

LOW OHM (METAL STRIP) CHIP RESISTOR

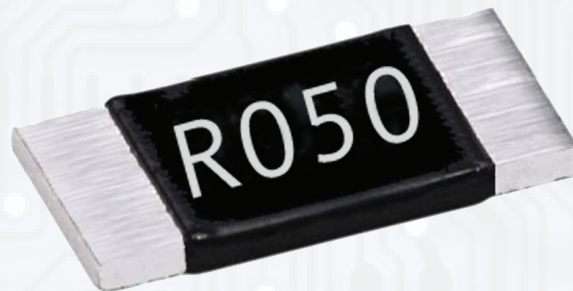
- LOR SERIES -

FEATURES

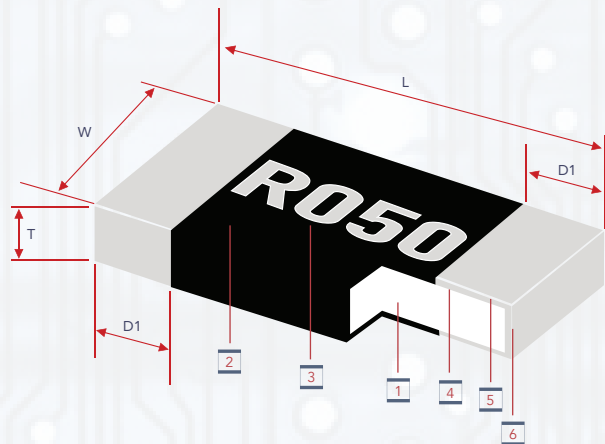
- Low TCR down to ± 25 PPM/ $^{\circ}$ C
- Customized resistance available
- Low inductance < 5nH
- AEC Q200 Compliance
- Sulfur resistance unaffected by sulfur environments
- Lead free and RoHS compliant

APPLICATIONS

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



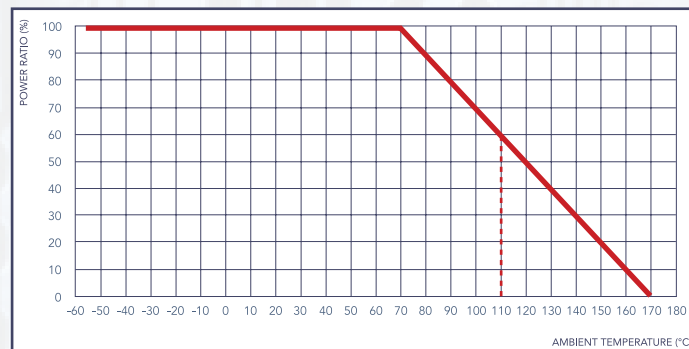
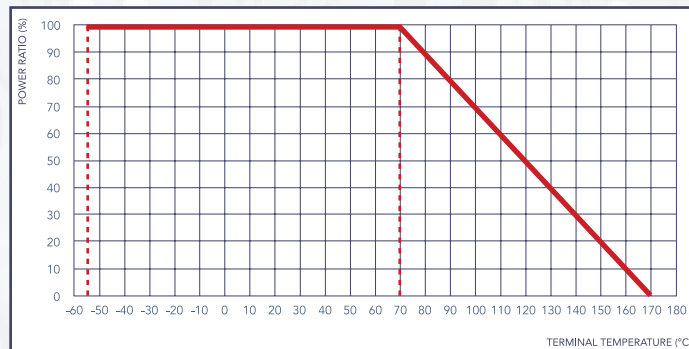
CONSTRUCTION & DIMENSIONS



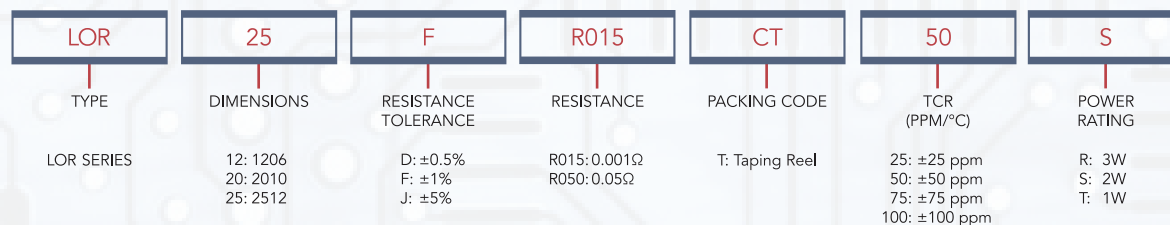
- 1 Alloy Plate
- 2 Overcoat (moulding)
- 3 Marking
- 4 Internal Electrode (Cu)
- 5 Barrier Layer (Ni)
- 6 Solder Plating (Sn)

TYPE	SIZE (INCH)	L (MM)	W (MM)	T (MM)	D1 (MM)	D2 (MM)	WEIGHT (G) (1000PCS)
LOR12	1206	3.15 \pm 0.10	1.45 \pm 0.10	0.55 \pm 0.10	0.55 \pm 0.15	0.55 \pm 0.15	10.5
LOR20	2010	5.00 \pm 0.15	2.40 \pm 0.15	0.55 \pm 0.15	0.80 \pm 0.20	0.80 \pm 0.20	40
LOR25 (2-200 Ω)	2512	6.40 \pm 0.25	3.20 \pm 0.25	0.70 \pm 0.20	0.90 \pm 0.30	0.90 \pm 0.30	52.6
LOR25 (1.5M Ω)	2512					1.45 \pm 0.30	
LOR25 (1M Ω)	2512					1.85 \pm 0.30	

DERATING CURVE



PART NUMBERING



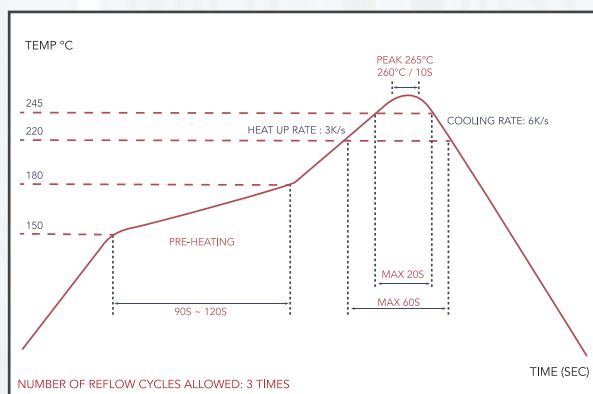
ELECTRICAL SPECIFICATIONS

TYPE	ITEM	POWER RATING AT 70°C	RATED TERMINAL TEMPERATURE	OPERATING TEMP RANGE	RESISTANCE RANGE (mΩ)			T.C.R. (PPM / °C)
					±0.5%	±1%	±5%	
LOR12	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
LOR20	2010	1W			4, 5, 10, 15, 20, 30, 50, 68, 75, 100			±75
		2W			4, 5, 10, 15, 20, 30, 50, 68, 75			
LOR25	2512	2W, 3W			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 - $\sqrt{(P/R)}$ | Operating Voltage - $\sqrt{(P*R)}$

- Cal-Chip is capable of manufacturing the optional spec based on customer's requirement

SOLDERING CONDITION



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

ENVIRONMENTAL CHARACTERISTICS

ITEMS	REQUIREMENT	TEST METHOD
Temperature Coefficient of Resistance (T.C.R.)	As Spec.	IEC-60115-1 4.8 JIS-C-5201-1 4.8 +25°C ~ 125°C, 25°C is the reference temperature
Short Time Overload	±1.0%	IEC-60115-1 4.13 JIS-C-5201-1 4.13 5* rated power for 5 seconds
Insulation Resistance	≥10G	IEC-60115-1 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 1.5hrs "ON" and 0.5 hrs "OFF"
Biased Humidity	±1.0%	MIL - STD - 202 Method 103 1000 hrs 85°C /85%RH 10% of operating power
Dry Heat	±1.0%	IEC-60115-1 4.23.2 JIS-C-5201-1 4.23.2 at + 170°C for 1000hrs
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

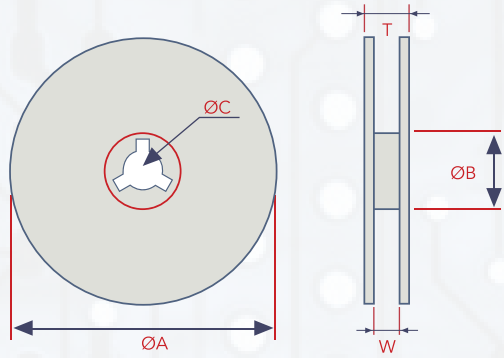
RCWW (Rated Continuous Working Voltage) - $\sqrt{(P*R)}$ or Max. Operating Voltage whichever is lower

- Storage Temperature: 15~28°C ; Humidity < 80%RH
- Shelf life: 2 years from production date



PACKAGING

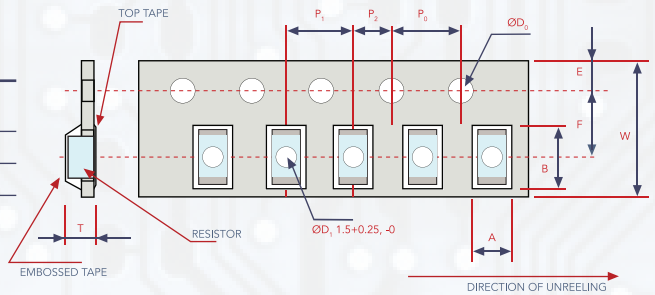
- Reel Specifications & Packaging Quantity



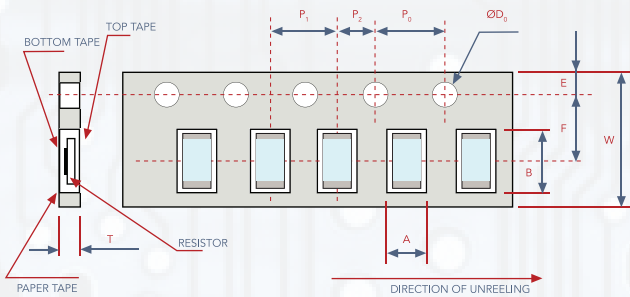
TYPE	RESISTANCE (MΩ)	PACKAGING QUANTITY		TAPE WIDTH	REEL DIAMETER	ØA (mm)	ØB (mm)	ØC (mm)	W (mm)	T (mm)
LOR12	3-40	Paper	5K	8mm	7 inch	178.5±1.5	60 ^{+1.0}	13±0.2	9.0±0.5	12.5±0.5
LOR20	4-100	Embossed	4K	12mm	7 inch	178.5+/-1.5	60±1.0	13±0.5	13±1.0	15.5±0.5
LOR25	1-200							13±0.5		

- Embossed Plastic Tape Specifications

TYPE	A (MM)	B (MM)	W (MM)	E (MM)	F (MM)	P ₀ (MM)	P ₁ (MM)	P ₂ (MM)	ØD ₀ (MM)	T (MM)
LOR20	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
LOR25	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

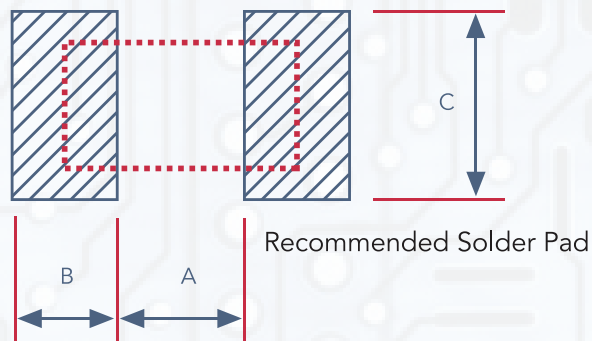


- Paper Tape Specifications



TYPE	A (MM)	B (MM)	W (MM)	E (MM)	F (MM)	P ₀ (MM)	P ₁ (MM)	P ₂ (MM)	ØD ₀ (MM)	T (MM)
LOR12	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

RECOMMENDED LAND PATTERN



TYPE	A (MM)	B (MM)	C (MM)
LOR12	1.50	1.40	1.7
LOR20	3.60	1.40	2.5
LOR25	4.00	2.00	3.5
LOR25	2.30	2.65	3.5