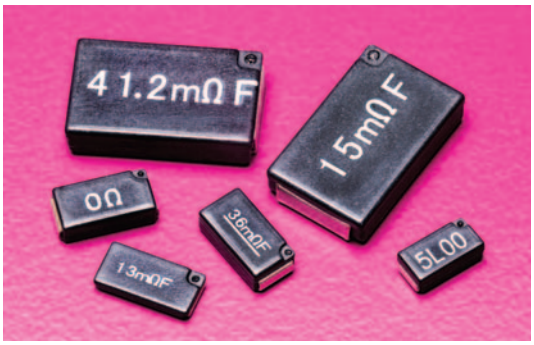
KOA SPEER ELECTRONICS, INC.

SL07, 1, 2, SLN2, SLZ, TSL

TSL, SL (metal plate), SLN: current detecting chip resistors; SLZ: jumper type

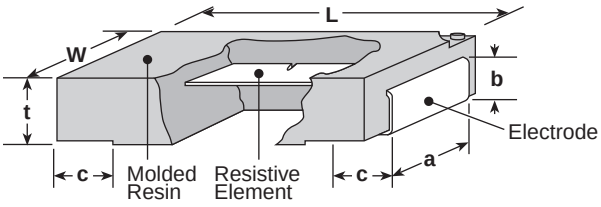


EU RoHS COMPLIANT

features

- SMD type of small size, ultra-low resistance (3mΩ~) and high accuracy (±0.5%) resistor for current sensing
- Flameproof UL94V0 molded polymer case
- Excellent dimension accuracy, mountability and shock resistance
- Excellent terminal strength and solderability due to structure of a metal plate terminal electrode
- Easy to absorb the thermal expansion and shrinkage because of a metal plate terminal structure
- Suitable for flow, reflow and iron solderings
- Low profile type available (TSL)
- Wide range operating temperature -55°C to +180°C
- Products with lead-free terminations meet EU RoHS requirements
- AEC-Q200 Qualified

dimensions and construction



Size Code	Dimensions inches (mm)					
	L	W	t	a	b	c
SL07 (2010)	.197±.012 (5.0±0.3)	.098±.008 (2.5±0.2)	.067±.008 (1.7±0.2)	.079±.008 (2.0±0.2)	.047±.008 (0.9±0.2)	.035±.012 (1.2±0.3)
TSL1 (2512)	.248±.012 (6.3±0.3)	.122±.008 (3.1±0.2)	.039±.008 (1.0±0.2)	.094±.008 (2.4±0.2)	.028±.008 (0.7±0.2)	.047±.012 (1.2±0.3)
SL1,SLZ1 (2512)	.248±.012 (6.3±0.3)	.122±.008 (3.1±0.2)	.075±.008 (1.9±0.2)	.094±.008 (2.4±0.2)	.047±.008 (1.2±0.2)	.047±.012 (1.2±0.3)
SL2 (4527)	.453±.012 (11.5±0.3)	.276±.008 (7.0±0.2)	.098±.008 (2.5±0.2)	.197±.008 (5.0±0.2)	.067±.008 (1.7±0.2)	.102±.02 (2.6±0.5)
SLN2 (4527)	.453±.012 (11.5±0.3)	.276±.008 (7.0±0.2)	.094±.008 (2.4±0.2)	.217±.008 (5.5±0.2)	.063±.008 (1.6±0.2)	.100±.016 (2.55±0.4)

ordering information

SL	1	T	TE	20L0	F	75
Type	**Power Rating**	**Termination Material**	**Packaging**	**Nominal Resistance**	**Tolerance**	**T.C.R. (x10⁻⁴/K)**
TSL SL SLN	07: 0.75W 1: 1W 2: 2W	T: Sn	TE: embossed plastic TED: SL2/SLN2 For further information on packaging please refer to Appendix A	±0.5%, ±1%: 4 digits ±2%, ±5%: 3 digits All values less than 0.1Ω (100m) are expressed in mΩ with "L" as decimal Ex: 2mΩ = 2L00 0.1Ω: R100; 5mΩ: 5L0	D: ±0.5% F: ±1% G: ±2% J: ±5%	Nil: 0-150 0-200 ±75 (SLN2) ±100 ±110 ±180 50: ±50 (SL1) 75: ±75 (SL1)

SLZ	1	T	TE
Type	**Current Rating**	**Termination Material**	**Packaging**
	1:44A	T: Sn	TE: 8 mm pitch plastic embossed

03/05/26

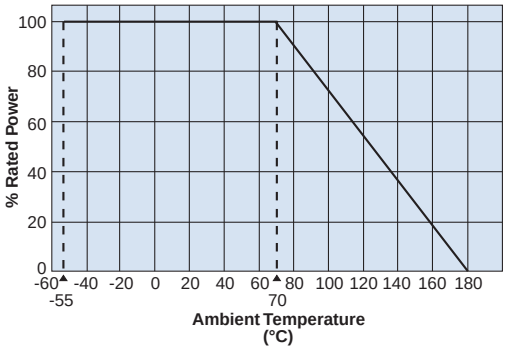
applications and ratings

Part Designation	Power Rating	Rated Ambient Temp.	Rated Terminal Part Temperature	Resistance Range (Ω)* D: ±0.5% E24,E96***	F: ±1% E24,E96***	G: ±2% E24	J: ±5% E24	T.C.R. (ppm/°C) Max.	Operating Temp. Range
SL07	0.75W	70°C	145°C	—	5m - 100m	—	5m - 100m	0~200: R<11mΩ 0~150: R≧11mΩ	-55°C to +180°C
TSL1	1W		125°C	10m - 100m	5m - 100m	—	5m - 100m	±180: R<15mΩ ±100: R≧15mΩ	
SL1	1W		125°C	10m - 102m	5m - 102m	3m, 4m	3m - 100m	±180: R<15mΩ ±100: R≧15mΩ	
SL1 (TCR±50ppm)	1W		125°C	34.8m - 200m	34.8m - 200m	—	36m - 200m	±50ppm	
SL1 (TCR±75ppm)	1W		125°C	20m - 300m	20m - 300m	—	20m - 300m	±75ppm	
SL2	2W		125°C	10m ~ 360m	5m ~ 360m	3m, 4m	3m ~ 360m	±180: R<11mΩ ±100: R≧11mΩ	
SLN2	2W		105°C	5m - 200m	5m - 200m	—	5m - 200m	±110: R<10mΩ ±75: R≧10mΩ	
SLZ1**	—		140°C	0.5mΩ Max.	0.5mΩ Max.	0.5mΩ Max.	0.5mΩ Max.	4000 Max.	

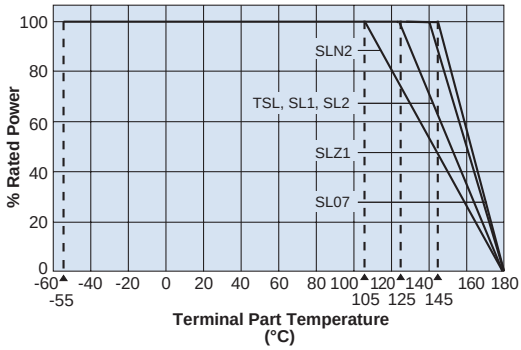
* 3m, 4m, 5m, 6m, 7m, 8m, 9m also available inside each resistance range
** SLZ1: Current rating: 44A
*** SL07 and SL1 (T.C.R.: ±50/±75 ppm, 102mΩ=<R=<200mΩ) offer only E24 series
If any questions should arise whether to use the "Rated Ambient Temperature" or the "Rated Terminal Part Temperature," please 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

Derating Curve



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.

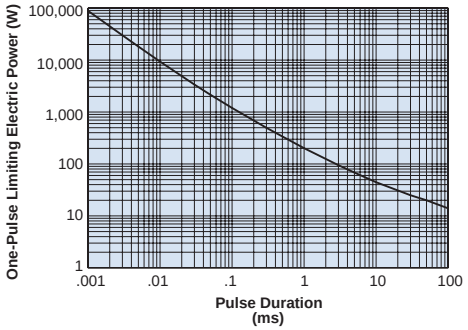


For resistors operated at a terminal part temperature of described for each size or above, a power rating shall be derated in accordance with the derating curve.

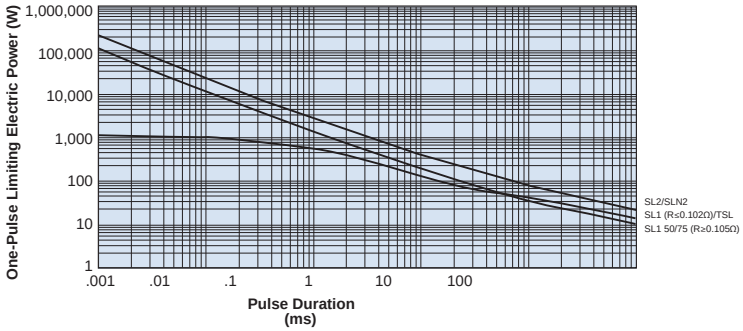
Please refer to "Introduction of the derating curve based on the terminal part temperature" in the beginning of our catalog before use.

One-Pulse Limiting Electric Power

SL07



SL1 (Metal)/ TSL, SL2, SLN2



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

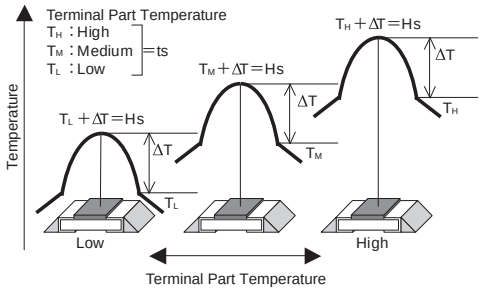
The pulse endurance values are not assured values, so be sure to check the products on actual equipment when you use them.

Thermal Resistance

Type	Resistance (Ω)	Rth (°C/W)
SL07	5m	26
	22m	48
	100m	78
SL1 TSL	5m	16
	20m	39
	100m	59
SL2	5m	16
	20m	41
	200m	55
SLN2	5m	19
	11m	24
	200m	46

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 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 ±% Limit	Typical	Test Method
Resistance	Within specified tolerance	—	25°C
T.C.R.	Within specified T.C.R.	—	+25°C/+125°C
Overload (Short time)	±1%: SL07, TSL1, SL1, SL2 ±0.5%: SLN2	±1%: SL07, TSL1, SL1, SL2 ±0.25%: SLN2	SL07: Rated power x 4 for 5 seconds, TSL1: Rated power x 2.5 for 5 seconds, SL1, SL2, SLN2: Rated power x 5 for 5 seconds, SL1 (T.C.R.: +50/+75): Rated power x4 for 5 seconds
Resistance to Solder Heat	±1%: SL07, TSL1, SL1, SL2	±1%: SL07, TSL1, SL1, SL2	260°C ± 5°C, 10 ± 1 second
	±0.5%: SLN2	±0.5%: SLN2	260°C ± 5°C, 10~12 seconds
Rapid Change of Temperature	±1%: SL07, TSL1, SL1, SL2	±0.5%: SL07, TSL1, SL1, SL2	-55°C (30 minutes), +150°C (30 minutes), 1000 cycles
	±0.5%: SLN2	±0.25%: SLN2	-55°C (15 minutes), +150°C (15 minutes), 1000 cycles
Moisture Resistance	±2%: SL07, TSL1, SL1, SL2	±0.5%: SL07, TSL1, SL1, SL2	40°C ± 2°C, 90%~95%RH, 1000 hours, 1.5 hr ON, 0.5 hr OFF cycle
	±0.5%: SLN2	±0.25%: SLN2	85°C ± 2°C, 85% ±3%RH, 1000 hours, Rated power x 0.1
Endurance at 70°C	±2%: SL07, TSL1, SL1, SL2 ±1%: SLN2	±1%	70°C ± 2°C, 1000 hours, 1.5 hr ON, 0.5 hr OFF cycle
Low Temperature Exposure	±0.5%	±0.25%	SL07, TSL1, SL1, SL2: -55°C, 1 hour; SLN2: -65°C, 24 hours