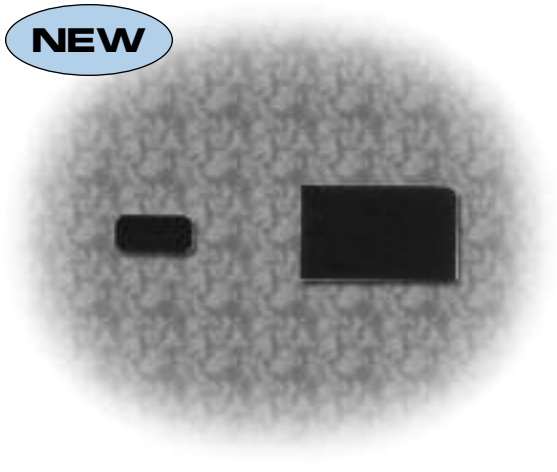
KOA SPEER ELECTRONICS, INC.

TLR

metal plate chip type low resistance resistor

EU RoHS COMPLIANT

NEW

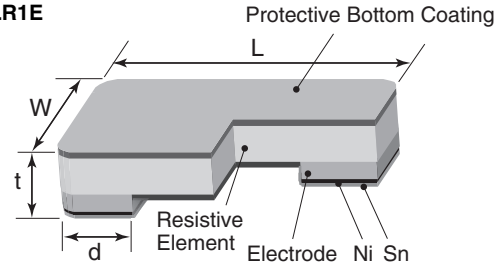


features

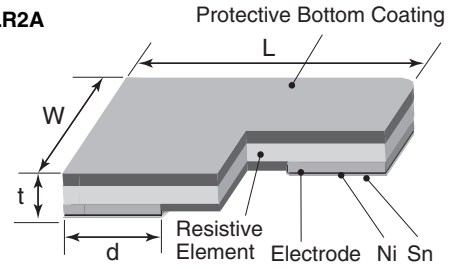
- SMD type of small size, metal plate low resistance resistor for current detection
- Low height suitable for use of small equipment such as mobile phone
- High reliability and performance with T.C.R ±100×10–6/K
- Filletless products (The soldering part of this product is only a bottom electrode)
- Suitable for reflow soldering (Not suitable for flow soldering)
- Products meet EU RoHS requirements

dimensions and construction

TLR1E



TLR2A



Size Code	Resistance	Dimensions inches (mm) L	W	d	t
TLR1E (0402)	10mΩ	.039±.002 (1.00±0.05)	.020±.002 (0.50±0.05)	.012±.004 (0.30±0.10)	.010±.004 (0.25±0.10)
TLR2A (0805)	5mΩ	.079±.008 (2.00±0.20)	.049±.008 (1.25±0.20)	.026±.008 (0.65±0.20)	.012±.006 (0.30±0.15)
	6mΩ			.022±.008 (0.55±0.20)	
	7mΩ			.020±.008 (0.50±0.20)	
	8mΩ			.020±.008 (0.50±0.20)	.016±.006 (0.26±0.15)
	9mΩ			.018±.008 (0.45±0.20)	
	10mΩ			.014±.008 (0.35±0.20)	

ordering information

New Part #

TLR	1E	D	TP	2L00	F
Type	Power Rating	Termination Material	Packaging	Nominal Resistance	Resistance Tolerance
	1E: 0.2W 2A: 1W	T: Sn	TP: 2mm pitch punch paper TD: 4mm pitch punch paper	F: 4 digits G, J: 3 digits	F: ±1% G: ±2% J: ±5%

For further information on packaging, please refer to Appendix A.

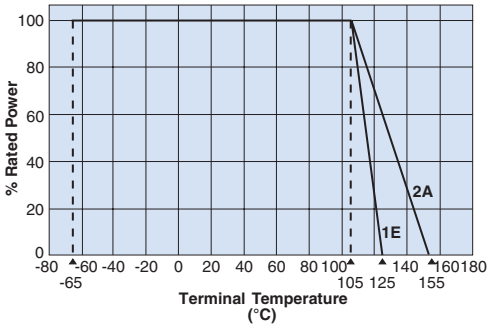
applications and ratings

Part Designation	Power Rating @ 70°C	T.C.R. (ppm/°C) Max.**	Standard Resistance (Ω)	Resistance Tolerance	Terminal Temperature	Operating Temperature Range
TLR1E	0.2W	±100	10m	G: ±2%, J: ±5%*	105°C and less	-65°C to +125°C
TLR2A	1W	±100	5m, 6m, 7m, 8m, 9m, 10m	F: ±1%	105°C and less	-65°C to +155°C

* Please ask us about resistance tolerance ±1%

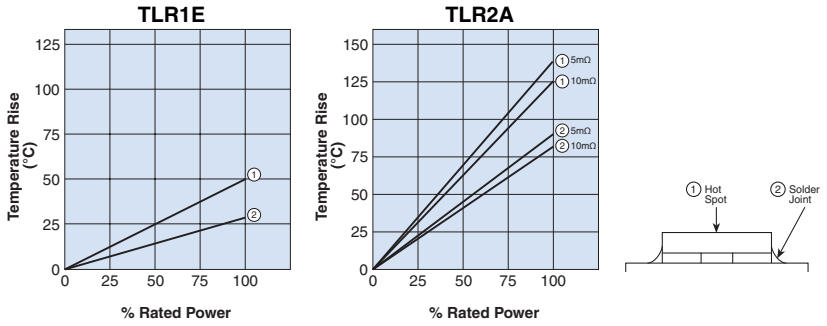
environmental applications

Derating Curve



For resistors operated at an ambient temperature of 105°C or above, a power rating shall be derated in accordance with the above derating curve.

Temperature Rise



Performance Characteristics

Parameter	Requirement Δ R % Limit	Typical	Test Method
Resistance	Within regulated tolerance	—	25°C
T.C.R.	Within specified T.C.R.	—	+25°C/+100°C
Overload (Short time)	±1	1E: ±0.15 2A: ±0.05	1E: Rated power x 5 for 5 seconds 2A: Rated power x 2.5 for 5 seconds
Resistance to Solder Heat	±1	±0.01	260°C ± 5°C, 10 ~ 12 seconds
Rapid Change of Temperature	±1	±0.2	1E: -55°C (30 minutes), +125°C (30 minutes), 1000 cycles 2A: -55°C (15 minutes), +150°C (15 minutes), 1000 cycles
Moisture Resistance	±1	±0.3	85°C, 85%RH, 1000 hours, 10% Bias
Endurance at 105°C	±1	±0.4	Terminal temp: 105°C, 1000 hours, 1.5 hr ON, 0.5 hr OFF cycle
Low Temperature Exposure	±1	±0.05	-65°C, 96 hours
High Temperature Exposure	1E: ±1 2A: ±1 (7m~10m) ±2 (5m, 6m)	1E: ±0.3 2A: ±0.5 (7m~10m) ±0.8 (5m, 6m)	1E: 125°C, 1000 hours 2A: 155°C, 1000 hours