

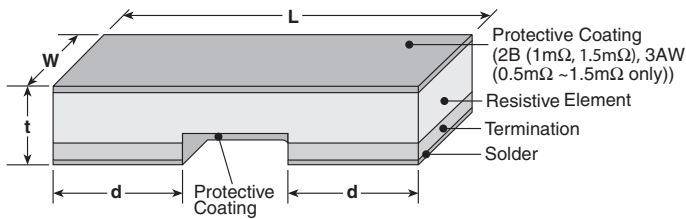


features

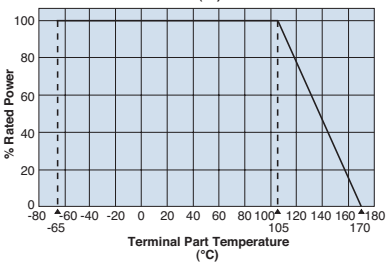
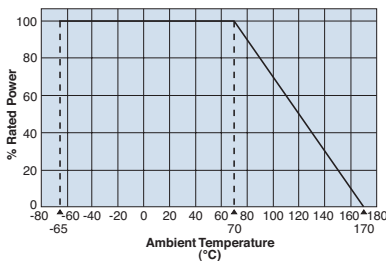
- Ultra-low TCR (+50ppm/°C) available
- Metal alloy: superior corrosion and heat resistance
- Applications include current sensing, voltage division and pulse applications
- Ultra low resistance (0.5mΩ - 20mΩ)
- Suitable for reflow soldering (Not suitable for flow soldering)
- Products with lead-free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

current sense

dimensions and construction



Derating Curve



Please refer to "Introduction of the derating curve based on the terminal part temperature" in the beginning of our catalog before use.

Size Code	Resistance	Dimensions inches (mm)			
		L	W	d	t
TLR2B TLR2BN	1m 1.5m	.126±.008 (3.20±0.20)	.063±.008 (1.60±0.20)	.043±.008 (1.10±0.20)	.024±.008 (0.60±0.20)
	2m, 3m, 4m, 5m, 6m, 7m, 8m, 9m, 10m, 11m, 12m, 13m, 15m, 16m, 18m, 20m			.020±.008 (0.50±0.20)	
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 7m - 10m			.060±.008 (1.50±0.20) .020±.008 (0.50±0.20)	
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

TLR	3AW	D	TE	2L00	F	75
Type	Power Rating 2BN: 0.5W 2B: 0.5W 2H: 1W 3AW: 2W	Termination Material D: SnAgCu	Packaging TE: 7" 8mm pitch embossed plastic (3AW) TE: 7" 4mm pitch embossed plastic (2H only) TD: 7" 4mm pitch punched paper (2B only)	Nominal Resistance ±1%: 4 digits All values less than 0.1Ω (100m) are expressed in mW with "L" as decimal Ex: 2mΩ = 2L00	Tolerance F: ±1%	T.C.R. New 50: 50ppm/°C 75ppm/°C Blank: 150ppm/°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.

12/10/20

applications and ratings

current sense

Part Designation	Power Rating	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	±50	2m,3m,4m,5m,6m,7m,8m,9m,10m,11m,12m,13m,15m,16m,18m,20m	F: ±1%	-65°C to +155°C** -65°C to +170°C**
				±75	1m,1.5m,2m,3m,4m,5m,6m,7m,8m,9m,10m,11m,12m,13m,15m,16m,18m,20m		
TLR2BN				±150	1m,1.5m,2m,3m,4m,5m,6m,7m,8m,10m,11m,12m,13m,15m,16m,18m,20m		
TLR2H	1W	70°C	105°C	±50	1m,2m,3m,4m,5m,6m,7m,8m,9m,10m	F: ±1%	-65°C to +155°C** -65°C to +170°C**
				±75			
TLR3AW	2W	70°C	105°C	±50	2m,3m,4m,5m,6m,7m,8m,9m,10m	F: ±1%	-65°C to +155°C** -65°C to +170°C**
				±75	0.5m,0.68m,0.75m,0.82m,1m,1.5m,2m*,3m,4m,5m,6m,7m,8m,9m,10m		
				±150			

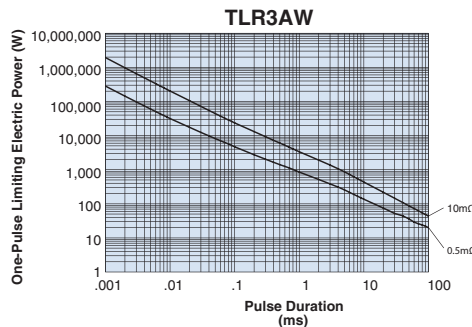
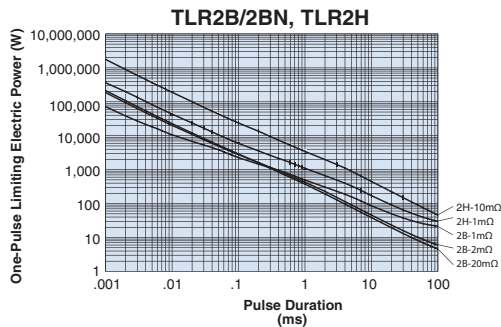
* Contact factory for 2mΩ dimensions

** Please reference High Temperature Performance Characteristics in the below table

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

One-Pulse Limiting Electric Power



The maximum applicable voltage is equal to the max. overload voltage.

Please ask us about the resistance characteristic of continuous applied pulse.

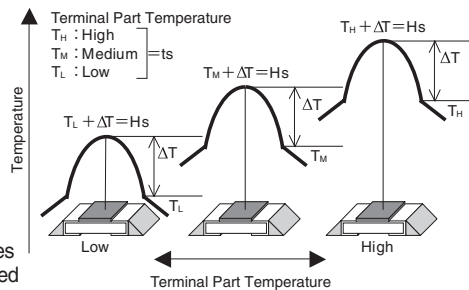
The pulse endurance values are not assured values, so be sure to check the products on actual equipment when you use them.

Thermal Resistance

Type	Size	Resistance (Ω)	Rth (°C/W)
TLR	2B	1m	7.2
		2m	18.3
		20m	116
	2H	1m	17
		10m	61.1
	3AW	0.5m	6
10m		62	

$$R_{th} = (H_s - t_s) / \text{Power}$$

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. Please refer to us before use.



The temperature of the resistor will increase the same ΔT from the standard terminal part temperature regardless of the ambient temperature when the same power is applied. This is because there is hardly any heat dissipation from the resistor surface to the ambient air.

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/+125°C
Resistance to Solder Heat	±0.5%	±0.3%	260°C ± 5°C, 10 seconds +2/-0 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), 1000 hours
	±2.0%	—	±170°C (2B, 2H, 3AW), 1000 hours

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12/10/20