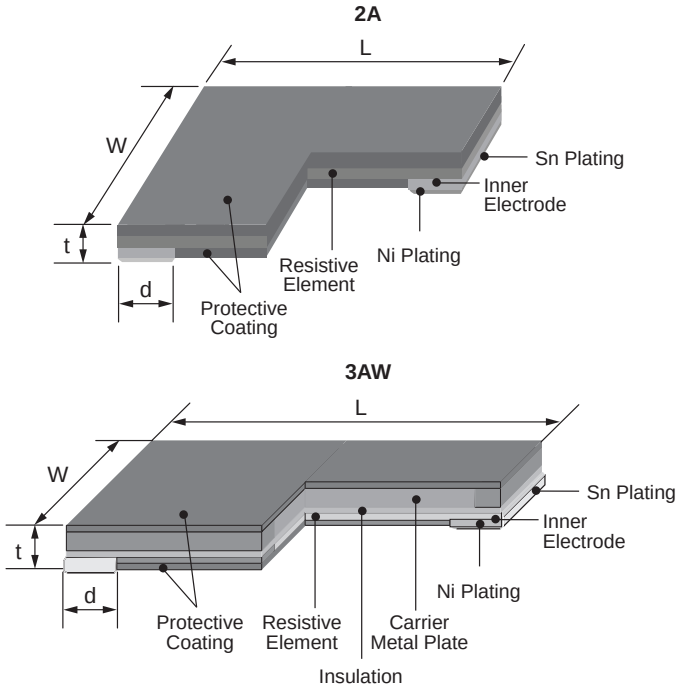
features

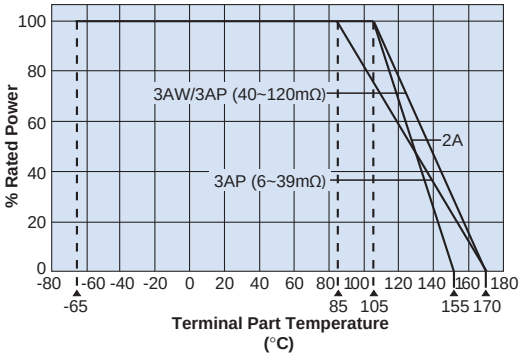
- SMD Type of small size, low resistance resistor for current detection
- Carrier metal plate inside, resistor of high radiation of heat structure (3AW, 3AP)
- High reliability and performance with low T.C.R.
- Automatic mounting machines are applicable
- Suitable for reflow soldering (2A: Not suitable for wave soldering)
- Products meet EU RoHS requirements
- AEC-Q200 Tested

dimensions and construction



Size Code (Inch)	Resistance (Ω)	Dimensions inches (mm) L	W	d	t
TLRH 2A (0805)	12m~100m	.079±.008 (2.00±0.20)	.049±.008 (1.25±0.20)	.014±.008 (0.35±0.20)	.010±.006 (0.25±0.15)
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)	

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.

ordering information

TLRH	3AW	T	TE	33L0	F
Type	Power Rating	Terminal Surface Material	Packaging	Nominal Resistance	Tolerance
	2A (12~27mΩ): 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 mΩ with "L" as decimal Ex: 2mΩ = 2L00 2A: No marking	F: ±1%

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

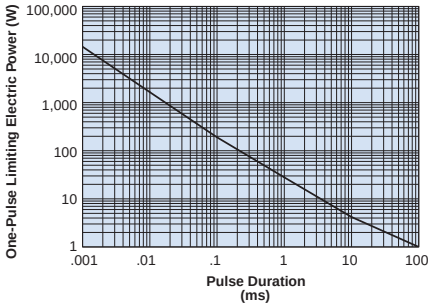
applications and ratings

Part Designation	Power Rating	T.C.R. (x10^{-6}/K)	Resistance Range (Ω) F: ±1% (E12)	Rated Terminal Part Temperature	Operating Temperature Range
TLRH 2A (0805)	0.25W	±75	56m~100m	+105°C	-65°C~+155°C
	0.33W		33m ~ 50m		
	0.50W		12m ~ 27m		
TLRH 3AW (2512)	2.0W	±75	10m~22m		-65°C~+170°C
		±50	24m~270m		
TLRH 3AP (2512)	4.0W	±50	40m, 47m, 50m~120m		
	5.0W	±50	18m, 20m, 22m, 25m~39m	85°C	
		±75	6m, 7m, 8m, 9m, 10m, 12m		

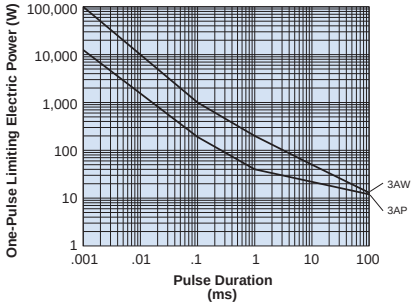
environmental applications

One-Pulse Limiting Electric Power

TLRH2A



TLRH3AW/TLRH3AP



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

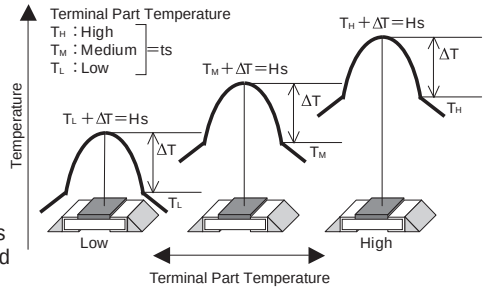
The pulse endurance values are not assured values, so be sure to check the products on actual equipment when you use them.

Thermal Resistance

Type	Size	Resistance (Ω)	Rth (°C/W)
TLRH	2A	27m	123
		50m	195
		100m	280
	3AW	10m	5.2
		270m	7.4
	3AP	18m	7.4
		120m	4.1

Rth=(Hs-ts)/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 ⊿T from the standard terminal part temperature regardlless 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% 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, 1000 hours (18~120mΩ)
	±2%	3AP: ±0.2%	3AP: +170°C, 1000 hours (6~12mΩ)

11/10/24