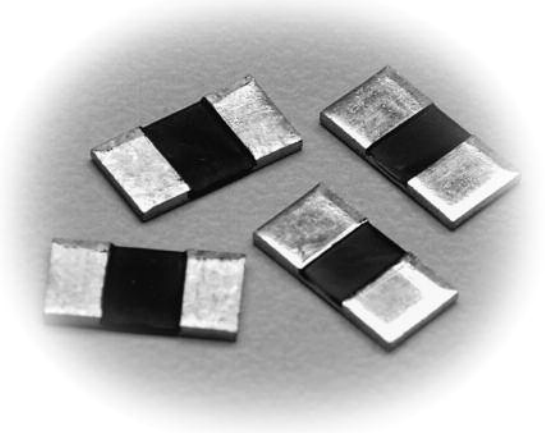
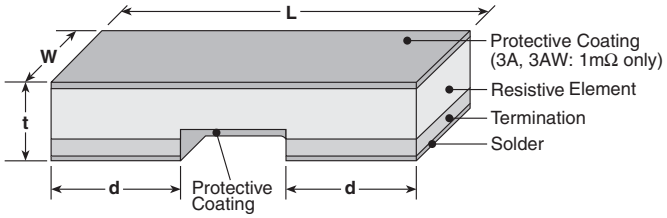
EU RoHS COMPLIANT



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 (1mΩ - 20mΩ)
- 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	2m,3m,4m,5m, 6m,7m,8m,9m, 10m,11m,12m, 13m,15m,16m, 18m,20m	.126±.008 (3.20±0.20)	.063±.008 (1.60±0.20)	.020±.008 (0.50±0.20)	.024±.008 (0.60±0.20)
NEW	TLR2BW	1mΩ	.126±.008 (3.20±0.20)	.063±.008 (1.60±0.20)	.051±.008 (1.30±0.20)	.024±.008 (0.60±0.20)
		2mΩ - 20mΩ			.020±.008 (0.50±0.20)	
NEW	TLR2H TLR2HW	1mΩ	.200±.008 (5.00±0.20)	.100±.008 (2.50±0.20)	.071±.008 (1.80±0.20)	.026±.008 (0.65±0.20)
		2mΩ - 6mΩ			.060±.008 (1.50±0.20)	.024±.008 (0.60±0.20)
		7mΩ - 10mΩ			.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)
		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)	
NEW	TLR3AP	0.5m	.25±.01 (6.35±0.25)	.125±.01 (3.18±0.25)	.107±.01 (2.725±0.25)	.024±.01 (0.60±0.25)
		0.68m, 0.82m			.105±.01 (2.675±0.25)	
		1m, 1.5m, 3m, 4m			.087±.01 (2.20±0.25)	
		2m			.098±.01 (2.50±0.25)	
		5m, 6m, 7m, 8m			.047±.01 (1.20±0.25)	
		9m, 10m			.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.
	2BN: 0.5W	D: SnAgCu	TE: 7" 8mm pitch embossed plastic (3A, 3AW, 3AP)	F: 4 digits Ex: 2L00: 2mΩ	F: ±1%	50: 50ppm/°C
	2B: 0.5W					75: 75ppm/°C
NEW	2BW: 1W					Nil: 100ppm/°C
	2H: 1W		TE: 7" 4mm pitch embossed plastic (2H, 2HW only)			Nil: 150ppm/°C
NEW	2HW: 2W					Nil: 200ppm/°C
	3A: 1W		TD: 4mm pitch punched paper (2B, 2BW)			
	3AW: 2W					
NEW	3AP: 3W					

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. 2/10/14

KOA SPEER ELECTRONICS, INC.

TLR

metal plate current sense resistor

applications and ratings

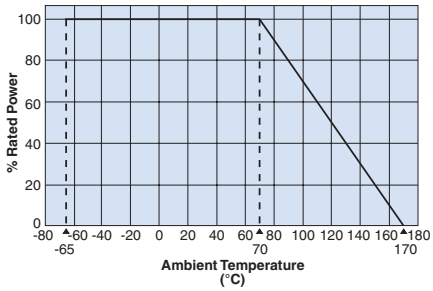
	Part Designation	Power Rating @ 70°C	T.C.R. (ppm/°C) Max.**	Standard Resistance (Ω)	Resistance Tolerance	Rated Ambient Temperature	Terminal Temperature under a Rated Load	Operating Temperature Range
	TLR2B	1/2W (.5W)**	±75	2m,3m,4m,5m,6m,7m, 8m,9m,10m,11m,12m, 13m,15m,16m,18m,20m	F: ±1%	+70°C	—	-65°C to +170°C
NEW	TLR2BW	1W	±75	1m,2m,3m,4m,5m,6m,7m, 8m,9m,10m,11m,12m, 13m,15m,16m,18m,20m	F: ±1%	—	+120°C	-65°C to +170°C
	TLR2H	1W	±75	1m,2m,3m,4m,5m, 6m,7m,8m,9m,10m	F: ±1%	+70°C	—	-65°C to +170°C
NEW	TLR2HW	2W	±50 ±75	1m,2m,3m,4m,5m, 6m,7m,8m,9m,10m	F: ±1%	—	+120°C	-65°C to +170°C
	TLR3A	1W	±150 ±200	1m, 2m 3m, 4m	F: ±1%	+70°C	—	-65°C to +170°C
	TLR3AW	2W	±75 ±150	*0.5m,1m,1.5m,2m***, 3m,4m,5m,6m,7m, 8m,9m,10m	F: ±1%	+70°C	—	-65°C to +170°C
NEW	TLR3AP	3W	±50 ±75	2m,3m,4m,5m 6m,7m,8m,9m,10m 0.5m,0.68m,0.82m,1m, 1.5m,2m,3m,4m,5m,6m, 7m,8m,9m,10m	F: ±1%	—	0.5m ~ 8m: +110°C 9m, 10m: +90°C	-65°C to +170°C

* Contact factory for values less than 1mΩ ** Please contact factory for T.C.R.: ±50ppm/°C *** Contact factory for 2mΩ dimensions

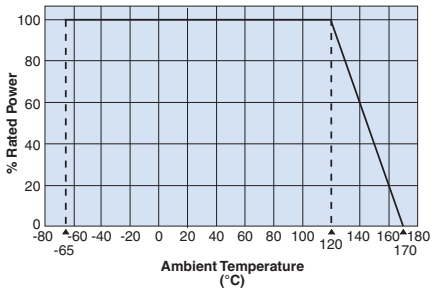
environmental applications

Derating Curve

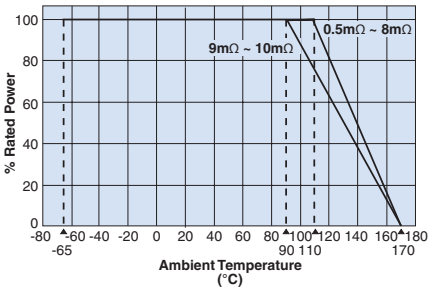
Ambient Temperature - TLR2B/2H/3A/3AW



Terminal Temperature - TLR2BW/2HW



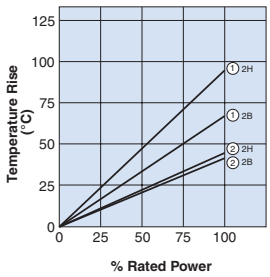
Terminal Temperature - TLR3AP



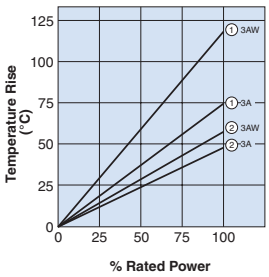
For resistors operated at an ambient temperature of 70°C or above, a power rating shall be derated in accordance with the above derating curve.

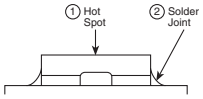
Temperature Rise

TLR2B/2H 8mΩ



TLR3A/3AW 4mΩ





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 ±% Limit	Typical	Test Method
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; 2BW: maintain in -65°C+3°C for 24 hrs
Endurance (Ambient Temp.)	±1.0%	±0.3%	70°C ± 2°C, 1000 hours, 1.5 hr ON, 0.5 hr OFF cycle
Endurance (Terminal Temp.)	±1.0%	±0.3%	120°C (TLR2BW/2HW), 110°C (3AP 0.5m-8mΩ), 90°C (3AP) 9m-10mΩ, 1000 hours, 1.5 hr ON, 0.5 hr OFF cycle
High Temperature Exposure	±1.0%	±0.6%	±170°C (3A), 1000 hours
	±2.0%	—	±170°C ± 3°C (2B, 2H, 2BW, 2HW, 3AP), 1000 hours