

Low Ohm (metal Strip) Chip Resistors

MCLRP Series

multicomp PRO

**RoHS
Compliant**



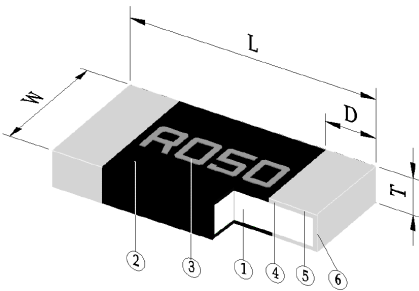
Features

- High power rating up to 3 Watts
- Low TCR down to ± 50 PPM/ $^{\circ}$ C
- Resistance values from 3m Ω to 100m Ω
- Customized resistance available

Applications

- NB (for Power Management)
- MB (for Power Management)
- SWPS (DC-DC Converter, Charger, Adaptor)
- Monitor (for Power Management)

Construction



1	Alloy Plate
2	Overcoat
3	Marking

4	Internal Electrode
5	Barrier Layer
6	Solder Plating

Dimensions

Type	Size (Inch)	L (mm)	W (mm)	T (mm)	D (mm)
MCLRP06	1206	3.1 \pm 0.1	1.6 \pm 0.1	0.6 \pm 0.1	0.45 \pm 0.15
MCLRP12	2512	6.4 \pm 0.25	3.2 \pm 0.25	0.7 \pm 0.2	0.9 \pm 0.3

Electrical Specifications

Type	Item	Power Rating at 70 $^{\circ}$ C	Operating Temp. Range	Resistance Range (m Ω)			TCR (PPM/ $^{\circ}$ C)
				$\pm 0.5\%$	$\pm 1\%$	$\pm 5\%$	
MCLRP06 (1206)		1W	-55 $^{\circ}$ C ~ +170 $^{\circ}$ C	8, 10, 12, 15, 20			± 100
MCLRP12 (2512)		1W, 2W, 3W	-55 $^{\circ}$ C ~ +170 $^{\circ}$ C	3, 4, 5, 6, 7, 8, 9, 10, 12, 15, 18, 20, 22, 25, 30, 33, 35, 39, 40, 47, 50, 60, 68, 70, 75, 80, 82, 90, 91, 100			± 75
				15, 18, 20, 22, 25, 30, 33, 35, 39, 40, 47, 50, 60, 68, 70, 75, 80, 82, 90, 91, 100			± 50

Operating Current = $\sqrt{(P/R)}$, Operating Voltage = $\sqrt{(P \times R)}$

Newark.com/multicomp-pro
Farnell.com/multicomp-pro
Element14.com/multicomp-pro

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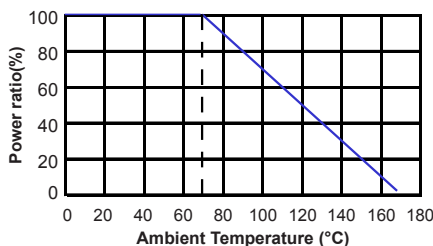
Environmental Characteristics

Item	Requirement	Test Method
Temperature Coefficient of Resistance (T.C.R.)	As Spec.	IEC60115-1 4.8 JIS-C-5201-1 4.8 +25°C ~ 125°C, 25°C is the reference temperature
Short Time Overload	±1%	IEC60115-1 4.13 JIS-C-5201-1 4.13 5*rated power for 5 seconds
Insulation Resistance	≥10G	IEC60115-1 4.6 JIS-C-5201-1 4.13 100V DC for 1 minute
Endurance	±1%	IEC60115-1 4.25 JIS-C-5201-1 4.25.1 70±2°C, rated power for 1000 hrs with 1.5 hrs "ON" and 0.5 hr "OFF"
Biased Humidity	±1%	MIL-STD-202 Method 103 1000 hrs 85°C/85%RH 10% of operating power
Dry Heat	±1%	IEC60115-1 4.23.2 JIS-C-5201-1 4.23.2 at +170°C for 1000 hrs
Bending Strength	±1%	JIS-C-5201-1 4.33 IEC-60115-1 4.33 Bending width 2mm once for 5 seconds
Solderability	95% min. coverage	JIS-C-5201-1 4.17 IEC-60115-1 4.17 245±5°C for 3 seconds
Resistance to Soldering Heat	±0.5%	JIS-C-5201-1 4.18 IEC-60115-1 4.18 260±5°C for 10 seconds
Rapid Change of Temperature	±1%	JIS-C-5201-1 4.19 IEC-60115-1 4.19 -55°C to +155°C, 5 cycles
Low Temperature Storage	±1%	IEC60115-1 4.23.4 JIS-C-5201-1 4.23.4 at -55°C for 2 hrs

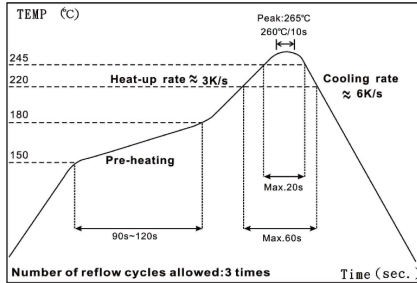
RCWV(Rated Continuous Working Voltage)= $\sqrt{P \cdot R}$ or Max. Operating Voltage whichever is lower.

Storage Temperature : 15~28°C
 Humidity : < 80%RH

Derating Curve



Soldering Condition (Reflow Soldering Only)

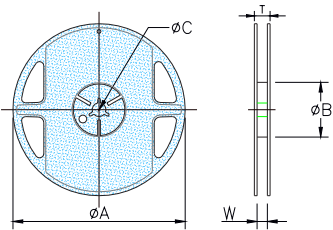


IR Reflow Soldering

(1) Time of IR reflow soldering at maximum temperature point 260°C : 10s

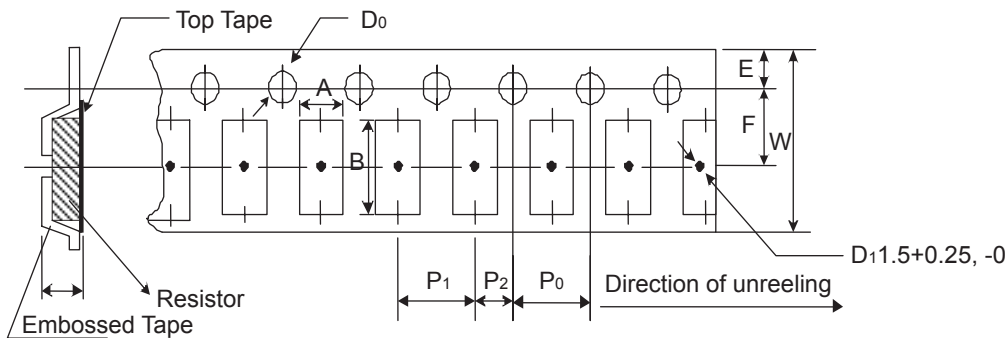
Packaging

Reel Specifications & Packaging Quantity



Type	Resistance (mΩ)	Packaging Quantity	Tape Width	Reel Diameter	ΦA (mm)	ΦB (mm)	ΦC (mm)	W (mm)	T (mm)
MCLRP06	8 ~ 20	Paper 5K	8mm	7 inch	178.5 ±1.5	60 ^{+/-0}	13 ±0.2	9 ±0.5	12.5 ±0.5
MCLRP12	4 ~ 100	Embossed 4K	12mm	7 inch	178.5 ±1.5	60 ±1	13 ±0.5	13 ±1	15.5 ±0.5
	3	Embossed 2K	12mm	7 inch	178.5 +/-1.5	60 ±1	13 ±0.5	13 ±1	15.5 ±0.5

Embossed Plastic Tape Specifications



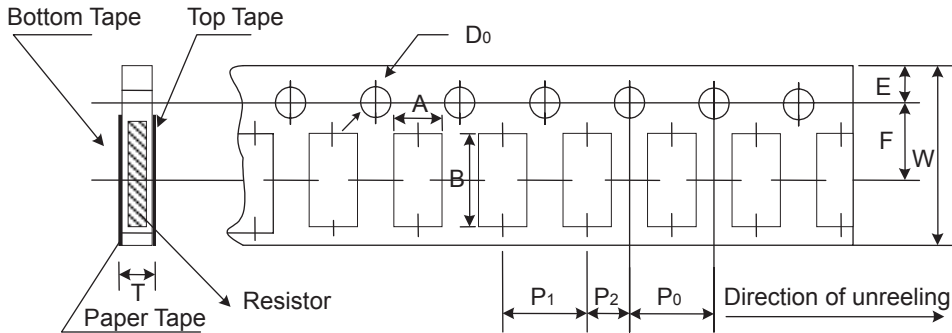
Type	A (mm)	B (mm)	W (mm)	E (mm)	F (mm)	P ₀ (mm)	P ₁ (mm)	P ₂ (mm)	D ₀ (mm)	T (mm)
MCLRP12	3.5 ±0.1	6.7 ±0.1	12 ±0.3	1.75 ±0.1	5.5 ±0.05	4 ±0.1	4 ±0.1	2 ±0.05	1.5 +0.1, -0	1.2 +0

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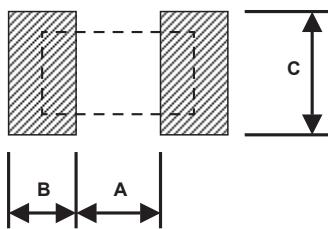


Paper Tape Specifications



Type	A (mm)	B (mm)	W (mm)	E (mm)	F (mm)	P ₀ (mm)	P ₁ (mm)	P ₂ (mm)	D ₀ (mm)	T (mm)
MCLRP06	1.9 ±0.1	3.5 ±0.2	8 ±0.2	1.75 ±0.1	3.5 ±0.05	4 ±0.1	4 ±0.05	2 ±0.05	1.5 +0.1,-0	0.85 ±0.1

Recommend Land Pattern



Type	A (mm)	B (mm)	C (mm)
MCLRP06	1.5	1.4	1.7
MCLRP12	4	2	3.5

FR4 copper board, 100µm of copper pad thickness

Part Number Explanation

MCLRP	12	F	T	E	X	1003
Series Type	Dimensions (L×W) 06: 1206 12: 2512	Resistance Tolerance D: ±0.5% F: ±1% J: ±5%	Packaging Code T: Taping Reel	TCR (PPM/°C) D: ±50 W: ±75 E: ±100	Power Rating R: 3W S: 2W T: 1W	Resistance R015: 0.015Ω R050: 0.05Ω

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