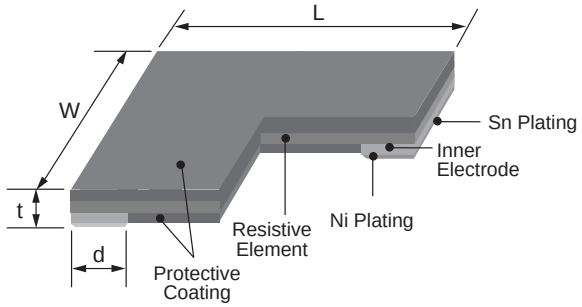
features

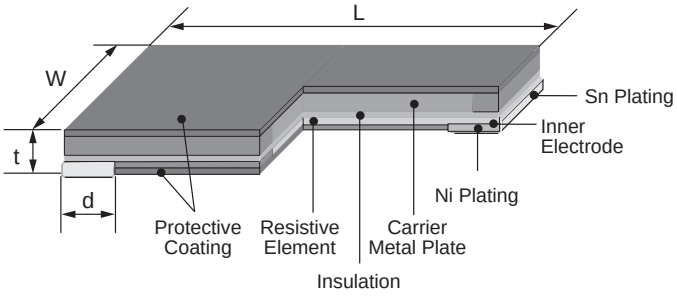
- SMD Type of small size, low resistance resistor for current detection
- Carrier metal plate inside, resistor of high radiation of heat structure (3AW, 3AP)
- High reliability and performance with low T.C.R.
- Automatic mounting machines are applicable
- Suitable for reflow soldering (Not suitable for flow soldering)
- Products with lead-free terminations meet EU RoHS requirements
- AEC-Q200 Qualified

dimensions and construction

2A



3AW



Size Code (Inch)	Resistance (Ω)	Dimensions inches (mm) L	W	d	t
TLRH 2A (0805)	10m~100m	.079±.008 (2.00±0.20)	.049±.008 (1.25±0.20)	.014±.008 (0.35±0.20)	.010±.008 (0.25±0.20)
TLRH 3AW (2512)	10m~270m	.248±.008 (6.30±0.20)	.126±.008 (3.20±0.20)	.030±.008 (0.75±0.20)	.020±.008 (0.50±0.20)
TLRH 3AP (2512)	6m~39m	.248±.008 (6.30±0.20)	.126±.008 (3.20±0.20)	.071±.008 (1.8±0.20)	.020±.008 (0.50±0.20)
	40m~120m			.051±.008 (1.3±0.20)	

ordering information

TLRH	3AW	T	TE	33L0	F
Type	Power Rating	Terminal Surface Material	Packaging	Nominal Resistance	Tolerance
	2A (10~27mΩ): 0.5W (33~50mΩ): 0.33W (56~100mΩ): 0.25W 3AW: 2.0W 3AP: (6~39mΩ): 5.0W (40~120mΩ): 4.0W	T: Sn	2A: TD: 7" 4mm pitch punched paper 3AW, 3AP: TE: 7" punched plastic	±1%: 4 digits All values less than 0.1Ω (100m) are expressed in mW with "L" as decimal Ex: 2mΩ = 2L00 2A: No marking	F: ±1%

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

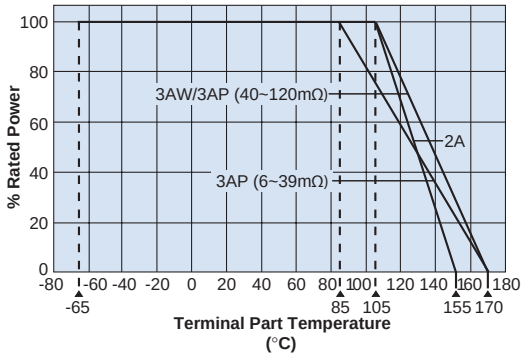
10/26/18

applications and ratings

Part Designation	Power Rating	T.C.R. (x10^{-6}/K)	Resistance Range (Ω) F: ±1% (E12)	Tolerance	Rated Terminal Part Temperature	Operating Temperature Range
TLRH 2A	0.25W	±75	56m~100m	F: ±1%	+105°C	-65°C~+155°C
	0.33W		33m ~ 50m			
	0.50W		10m ~ 27m			
TLRH 3AW	2.0W	±75	10m~22m			-65°C~+170°C
		±50	24m~270m			
TLRH 3AP	4.0W	±50	40m, 47m, 50m, 56m~120m			
	5.0W	±50	18m, 20m, 22m, 25m~39m		85°C	
		±75	6m, 7m, 8m, 9m, 10m, 12m			

environmental applications

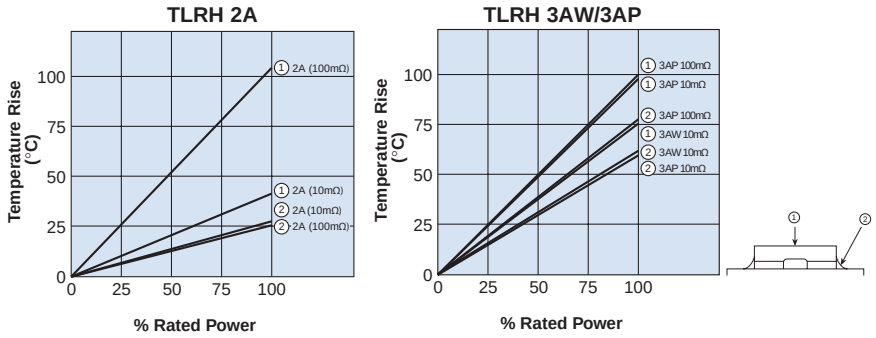
Derating Curve



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" in 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. Please contact factory prior to use.

Performance Characteristics

Parameter	Requirement Δ R% Limit	Typical	Test Method
Resistance	Within specified tolerance	—	25°C
T.C.R.	Within specified T.C.R.	—	+25°C/+100°C
Overload (Short time)	±0.5%	2A: ±0.05% 3AW,3AP: ±0.2%	2A, 3AW: Rated power x 2.5 for 5 seconds 3AP: Rated power x 8W for 5 seconds
Resistance to Soldering Heat	±0.5%	±0.1%	260°C ±5°C, 10 seconds ~ 12 seconds
Rapid Change of Temperature	±0.5%	2A: ±0.2% 3AW,3AP: ±0.1%	-55°C (15min.)/+150°C (15min.) 1000 cycles
Moisture Resistance	±0.5%	±0.1%	85°C ±2°C, 85% RH, 1000 hours, 10% Bias
Endurance at 105°C and Less of Terminal Part Temperature	±1%	2A: ±0.45% 3AW,3AP: ±0.3%	2A, 3AW, 3AP (40~120mΩ): 105°C, ±2°C; 3AP (6~39mΩ): 85°C ±2°C 1000 hours, 1.5 hours ON/0.5 hour OFF cycle
Low Temperature Exposure	±0.5%	2A: ±0.05% 3AW,3AP: ±0.02%	-65°C, 96 hours
High Temperature Exposure	±1%	2A: ±0.5% 3AW,3AP: ±0.2%	2A, 3AP: +155°C, 1000 hours (6~12mΩ) 3AW, 3AP: +170°C±3°C, 1000 hours (18~120mΩ)
	±2%	3AP: ±0.2%	3AP: +170°C±3°C, 1000 hours (6~12mΩ)