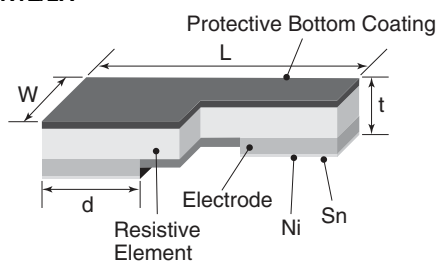


features

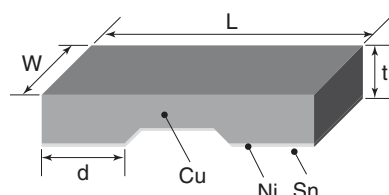
- SMD type of small size, metal plate low resistance resistor for current detection
- Low height suitable for use of small equipment such as mobile phone
- High reliability and performance with T.C.R $\pm 100 \times 10^{-6}/K$
- Filletless products (The soldering part of this product is only a bottom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

dimensions and construction

TLR1E/2A



TLRZ



Size Code	Resistance	Dimensions inches (mm)			
		L	W	d	t
TLR1E (0402)	10m Ω	.039 \pm .002 (1.00 \pm 0.05)	.020 \pm .002 (0.50 \pm 0.05)	.012 \pm .004 (0.30 \pm 0.10)	.010 \pm .004 (0.25 \pm 0.10)
NEW TLR2A (0805)	2m Ω			.024 \pm .008 (0.60 \pm 0.20)	.012 \pm .006 (0.30 \pm 0.15)
	3m Ω			.024 \pm .008 (0.60 \pm 0.20)	.010 \pm .006 (0.25 \pm 0.15)
	4m Ω			.018 \pm .008 (0.45 \pm 0.20)	
	5m Ω			.026 \pm .008 (0.65 \pm 0.20)	
	6m Ω			.079 \pm .008 (2.00 \pm 0.20)	.049 \pm .008 (1.25 \pm 0.20)
TLR2A (0805)	7m Ω			.020 \pm .008 (0.50 \pm 0.20)	
	8m Ω			.020 \pm .008 (0.50 \pm 0.20)	
	9m Ω			.018 \pm .008 (0.45 \pm 0.20)	.016 \pm .006 (0.26 \pm 0.15)
TLR2A (0805)	10m Ω			.014 \pm .008 (0.35 \pm 0.20)	
TLRZ1J (0603)	—	.063 \pm .004 (1.60 \pm 0.10)	.031 \pm .004 (0.80 \pm 0.10)	.012 \pm .004 (0.30 \pm 0.10)	.010 \pm .004 (0.25 \pm 0.10)
TLRZ2A (0805)	—	.079 \pm .004 (2.00 \pm 0.10)	.049 \pm .004 (1.25 \pm 0.10)	.012 \pm .004 (0.30 \pm 0.10)	.018 ^{+0.002} ₋₀ (0.45 ^{+0.05} ₋₀)

ordering information

New Part #	TLR	1E	T	TP	10L0	J
Type	TLR TLRZ	Power Rating	Termination Material	Packaging	Nominal Resistance	Resistance Tolerance
		1E: 0.2W 2A: 1W 1J: 20A	T: Sn	TP: 2mm pitch punch paper TD: 4mm pitch punch paper	$\pm 1\%$: 4 digits $\pm 2\%$, $\pm 5\%$: 3 digits	F: $\pm 1\%$ G: $\pm 2\%$ J: $\pm 5\%$

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

Specifications given herein may be changed at any time without prior notice. Please confirm technical specifications before you order and/or use.

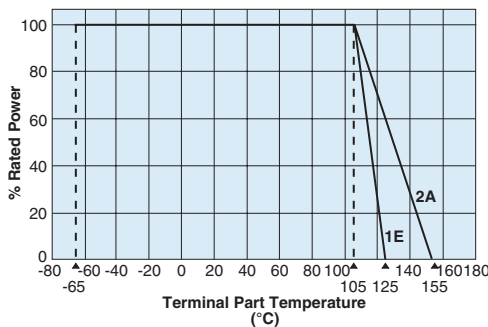
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applications and ratings

Part Designation	Power Rating @ 70°C	Current Rating	T.C.R. (ppm/°C) Max.	Standard Resistance (Ω)	Resistance Tolerance	Rated Terminal Part Temperature	Connection Temperature	Operating Temperature Range
TLR1E	0.2W	—	±100	10m	G: ±2%, J: ±5%	105°C	—	-65°C to +125°C
TLR2A	1W	—	±100	2m, 3m, 4m, 5m, 6m, 7m, 8m, 9m, 10m	F: ±1%	105°C	—	-65°C to +155°C
TLRZ1J	—	20A	—	0.2m max.	—	—	105°C and less	-55°C to +155°C
TLRZ2A	—	20A	—	0.2m max.	—	—	105°C and less	-55°C to +155°C

environmental applications

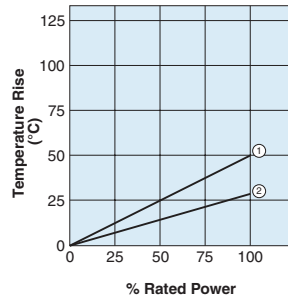
Derating Curve



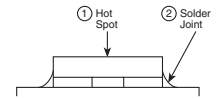
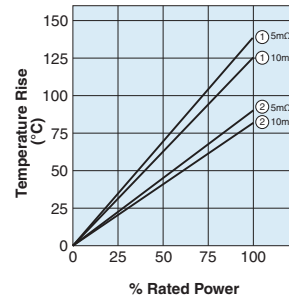
For resistors operated at an ambient temperature of 105°C or above, a power rating shall be derated in accordance with the above derating curve.

Temperature Rise

TLR1E



TLR2A



For resistors operated at a terminal part temperature of described for each size or above, a power rating shall be derated in accordance with the derating curve. Please refer to "Introduction of the derating curve based on the terminal part temperature" on the beginning of our catalog before use.

Performance Characteristics

Parameter	Requirement Δ R %		Test Method
	Limit	Typical	
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 and Less of Terminal Part Temperature	±1	±0.4	Terminal part temperature: 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 (2-4m, 7-10m) ±2 (5m, 6m)	1E: ±0.3 2A: ±0.5 (2-4m, 7-10m) ±0.8 (5m, 6m)	1E: 125°C, 1000 hours 2A: 155°C, 1000 hours

Note: Please contact factory for the TLRZ Performance Characteristics