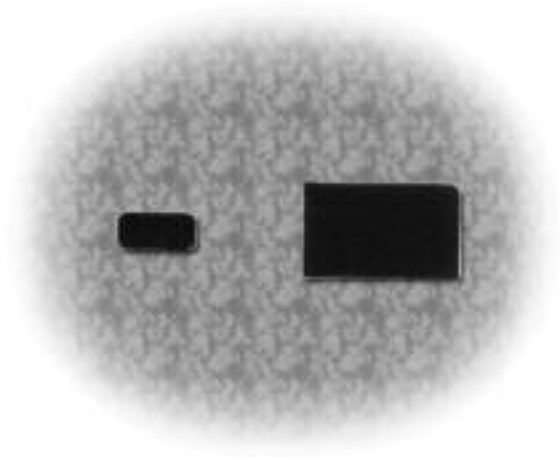
KOA SPEER ELECTRONICS, INC.

TLR1E, 2A, TLRZ

metal plate chip type low resistance resistor

EU RoHS COMPLIANT

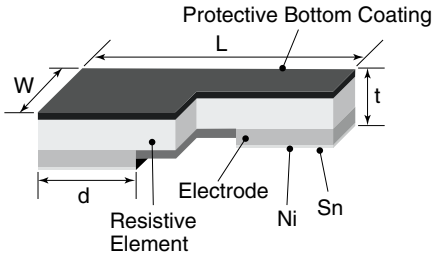


features

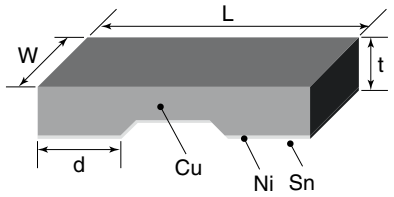
- SMD type of small size, metal plate low resistance resistor for current detection
- Low height suitable for use of small equipment such as mobile phone
- High reliability and performance with T.C.R ±100×10^{-6}/K
- Filletless products (The soldering part of this product is only a bottom electrode)
- Suitable for reflow soldering (Not suitable for flow soldering)
- Products meet EU RoHS requirements
- AEC-Q200 Qualified 0603 (1J), 0805 (2A), 1206 (2B)

dimensions and construction

TLR1E/2A



TLRZ



	Size Code	Resistance	Dimensions inches (mm) L	W	d	t
	TLR1E (0402)	10mΩ	.039±.002 (1.00±0.05)	.020±.002 (0.50±0.05)	.012±.004 (0.30±0.10)	.010±.004 (0.25±0.10)
	TLR2A (0805)	2mΩ	.079±.008 (2.00±0.20)	.049±.008 (1.25±0.20)	.024±.008 (0.60±0.20)	.012±.006 (0.30±0.15)
		3mΩ			.024±.008 (0.60±0.20)	.010±.006 (0.25±0.15)
		4mΩ			.018±.008 (0.45±0.20)	
		5mΩ			.026±.008 (0.65±0.20)	.012±.006 (0.30±0.15)
		6mΩ			.022±.008 (0.55±0.20)	
		7mΩ			.020±.008 (0.50±0.20)	
		8mΩ			.020±.008 (0.50±0.20)	.016±.006 (0.26±0.15)
		9mΩ			.018±.008 (0.45±0.20)	
		10mΩ			.014±.008 (0.35±0.20)	
NEW	TLRZ1E (0402)	—	.039±.004 (1.00±0.10)	.020±.004 (0.50±0.10)	.008±.004 (0.20±0.10)	.016±.004 (0.40±0.10)
	TLRZ1J (0603)	—	.063±.004 (1.60±0.10)	.031±.004 (0.80±0.10)	.012±.004 (0.30±0.10)	.010±.004 (0.25±0.10)
	TLRZ2A (0805)	—	.079±.004 (2.00±0.10)	.049±.004 (1.25±0.10)	.012±.004 (0.30±0.10)	.018 $^{+.002}_{-0}$ (0.45 $^{+0.05}_{-0}$)
	TLRZ2B (1206)	—	.126±.004 (3.20±0.10)	.063±.004 (1.60±0.10)	.012±.004 (0.30±0.10)	.020±.002 (0.5±0.05)

ordering information

New Part # | TLR | 1E | T | TP | 10L0 | J

Type	Power Rating	Termination Material	Packaging	Nominal Resistance	Resistance Tolerance
TLR TLRZ	1E: 0.2W 2A: 1W **New** Z1E: 10A Z1J: 26A Z2A: 31.6A Z2B: 40A	T: Sn	TB: 7" pitch pressed paper (TLRZ1E only) TP: 7" 2mm pitch punch paper TD: 7" 4mm pitch punch paper	±1%: 4 digits ±2%, ±5%: 3 digits TLRZ: blank All values less than 0.1Ω (100m) are expressed in mΩ with "L" as decimal Ex: 1mΩ = 1L00	F: ±1% G: ±2% J: ±5%

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

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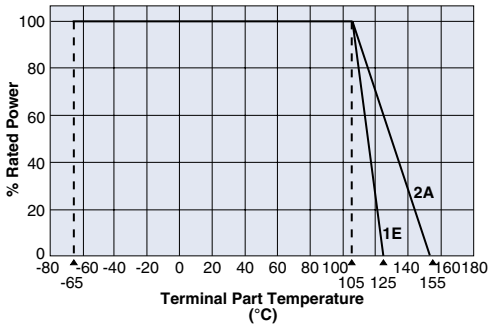
applications and ratings

Part Designation	Power Rating	Current Rating	T.C.R. (ppm/°C) Max.	Standard Resistance (Ω)	Resistance Tolerance	Rated Terminal Part Temperature	Connection Temperature	Operating Temperature Range
TLR1E	0.2W	—	±100	10m	G: ±2%, J: ±5%	105°C	—	-65°C to +125°C
TLR2A	1W	—	±100	2m, 3m, 4m, 5m, 6m, 7m, 8m, 9m, 10m	F: ±1%	105°C	—	-65°C to +155°C
NEW TLRZ1E	—	10A	—	0.5m max.	—	—	105°C and less	-55°C to +170°C
TLRZ1J	—	26A	—	0.2m max.	—	—	105°C and less	-55°C to +170°C
TLRZ2A	—	31.6A	—	0.2m max.	—	—	105°C and less	-55°C to +170°C
TLRZ2B	—	40A	—	0.2m max.	—	—	105°C and less	-55°C to +170°C

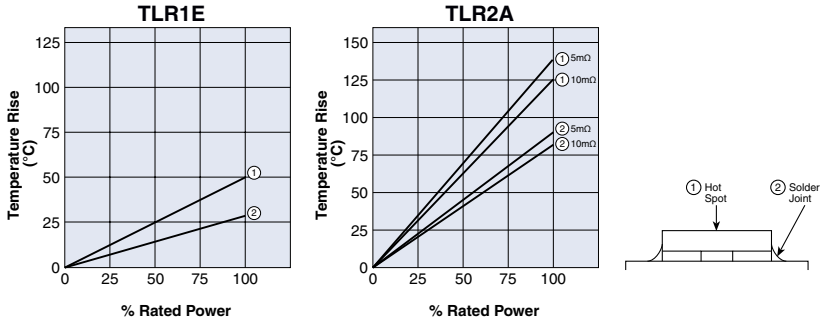
environmental applications

Derating Curve



For resistors operated at an ambient temperature of 105°C or above, a power rating shall be derated in accordance with the above derating curve.

Temperature Rise



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.

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/+125°C
Overload (Short time)	±1	1E: ±0.15 2A: ±0.05	1E: Rated power x 5 for 5 seconds; 2A: Rated power x 2.5 for 5 seconds TLRZ: 40A for 5 seconds
Resistance to Solder Heat	±1	±0.01	260°C ± 5°C, 10 ~ 12 seconds
Rapid Change of Temperature	±1	±0.2	1E: -55°C (30 minutes), +125°C (30 minutes), 1000 cycles 2A: -55°C (15 minutes), +150°C (15 minutes), 1000 cycles
Moisture Resistance	±1	±0.3	85°C, 85%RH, 1000 hours, 10% Bias
Endurance at 105°C and Less of Terminal Part Temperature	±1	±0.4	Terminal part temperature: 105°C, 1000 hours, 1.5 hr ON, 0.5 hr OFF cycle
Low Temperature Exposure	±1	±0.05	-65°C, 96 hours
High Temperature Exposure	1E: ±1 2A: ±1 (2~4m, 7~10m) ±2 (5m, 6m)	1E: ±0.3 2A: ±0.5 (2~4m, 7~10m) ±0.8 (5m, 6m)	1E: 125°C, 1000 hours 2A: 155°C, 1000 hours

Note: Please contact factory for the TLRZ Performance Characteristics

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Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

KOA Speer:

TLR2BD3L00F TLR2BDTDK16L0F TLR2BD16L0F TLR2HD7L00F TLR2BDTDK20L0F TLR2BD10L0F TLR2HD8L00F TLR3AWD9L00F TLR2HD10L0F TLR2BDTE10L0F TLR2HDTE6L00F75 TLR3AWDTE4L0J TLR3AWDTE10L0F TLR2BDTDK18L0F TLR2BDTDK15L0F TLR3AWD7L00F TLR2BDTDK11L0F TLR3AWD5L00F TLR2BDTDK4L00F TLR2BD18L0F TLR2BDTDK6L00F TLR2BD5L00F TLR2HD4L00F TLR2HD9L00F TLR2BDTD8L00F TLR2BD4L00F75 TLR2BDTDK5L00F TLR3AL2L00F TLR2BDTDK2L00F TLR2BD12L0F TLR2HD6L00F TLR3AWD4L00F TLR2BD20L0F TLR3AWD6L00F TLR3AWDTE2L00F TLR2BDTD2L00F TLR3AWDTE8L00F TLR2BD13L0F TLR2HD3L00F TLR2BDTDK3L00F TLR2HD5L00F TLR2BD6L00F TLR2BDTD11L0F TLR2BDTD13L0F75 TLR2BDTDK12L0F TLR2BDTDK8L00F TLR2BDTE2L00F TLR2BDTE8L00F TLR2BDTE15L0F TLR2BDTE5L00F TLR2BDTD15L0F TLR2BDTE20L0F TLR2HDTE2L00F TLR2BDTE18L0F TLR2BDTE4L00F TLR2BDTE3L00F TLR2BDTE11L0F TLR2BDTE13L0F TLR3ADTE2L00F TLR3ADTE4L00F TLR2HDTE5L00F TLR3AWDTE3L00F TLR2BDTD20L0F TLR3AWDTE7L00F TLR1ETTP10LG TLR3AWDTE6L00F TLR3APDTE5L00F50 TLR3APDTE10L0F75 TLR3APDTE9L00F75 TLR3APDTE7L00F75 TLR3APDTE9L00F50 TLR3APDTE2L00F75 TLR3APDTE1L50F75 TLR3APDTE4L00F50 TLR3APDTE6L00F75 TLR3APDTEL820F75 TLR3APDTE4L00F75 TLR3APDTE8L00F50 TLR3APDTE2L00F50 TLR3APDTE3L00F75 TLR3APDTE1L00F75 TLR3APDTE6L00F50 TLR3APDTE8L00F75 TLR3APDTE3L00F50 TLR3APDTE7L00F50 TLR3APDTEL500F75 TLR3APDTEL680F75 TLR2HWDTE2L00F50 TLR2BWDTD15L0F75 TLR2BWDTD6L00F75 TLR2HWDTE3L00F75 TLR2HWDTE7L00F75 TLR2BWDTD16L0F75 TLR2BWDTD11L0F75 TLR2HWDTE1L00F50 TLR2HWDTE3L00F50 TLR2HWDTE5L00F75 TLR2BWDTD12L0F75 TLR2HWDTE10L0F75 TLR2HWDTE10L0F50