Data Sheet

Customer:	
Product:	Low Ohm (Metal Strip) Chip Resistor – LRP Series
Size:	0805/1206/2010/2512
Issued Date:	09-Sep-25
Edition:	REV.C1

RoHS Compliant

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09-Sep-25	09-Sep-25	09-Sep-25		
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Low Ohm (Metal Strip) Chip Resistor- LRP Series



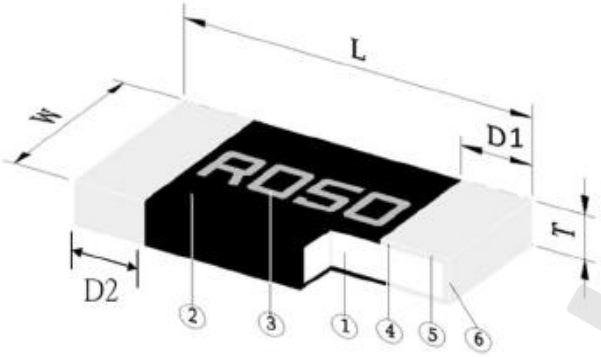
■Features

- Low TCR down to ±25 PPM/°C
- Customized resistance available
- Low inductance < 5nH
- AEC-Q200 Compliance
- Sulfur resistance unaffected by sulfur environments
- Lead-free and RoHS compliant
- MSL: Level 1

■Applications

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

■Construction



①	Alloy Plate	④	Internal Electrode
②	Overcoat	⑤	Barrier Layer
③	Marking	⑥	Solder Plating

■Dimensions

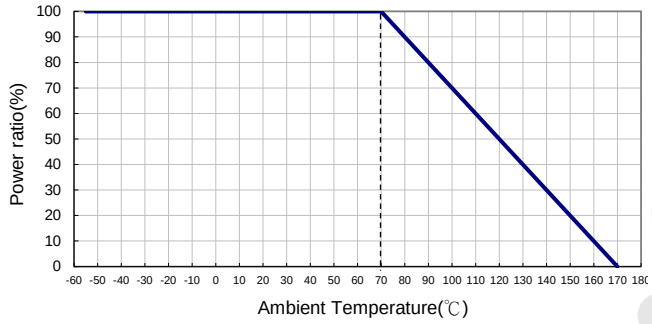
Type	Size (Inch)	L (mm)	W (mm)	T (mm)	D1 (mm)	D2 (mm)	Weight (g) (1000pcs)
LRP05 (2mΩ)	0805	2.05±0.10	1.25±0.10	0.5±0.15	0.65±0.15	0.65±0.15	6.5
LRP05 (5~20mΩ)	0805	2.05±0.10	1.25±0.10	0.43±0.15	0.45±0.15	0.45±0.15	4.5
LRP06	1206	3.15±0.10	1.45±0.10	0.55±0.10	0.55±0.15	0.55±0.15	10.5
LRP10	2010	5.00±0.15	2.40±0.15	0.55±0.15	0.80±0.20	0.80±0.20	40
LRP12 (2~200mΩ)	2512	6.40±0.25	3.20±0.25	0.70±0.20	0.90±0.30	0.90±0.30	52.6
LRP12 (1.5mΩ)	2512	6.40±0.25	3.20±0.25	0.70±0.20	0.90±0.30	1.45±0.30	52.6
LRP12 (1mΩ)	2512	6.40±0.25	3.20±0.25	0.70±0.20	0.90±0.30	1.85±0.30	52.6

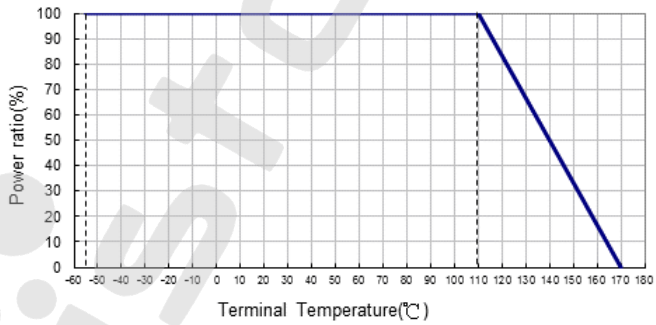
Low Ohm (Metal Strip) Chip Resistor

Part Numbering

LRP	12	F	T	D	S	R015
Product Type	Dimensions (L×W)	Resistance Tolerance	Packaging Code	TCR (PPM/℃)	Power Rating	Resistance
	05: 0805 06: 1206 10: 2010 12: 2512	D: ±0.5% F: ±1% J: ±5%	T: Taping Reel	C: ±25 D: ±50 W: ±75 E: ±100	Q: 3/4W R: 3W S: 2W T: 1W	R015: 0.015Ω R050: 0.05Ω 1M50: 0.0015Ω

Derating Curve





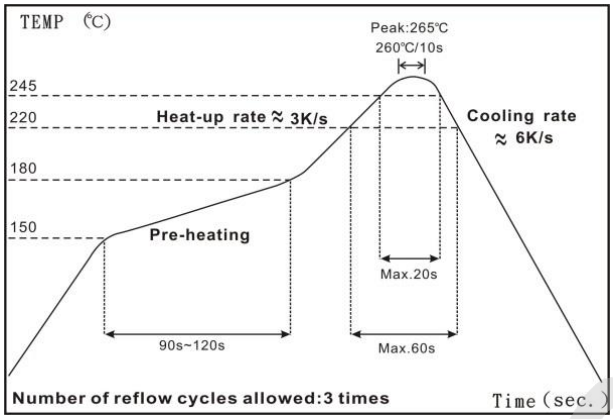
Electrical Specifications

Item / Type	Power Rating at 70°C	Rated Terminal Temperature	Operating Temp. Range	Resistance Range (mΩ) ±0.5%	Resistance Range (mΩ) ±1%	Resistance Range (mΩ) ±5%	TCR (PPM/°C)
LRP05 (0805)	3/4W	110°C	-55 ~ +170°C	10、15、20			±50 ±75
				5			±75
				2			±100
	1W	110°C	-55 ~ +170°C	10			±50 ±75
				5			±75
				2			±100
LRP06 (1206)	1W	110°C	-55 ~ +170°C	8, 10, 12, 15, 20, 25, 30, 33, 40			±50
				3, 4, 5, 7, 8, 10, 12, 15, 20, 25, 30, 33, 40			±75 ±100
LRP10 (2010)	1W	110°C	-55 ~ +170°C	4, 5, 10, 15, 20, 30, 50, 68, 75, 100			±75
	2W	110°C	-55 ~ +170°C	4, 5, 10, 15, 20, 30, 50, 68, 75			
LRP12 (2512)	2W, 3W	110°C	-55 ~ +170°C	3, 4, 5, 6, 7, 18, 20, 22, 25, 30, 33, 35, 39, 40, 47, 50, 60, 68, 70, 75, 80, 82, 90, 91, 100, 120, 150, 180, 200			±25
				1, 1.5, 2, 2.5, 3, 4, 5, 6, 7, 8, 8.5, 9, 10, 12, 15, 18, 20, 22, 25, 30, 33, 35, 39, 40, 47, 50, 60, 68, 70, 75, 80, 82, 90, 91, 100, 120, 150, 180, 200			±50 ±75

Operating Current =√(P/R) , Operationg Voltage=√(P*R)

■ Viking is capable of manufacturing the optional spec based on customer's requirement.

■ Soldering Condition



IR Reflow Soldering

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

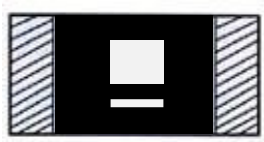
■Marking

1206/2010/2512: 4 digits marking

Example:

Resistance	1mΩ	1.5mΩ	25mΩ	100mΩ
Marking	R001	1M50	R025	R100

0805:



■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	±1.0%	**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	±1.0%	**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	±1.0%	**MIL-STD-202 Method 103** 1000 hrs 85°C/85%RH 10% of operating power
Dry Heat	±1.0%	**IEC60115-1 4.23.2** **JIS-C-5201-1 4.23.2** at +170°C for 1000 hrs
Bending Strength	±1.0%	**JIS-C-5201-1 4.33** **IEC-60115-1 4.33** Bending width 2mm once for 60 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	±1.0%	**JIS-C-5201-1 4.19** **IEC-60115-1 4.19** -55°C to +155°C, 5 cycles
Low Temperature Storage	±1.0%	**IEC60115-1 4.23.4** **JIS-C-5201-1 4.23.4** at -55°C for 2 hrs

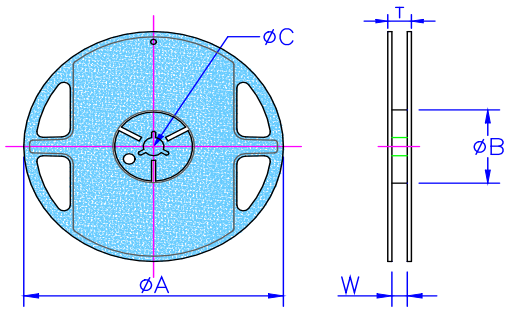
RCWV(Rated Continuous Working Voltage)= √(P*R) or Max. Operating Voltage whichever is lower.

■Storage Temperature: 15~28℃; Humidity < 80%RH

■Shelf Life: 2 years from production date.

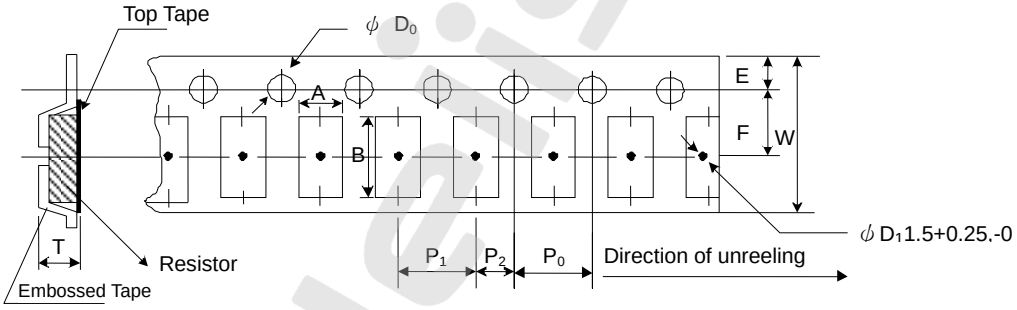
■Packaging

Reel Specifications & Packaging Quantity



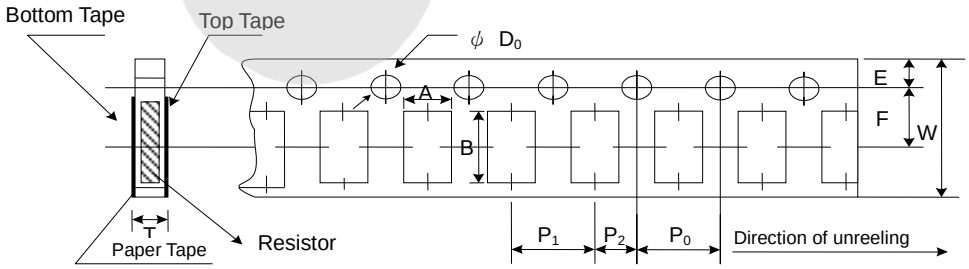
Type	Resistance (mΩ)	Packaging Quantity		Tape Width	Reel Diameter	ΦA (mm)	ΦB (mm)	ΦC (mm)	W (mm)	T (mm)
LRP05	2~20	Paper	5K	8mm	7 inch	178.5±1.5	$60^{+1/-0}$	13.0±0.2	9.0±0.5	12.5±0.5
LRP06	3~40	Paper	5K	8mm	7 inch	178.5±1.5	$60^{+1/-0}$	13.0±0.2	9.0±0.5	12.5±0.5
LRP10	4~100	Embossed	4K	12mm	7 inch	178.5+/-1.5	60±1.0	13.0±0.5	13.0±1.0	15.5±0.5
LRP12	1~200	Embossed	4K	12mm	7 inch	178.5+/-1.5	60±1.0	13.0±0.5	13.0±1.0	15.5±0.5

Embossed Plastic Tape Specifications



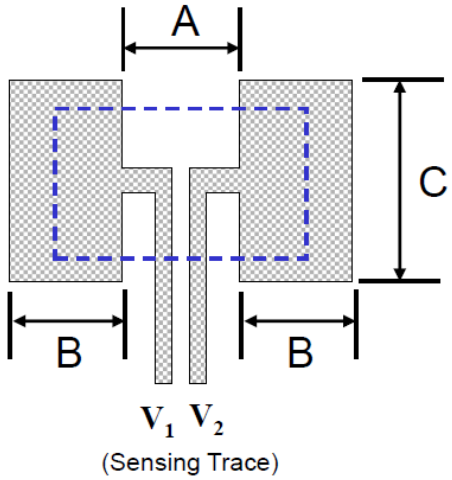
Type	A (mm)	B (mm)	W (mm)	E (mm)	F (mm)	P_0 (mm)	P_1 (mm)	P_2 (mm)	ΦD_0 (mm)	T (mm)
LRP10	2.80±0.10	5.40±0.20	12.0±0.30	1.75±0.10	5.5±0.05	4.00±0.10	4.00±0.10	2.00±0.05	1.50+0.1, -0	1.20+0
LRP12	3.50±0.10	6.70±0.10	12.0±0.30	1.75±0.10	5.5±0.05	4.00±0.10	4.00±0.10	2.00±0.05	1.50+0.1, -0	1.20+0

Paper Tape Specifications



Type	A (mm)	B (mm)	W (mm)	E (mm)	F (mm)	P_0 (mm)	P_1 (mm)	P_2 (mm)	ΦD_0 (mm)	T (mm)
LRP05	1.60±0.10	2.40±0.20	8.0±0.20	1.75±0.10	3.50±0.05	4.00±0.10	4.00±0.05	2.00±0.05	1.50+0.1,-0	0.85±0.10
LRP06	1.90±0.10	3.50±0.20	8.0±0.20	1.75±0.10	3.50±0.05	4.00±0.10	4.00±0.05	2.00±0.05	1.50+0.1,-0	0.85±0.10

■Recommend Land Pattern



Type	A (mm)	B (mm)	C (mm)
LRP05	0.65	1.10	1.40
LRP06	1.50	1.40	1.70
LRP10	3.60	1.40	2.50
LRP12 (2~200mΩ)	4.00	2.00	3.50
LRP12 (1~1.5mΩ)	2.30	2.65	3.50

＊FR4 copper board, 100μm of copper pad thickness

Note: The land pattern is designed based on the Kelvin resistance measurement (also known as the 4-wire resistance measurement), with the sensing trace positioned on the inner side. This approach ensures that the resistance impedance meets the specified design standards.

However, factors such as the solder pad area and the amount of solder applied can influence the resistance after soldering. Therefore, these variables should also be carefully considered during the circuit design process.

■Product Appearance

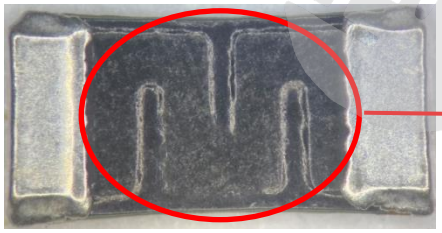
Qualified product appearance

Top



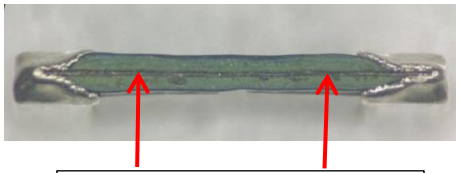
Product design not crack

Bottom



Punch mark is allowed but raw material can not exposed.

Side



Product design not crack

REVISION HISTORY

REVISION	DATE	CHANGE NOTIFICATION	DESCRIPTION
Version A	Apr 30, 2015	-	- First issue of this specification
Version A1	Jul 30, 2015	-	- Add 0.5% Resistance Range
Version A2	Nov 27, 2015	-	- Change TCR75 ppm Resistance Range 10mR~100mR →7mR~100mR
Version A3	Jul 15, 2016	-	- Remove Material Description - Modify Storage Temperature
Version A4	Jun 01, 2017	-	- Add 1206 Size Resistance Range - Add 2512 Size R003~R006 TCR75ppm
Version A5	Nov 02, 2017	-	- Features Item Add AEC-Q200 Compliance (LRP12 7mΩ to 100mΩ)
Version A6	Jan 12, 2018	-	- Environmental Characteristics update - Electrical Specifications update
Version A7	Aug 03, 2018	-	- Electrical Specifications update
Version A8	Oct 21, 2019	-	- Features: Add sulfur resistance instructions
Version A9	Mar 23, 2020	-	- Increase product weight
Version B	Jul 06, 2020	-	- Features Increase Low inductance < 5nH
Version B1	Nov 30, 2020	-	- Increase the resistance range of LRP06 - LRP12 add TCR: 25ppm & 50ppm specification
Version B2	Mar 10, 2021	-	- Features: Add Lead-free and RoHS compliant
Version B3	Jun 09, 2021	-	- Modify LRP06 Dimensions
Version B4	Jul 20, 2021	-	- Increase the resistance range of LRP10
Version B5	Nov 15, 2021	-	- Increase the shelf life description
Version B6	Feb 15, 2022	-	- Derating Curve changes the temperature range
Version B7	Mar 18, 2022		- Add Terminal Temperature Derating Curve - Add 2512 8.5mΩ
Version B8	Jan 06, 2023		- Modify 2512 3mΩ Packaging Quantity - Add 2010 Size Resistance Range
Version B9	Sep 01, 2023		- Add 2512 Size Resistance Range
Version C	Jun 09, 2025		- Modify the descriptions in the Features - Add Product Appearance
Version C1	Sep 09, 2025		- Add 0805 production range