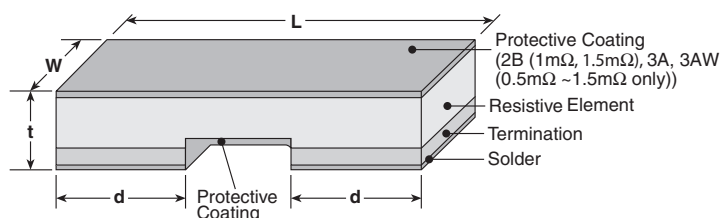


## features

- Ultra-low TCR (+50ppm/°C) available
- Metal alloy: superior corrosion and heat resistance
- Applications include current sensing, voltage division and pulse applications
- Ultra low resistance (0.5mΩ - 20mΩ)
- Suitable for reflow soldering (Not suitable for flow soldering)
- Products with lead-free terminations meet EU RoHS and China RoHS requirements
- AEC-Q200 Qualified



## dimensions and construction



Size Code	Resistance	Dimensions inches (mm)			
		L	W	d	t
TLR2B	1m	.126±.008 (3.20±0.20)	.063±.008 (1.60±0.20)	.043±.008 (1.10±0.20)	.024±.008 (0.60±0.20)
	New 1.5m			.020±.008 (0.50±0.20)	
	2m, 3m, 4m, 5m, 6m, 7m, 8m, 9m, 10m, 11m, 12m, 13m, 15m, 16m, 18m, 20m				
TLR2H	1m	.200±.008 (5.00±0.20)	.100±.008 (2.50±0.20)	.071±.008 (1.80±0.20)	.026±.008 (0.65±0.20)
	2m - 6m			.060±.008 (1.50±0.20)	.024±.008 (0.60±0.20)
	7m - 10m			.020±.008 (0.50±0.20)	

Size Code	Resistance	Dimensions inches (mm)			
		L	W	d	t
TLR3A	1mΩ	.25±.01 (6.35±0.25)	.125±.01 (3.18±0.25)	.087±.01 (2.20±0.25)	.024±.01 (0.62±0.25)
	2mΩ			.047±.01 (1.20±0.25)	
	3mΩ			.073±.01 (1.85±0.25)	
	4mΩ			.047±.01 (1.20±0.25)	
TLR3AW	0.5mΩ	.25±.01 (6.35±0.25)	.125±.01 (3.18±0.25)	.107±.01 (2.725±0.25)	.024±.01 (0.60±0.25)
	0.68mΩ, 0.75mΩ, 0.82mΩ			.105±.01 (2.675±0.25)	
	1mΩ, 1.5mΩ, 2mΩ, 3mΩ, 4mΩ			.087±.01 (2.20±0.25)	
	5mΩ, 6mΩ, 7mΩ, 8mΩ			.047±.01 (1.20±0.25)	
	9mΩ, 10mΩ			.030±.01 (0.77±0.25)	

## ordering information

New Part #	TLR	3A	D	TE	2L00	F	75
Type		Power Rating	Termination Material	Packaging	Nominal Resistance	Tolerance	T.C.R.
		2B: 0.5W 2H: 1W 3A: 1W 3AW: 2W	D: SnAgCu	TE: 7" 8mm pitch embossed plastic (3A, 3AW) TE: 7" 4mm pitch embossed plastic (2H only) TD: 4mm pitch punched paper (2B only)	±1%: 4 digits Ex: 2L00: 2mΩ	F: ±1%	75: 75ppm/°C Blank: 150ppm/°C Blank: 200ppm/°C

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.

8/19/16

### applications and ratings

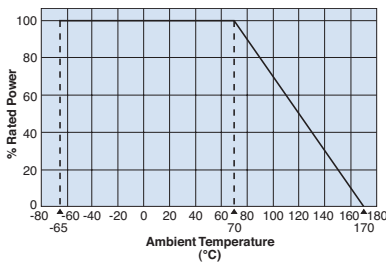
Part Designation	Power Rating @ 70°C	Rated Ambient Temperature	Rated Terminal Part Temperature	T.C.R. (ppm/°C) Max.*	Standard Resistance (Ω)	Resistance Tolerance	Operating Temperature Range
TLR2B	1/2W (.5W)	70°C	105°C	±75	1m, 1.5m, 2m, 3m, 4m, 5m, 6m, 7m, 8m, 9m, 10m, 11m, 12m, 13m, 15m, 16m, 18m, 20m	F: ±1%	-65°C to +170°C
TLR2H	1W	70°C	105°C	±75	1m, 2m, 3m, 4m, 5m, 6m, 7m, 8m, 9m, 10m	F: ±1%	-65°C to +170°C
TLR3A	1W	70°C	105°C	±150 ±200	1m, 2m 3m, 4m	F: ±1%	-65°C to +170°C
TLR3AW	2W	70°C	105°C	±75 ±150	0.5m, 0.68m, 0.75m, 0.82m, 1m, 1.5m, 2m**, 3m, 4m, 5m, 6m, 7m, 8m, 9m, 10m	F: ±1%	-65°C to +170°C

\* Please contact factory for T.C.R.: ±50ppm/°C \*\* Contact factory for 2mΩ dimensions

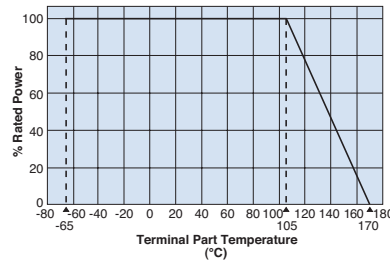
If any questions should arise whether to use the "Rated Ambient Temperature" or the "Rated Terminal Part Temperature," please give priority to the "Rated Terminal Part Temperature." Prior to use and for more details refer to "Introduction of the derating curves on the terminal part temperature" in the beginning of the catalog.

### environmental applications

#### Derating Curve



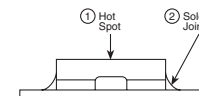
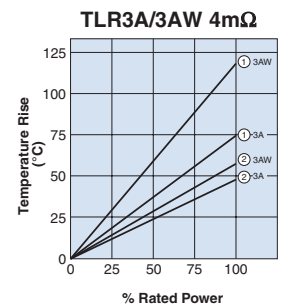
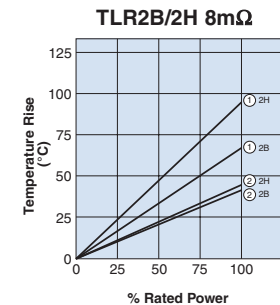
For resistors operated at an ambient temperature of 70°C or above, a power rating shall be derated in accordance with the above derating curve.



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.

#### Temperature Rise



Regarding the temperature rise, the value of the temperature varies per conditions and board for use since the temperature is measured under our measuring conditions.

### 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
Resistance to Solder Heat	±0.5%	±0.3%	260°C ± 5°C, 10 ~ 12 seconds
Rapid Change of Temperature	±0.5%	±0.4%	-55°C (15 minutes), +150°C (15 minutes), 1000 cycles
Moisture Resistance	±0.5%	±0.1%	MIL-STD-202, Method 106, 0% power, 7a and 7b not required
Biased Humidity	±0.5%	±0.1%	85°C ± 2°C, 85% RH, 1000 hours, 10% bias
Endurance (Ambient Temp.)	±1.0%	±0.3%	70°C ± 2°C, 1000 hours, 1.5 hr ON, 0.5 hr OFF cycle
High Temperature Exposure	±1.0%	±0.6%	±155°C (2B, 2H, 3AW), ±170°C (3A), 1000 hours
	±1.0% + 0.0001Ω	—	±170°C (2B, 2H, 3AW), 1000 hours