period of Storage: 1 year.