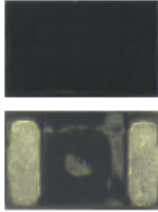




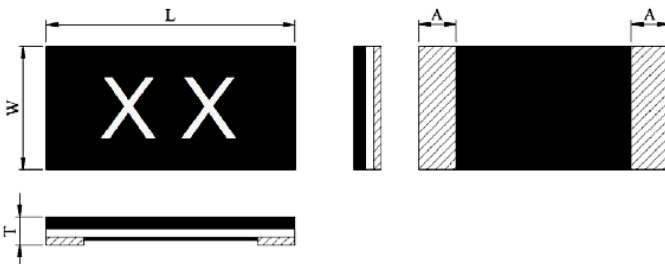
Product Family: [Current Sensing Power Resistor](#)
Part Number Series: [MPC Series \(Short Side Electrode- Black, 2-Terminal\)](#)



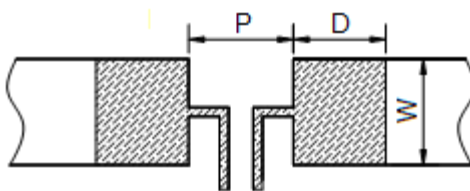
	<p>Construction:</p> <ul style="list-style-type: none"> • Metal Strip Construction • Epoxy-resin overcoat • Non-Wrapped Terminations • Pre-tinned (Sn100, matte) terminations over Ni barrier is standard (RoHS compliant and Pb Free) 	<p>Features:</p> <ul style="list-style-type: none"> • Resistances of 2mΩ to 20mΩ • Power rating of 1 watts • TCR's down to ±100ppm/°C • Tolerances down to ±1.0% • High volume production suitable for commercial and special applications
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Description:
 These low resistance, metal strip, current sensing chip resistors exhibit excellent performance with a very low height profile. They are useful in many current sensing applications.

Product Dimensions:

	Dimensions Inch (mm)	Resistance Values (mΩ)	L	W	T	A
	0603 (1608)	2	2	0.062±0.009 (1.60±0.25)	0.031±0.009 (0.80±0.25)	0.016±0.009 (0.40±0.25)
2.5~20						0.014±0.008 (0.35±0.20)
0805 (2012)	2	2	0.078±0.009 (2.00±0.25)	0.049±0.009 (1.25±0.25)	0.016±0.009 (0.40±0.25)	0.024±0.008 (0.60±0.20)
	3~20					0.016±0.008 (0.40±0.20)
1206 (3216)	2	2	0.126±0.009 (3.20±0.25)	0.062±0.009 (1.60±0.25)	0.016±0.009 (0.40±0.25)	0.041±0.012 (1.05±0.30)
	3					0.031±0.012 (0.80±0.30)
	4~20					0.024±0.012 (0.60±0.30)

All dimensions are shown in inches. Metric case sizes are shown in parenthesis.

<p>Product Construction: (refer to callouts in diagram above)</p> <p>1 = Resistor Plate (Metal Alloy) 2 = Terminals (100% Matte Sn over Nickel) 3 = Protection Coating (Black Epoxy Resin, Meets UL-94-V0 requirements)</p>	<p>Land Pattern:</p> 	Dimensions Inch (mm)	Resistance Values (mΩ)	P	W	D	t
		0603 (1608)	2	0.50	2	0.92	1.35
2.5~20	0.60						
0805 (2012)	2	0.50	2	1.44	1.55	1.40	105μ
	3~20	0.80					
1206 (3216)	2	0.70	2	1.84	1.75	1.90	105μ
	3	1.00					
	4~20	1.20					

Part Numbering: MPC0603RR020FF-T5

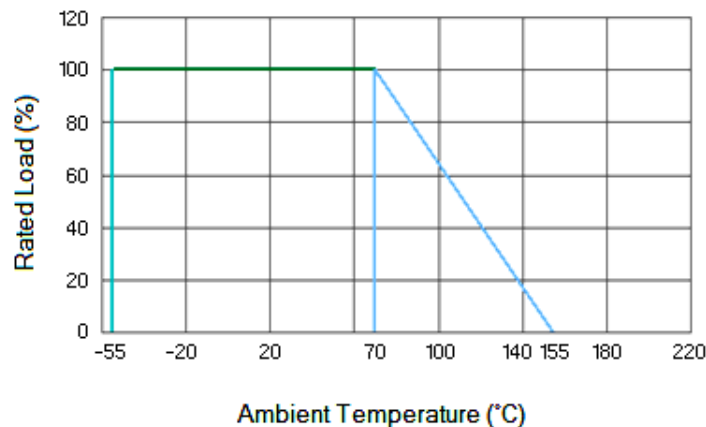
Product Designator	English Size (Metric Size)	Temp. Coefficient of Resistance (TCR)	Resistance Value	Tolerance	Serial Code	T&R Qty
MPC	0603 (1608) 0805 (2012) 1206 (3216)	R = ±100ppm/°C G = ±150ppm/°C	4 digits with the first 3 being significant. The last digit specifies the number of zeros. "R" denotes decimal position as necessary Ex. R001 = 0.001Ω (4 digits)	F = ±1.0%	F=Face Down	T5 = 5,000

Electrical Specifications:

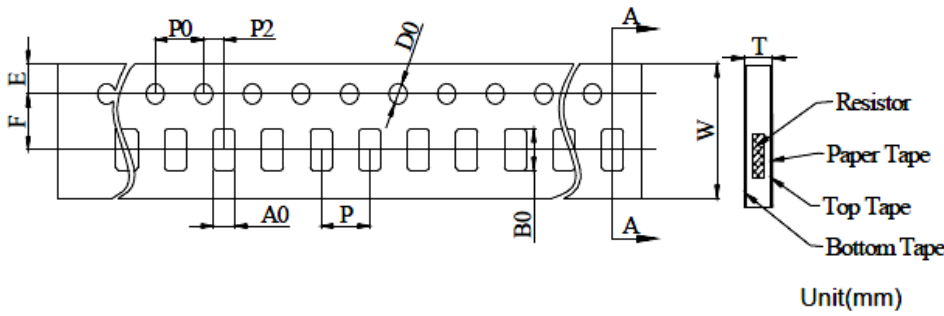
Type	MPC0603			MPC0805			MPC1206		
English Size	0603			0805			1206		
Metric Size	1608			2012			3216		
Power	3/10 Watt			1/2 Watt			1.0 Watt		
Rated Voltage	$\sqrt{\text{Power} \times \text{Resistance}}$								
Resistance Tolerance	±2.5 (G)	±1.0% (F)		±2.5 (G)	±1.0% (F)		±2.5 (G)	±1.0% (F)	
Standard Resistance Values	2~3mΩ	4~5mΩ	6Ω ~ 20Ω	2~3mΩ	4~5mΩ	6Ω ~ 20Ω	2~3mΩ	4~5mΩ	6Ω ~ 20Ω
TCR ppm/°C (code)	±150 (G)		±100 (R)	±150 (G)		±100 (R)	±150 (G)		±100 (R)
Operating Temperature	-55°C ~ +155°C								
Packaging (code)	5,000 pcs/reel (-T5)								

Reliability Specifications:

Parameter	Conditions	Requirements
Short Time Over Load	P= 2.5Pr; T=25±2°C, t= 5sec.	±(1.0%+0.5mΩ) IEC60115-1 4.13
High Temp. Exposure	T = +170±2°C ; t = 1000h	±(1.0%+0.5mΩ) IEC60115-1 4.25
Low Temp. Storage	T = -55±2°C ; t = 1000h	±(1.0%+0.5mΩ) IEC60115-1 4.25
Moisture Load Life	Vtest = Vmax ; T=60±2°C ; RH=95% ; t= 90min ON , 30min OFF , 1000h	±(2.0%+0.5mΩ) IEC60115-1 4.25
Thermal Shock	[-55°C 30min. → R.T. 3min. → +150°C 30min. → R.T. 3min], 100 Cycles	±(1.0%+0.5mΩ) IEC60115-1 4.19
Load Life at 70°C	Vtest = Vmax ; T=70±2°C ;t= 90min ON , 30min OFF,1000h	±(2%+0.5mΩ) IEC60115-1 4.25
Solderability	Dip into solder at T = 245±5°C , t = 3±0.5sec.	>95% coverage with new solder IEC60115-1 4.17
Resistance to Solder Heat	Through Reflow T= 275±5°C , t =20±1sec.	±(1.0%+0.5mΩ) IEC60115-1 4.18
Mechanical Shock	a=100G , t =11ms, 5 times shock	±(1.0%+0.5mΩ) IEC60115-1 4.21
Substrate Bending	Span between fulcrums = 90mm Bend Width = 2mm Test board = Glass-Epoxy Board Thickness =1.6mm	±(1.0%+0.5mΩ) IEC60115-1 4.33

Derating Curve:

Taping Diagrams:



Symbol	MPC0603	MPC0805	MPC1206
W	8.00±0.30	8.00±0.30	8.00±0.30
A0	1.18±0.20	1.68±0.20	2.05±0.20
E	1.75±0.10	1.75±0.10	1.75±0.10
P0	4.00±0.10	4.00±0.10	4.00±0.10
B0	1.98±0.20	2.38±0.20	3.65±0.20
T	0.58±0.10	0.58±0.20	0.58±0.20
P	4.00±0.10	4.00±0.10	4.00±0.10
D0	1.50±0.10	1.50±0.10	1.50±0.10
P2	2.00±0.10	2.00±0.10	2.00±0.10
F	3.50±0.10	3.50±0.10	3.50±0.10

Recommended Soldering Profile:

SOLDERING PROFILE

Profile Feature	Pb-Free Assembly
Average Ramp-Up Rate ($T_{S_{max}}$ to T_p)	3 °C/second max.
Preheat	
- Temperature Min ($T_{S_{min}}$)	150 °C
- Temperature Max ($T_{S_{max}}$)	200 °C
- Time ($t_{S_{min}}$ to $t_{S_{max}}$)	60-180 seconds
Time maintained above:	
- Temperature (T_L)	217 °C
- Time (t_L)	60-150 seconds
Peak Temperature (T_p)	260 ±0 °C
Time within 5 °C of actual Peak Temperature (t_p)	20-40 seconds
Ramp-Down Rate	6 °C/second max.
Time 25 °C to Peak Temperature	8 minutes max.

