




Thin Film Technology Corp.

Product Family: 2-Terminal Current Sensing Power Resistor

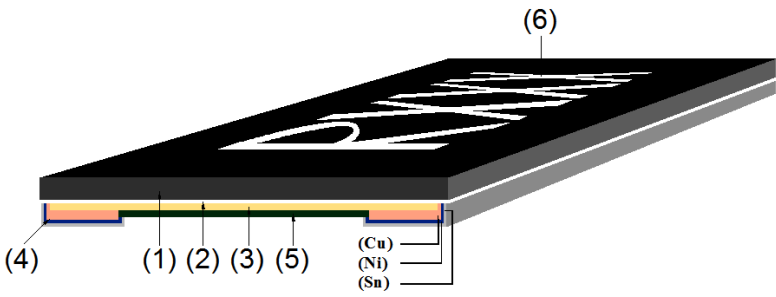
Part Number Series: D1MPC Series – Long Side Electrodes



	<p>Construction:</p> <ul style="list-style-type: none"> • Cu alloy resistive element • Epoxy-resin overcoat • Non-wrapped electrodes • 100% matte tin over Ni terminations • Halogen Free • RoHS compliant and Pb free • Inherently Anti-Sulfur 	<p>Features:</p> <ul style="list-style-type: none"> • 0508 & 0612 English case sizes • Power of 1W • Resistance from 1mΩ~5mΩ • TCR down to ±50ppm/°C • Tolerance of ±1.0% • Low profile (0508: 0.022in max.; 0612: 0.016in max.) • Moisture Sensitivity Level (MSL) = 1
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Description:
 These low-resistance, metal strip, current sensing chip resistors exhibit excellent performance with a low height profile. They are useful in many current sensing applications. High volume production that is suitable for commercial and special applications.

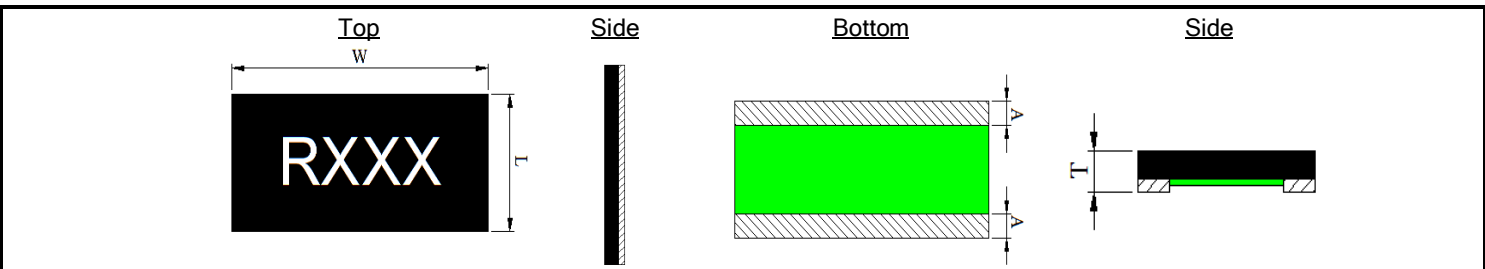
Product Construction:

	<table border="1"> <thead> <tr> <th>Number</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Substrate (glass epoxy)</td> </tr> <tr> <td>2</td> <td>Adhesive (epoxy resin)</td> </tr> <tr> <td>3</td> <td>Resistive element (Cu alloy)</td> </tr> <tr> <td>4</td> <td>Terminal Electrodes (Cu, Ni, Sn)</td> </tr> <tr> <td>5</td> <td>Protective coating</td> </tr> <tr> <td>6</td> <td>Marking</td> </tr> </tbody> </table>	Number	Description	1	Substrate (glass epoxy)	2	Adhesive (epoxy resin)	3	Resistive element (Cu alloy)	4	Terminal Electrodes (Cu, Ni, Sn)	5	Protective coating	6	Marking
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Part Numbering: Ex: D1MPC0612QR001FF-T5

Series Name	English Size (Metric Size)	Temp. Coefficient of Resistance (TCR)	Resistance Value	Resistance Tolerance	Internal Code	T&R Packaging Quantity
D1MPC	0508 (1220) 0612 (1632)	Q = ±50ppm/°C R = ±100ppm/°C G = ±150ppm/°C	Ex. R001 = 0.001Ω 1M50 = 0.0015Ω (4 digits)	F = ±1.0%	F = Face Down	-T5 = 5,000 pcs/reel

Product Dimensions:

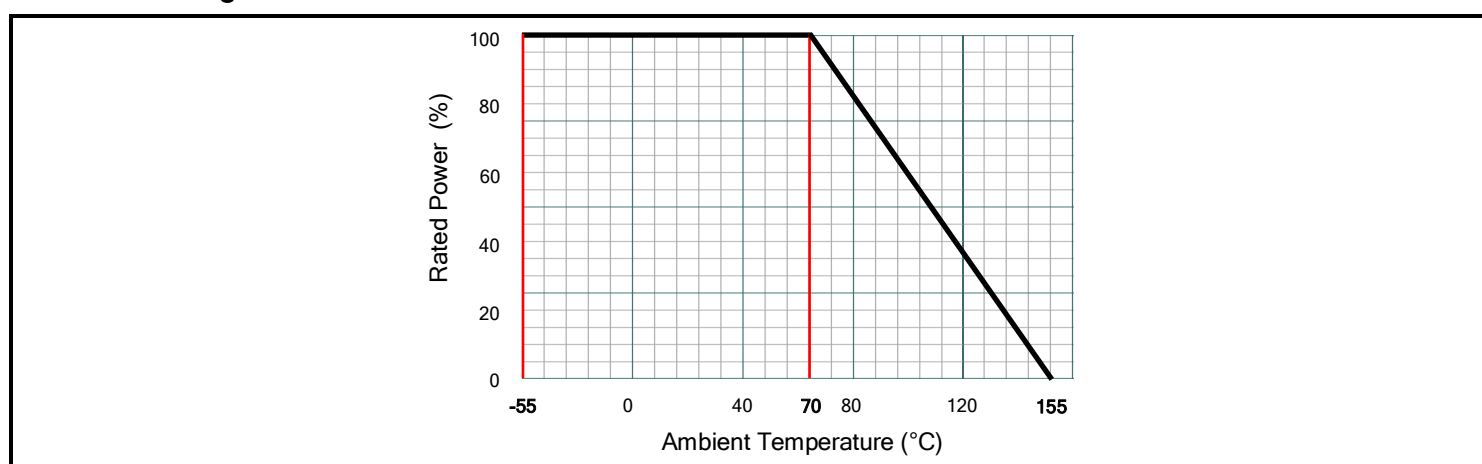


All dimensions shown in inches, mm in parentheses.

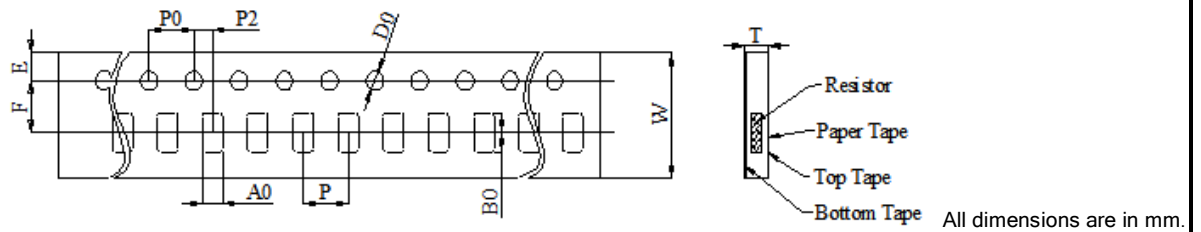
Dimension (Metric)	Resistance Range	L	W	T	A
D1MPC0508 (1220)	1mΩ	0.049 ±0.010 (1.25 ±0.25)	0.079 ±0.010 (2.00 ±0.25)	0.016 ±0.006 (0.40 ±0.15)	0.015 ±0.008 (0.38 ±0.20)
	1.5~5mΩ				0.013 ±0.008 (0.32 ±0.20)
D1MPC0612 (1632)	1mΩ	0.063 ±0.010 (1.60 ±0.25)	0.126 ±0.010 (3.20 ±0.25)	Max 0.018 (Max 0.45)	0.014 ±0.006 (0.35 ±0.15)
	1.5~5mΩ			Max 0.016 (Max 0.40)	

Electrical Specifications:

Type	D1MPC0612	D1MPC0508		
Metric Size	1632	1220		
Electrode Style	"B" - Long side electrode			
Power Rating	1W			
Resistance Range	1mΩ~5mΩ	1mΩ~1.5mΩ	2mΩ	3mΩ~5mΩ
Resistance Tolerance (code)	±1.0%(F)			
TCR ppm/°C (code)	±50(Q)	±150(G)	±100(R)	±50(Q)
Rated Voltage	$\sqrt{\text{Power} \times \text{Resistance}}$			
Operating Temp. Range	-55°C~+155°C			
Packaging (code)	5,000 pcs/reel (-T5)			

Power Derating Curve**Reliability Specifications:**

Test	Procedure	Specifications
Short Time Over Load IEC60115-1 4.13	$P = 2.5P_r$; $T = 25 \pm 2^\circ\text{C}$, $t = 5\text{sec.}$	$\pm(1.0\% + 0.5\text{m}\Omega)$
High Temp. Exposure IEC60115-1 4.25	$T = +155 \pm 2^\circ\text{C}$; $t = 1000\text{h}$	$\pm(1.0\% + 0.5\text{m}\Omega)$
Low Temp. Storage IEC60115-1 4.25	$T = -55 \pm 2^\circ\text{C}$; $t = 1000\text{h}$	$\pm(1.0\% + 0.5\text{m}\Omega)$
Moisture Load Life IEC60115-1 4.25	$V_{\text{test}} = V_{\text{max}}$; $T = 60 \pm 2^\circ\text{C}$; RH = 95%; $t = 90\text{min ON, } 30\text{min OFF, } 1000\text{h}$	$\pm(2.0\% + 0.5\text{m}\Omega)$
Thermal Shock IEC60115-1 4.19	$-55^\circ\text{C } 30\text{min.} \rightarrow \text{R.T. } 3\text{min.} \rightarrow +150^\circ\text{C } 30\text{min.} \rightarrow \text{R.T. } 3\text{min.},$ 100 Cycles	$\pm(1.0\% + 0.5\text{m}\Omega)$
Load Life at 70°C IEC60115-1 4.25	$V_{\text{test}} = V_{\text{max}}$; $T = 70 \pm 2^\circ\text{C}$; $t = 90\text{min ON, } 30\text{min OFF, } 1000\text{h}$	$\pm(2.0\% + 0.5\text{m}\Omega)$
Solderability IEC60115-1 4.17	Dip into solder at $T = 245 \pm 5^\circ\text{C}$, $t = 3 \pm 0.5\text{sec.}$	>95% coverage with new solder
Resistance to Solder Heat IEC60115-1 4.18	Through Reflow Parts are subjected to 3 reflow cycles	$\pm(1.0\% + 0.5\text{m}\Omega)$
Mechanical Shock IEC60115-1 4.21	$A = 100\text{G}$, $t = 6\text{ms}$, 5 times shock	$\pm(1.0\% + 0.5\text{m}\Omega)$
Substrate Bending IEC60115-1 4.33	Span between fulcrums = 90mm Bend width = 2mm Test board = Glass-epoxy board Thickness = 1.6mm	$\pm(1.0\% + 0.5\text{m}\Omega)$

Paper Tape Dimensions:

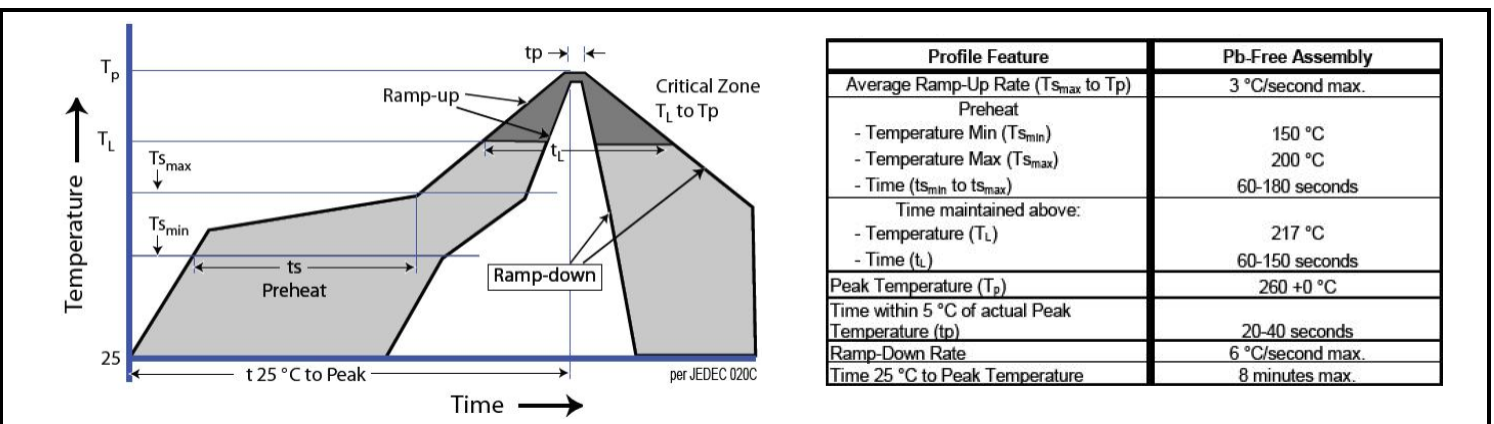
Type	W	P0	P	P2	A0	B0	D0	F	E	T
0508	8.00 ±0.30	4.00 ±0.10	4.00 ±0.10	2.00 ±0.10	1.45 ±0.10	2.20 ±0.10	1.50 ±0.10	3.50 ±0.10	1.75 ±0.10	0.60 ±0.10
0612	8.00 ±0.30	4.00 ±0.10	4.00 ±0.10	2.00 ±0.10	1.90 ±0.20	3.50 ±0.20	1.50 ±0.10	3.50 ±0.10	1.75 ±0.10	0.60 ±0.10

Reel Dimensions:

Type	A	N	W1
0508	178 ±5.00	60.0 ±2.00	9.00 ±1.00
0612			

Recommended Land Pattern:

Type	Resistance Range	P	W	D
0508	1mΩ	0.40	2.30	0.90
	1.5mΩ~5mΩ	0.50		0.85
0612	1.5mΩ~5mΩ	0.60	3.68	1.30

Soldering Profile:**Storage Conditions:****Environment Conditions:**

Products should be stored under the following environmental conditions.

- Temperature: +5 to +35°C
- Humidity: 45 to 85% relative humidity
- Do not keep products in environments where they may be subject to particulate contamination or harmful gases such as sulfuric acid or hydrogen chloride as it may cause oxidization on electrodes, resulting in poor solderability.
- Products should be stored in a space that does not expose it to high temperatures, vibration, or direct sunlight.
- Products should be stored in the original airtight packaging until use.