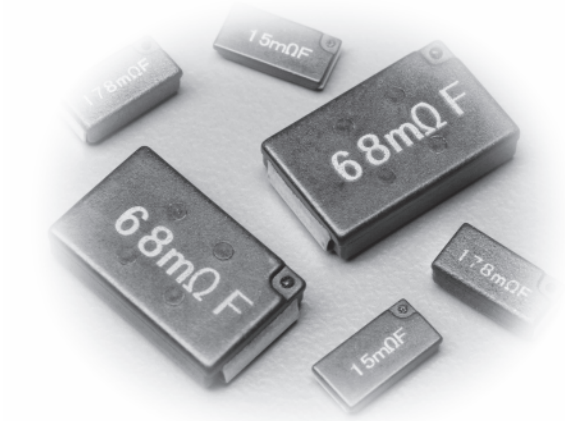
KOA SPEER ELECTRONICS, INC.

SL07, 1, 2, 3, SLN2, SLZ, TSL

surface mount molded current sense resistors

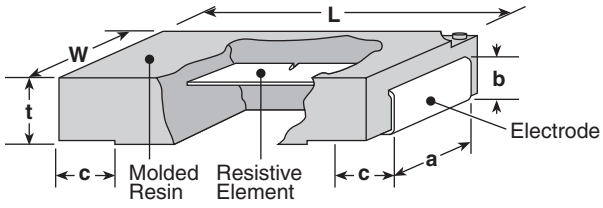
EU RoHS COMPLIANT



features

- Surface mount type
- Flameproof UL94V0 molded polymer case
- Excellent dimension accuracy, mountability and shock resistance
- Low profile type available (TSL)
- Marking: Black body color with white marking or laser marking
- Products with lead-free terminations meet EU RoHS requirements. EU RoHS regulation is not intended for Pb-glass contained in electrode, resistor element and glass.
- 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)
SL3 (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)

ordering information

SL	1	T	TE	10L0	F	75
Type	**Power Rating**	**Termination Material**	**Packaging**	**Nominal Resistance**	**Tolerance**	**T.C.R. (x10⁻⁴/K)**
TSL SL SLN SLZ	07: 0.75W 1: 1W 2: 2W 3: 3W	T: Sn L: Sn/Pb*	TE: 7" embossed plastic TED: 10" embossed plastic 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)

* SL07 and SLN2, only the symbol T is available as the terminal surface material

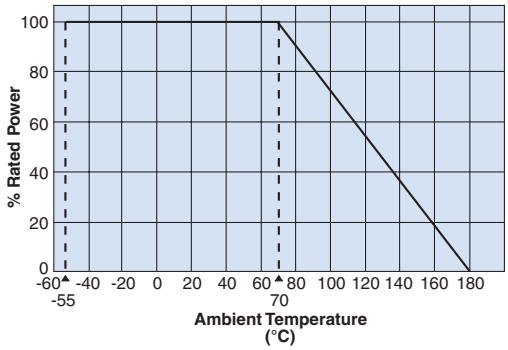
applications and ratings

Part Designation	Power Rating	Rated Ambient Temp.	Rated Terminal Part Temperature	Resistance Range* D: ±0.5% E24,E96***	F: ±1% E24,E96***	G: ±2% E24	J: ±5% E24	T.C.R. (ppm/°C) Max.	Absolute Maximum Working Voltage	Absolute Maximum Overload Voltage	Operating Temp. Range
SL07	0.75W	70°C	125°C	—	5mΩ - 100mΩ	—	5mΩ - 100mΩ	0~200: R=<10mΩ 0~150: R=>11mΩ	—	—	-55°C to +180°C
TSL1	1W		125°C	10mΩ - 100mΩ	5mΩ - 100mΩ	—	5mΩ - 100mΩ	±180: R=<13mΩ ±100: R=>15mΩ	—	—	
SL1	1W		125°C:R≤100mΩ 90°C:R≥110mΩ	10mΩ - 1MΩ	5mΩ - 1MΩ	3mΩ, 4mΩ	3mΩ - 22MΩ	±180: R=<13mΩ ±100: R=>15mΩ ±75: 20m=<R=<200mΩ ±50: 34.8m=<R=<200mΩ	200V	400V	
SL2	2W		125°C:R≤100mΩ 90°C:R≥110mΩ	10mΩ ~ 1MΩ	5mΩ ~ 1MΩ	3mΩ, 4mΩ	3mΩ ~ 22MΩ	±180: R=<10mΩ ±100: R=>11mΩ	500V	1000V	
SLN2	2W		120°C	5mΩ - 200mΩ	5mΩ - 200mΩ	—	5mΩ - 200mΩ	±110: R<10mΩ ±75: R=>10mΩ	—	—	
SL3	3W		125°C:R≤100mΩ 90°C:R≥110mΩ	10mΩ - 100mΩ	5mΩ - 100mΩ	—	5mΩ - 100mΩ	±180: R=<10mΩ ±100: R=>11mΩ	—	—	
SLZ1**	—		—	0.5mΩ Max.	0.5mΩ Max.	0.5mΩ Max.	0.5mΩ Max.	4000 Max.	—	—	

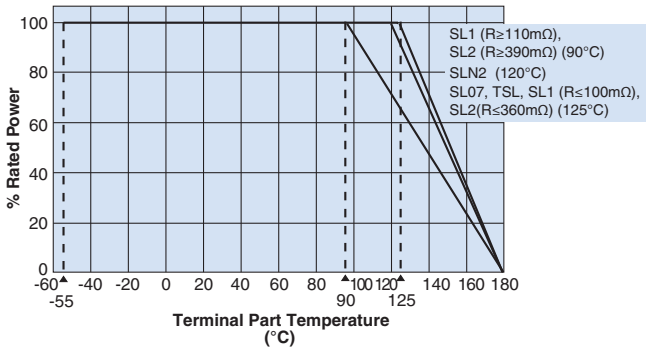
* 3m, 4m, 5m, 6m, 7m, 8m, 9m also available inside each resistance range
** SLZ1: Current rating: 44A
*** SL07 and SL1 (T.C.R.: ±50/±75 ppm, 102mΩ=<R=<200mΩ) offer only E24 series
If any questions should arise whether to use the "Rated Ambient Temperature" or the "Rated Terminal Part Temperature," please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

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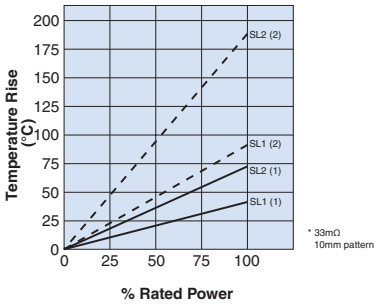
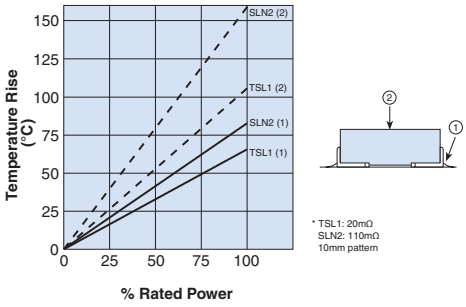
Surface Temperature Rise

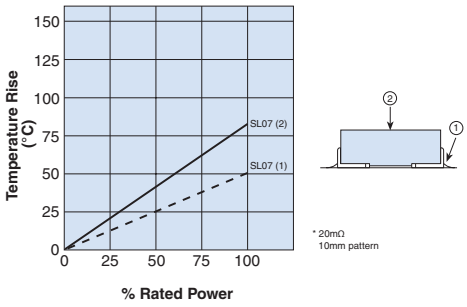
SL1/SL2



TSL1/SLN2



SL07



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 specified tolerance	—	25°C
T.C.R.	Within specified T.C.R.	—	+25°C/+125°C
Overload (Short time)	±1%: SL07, TSL1, SL1, SL2, SL3 ±0.5%: SLN2	±1%: SL07, TSL1, SL1, SL2, SL3 ±0.25%: SLN2	SL07: Rated power x 4 for 5 seconds, TSL1: Rated power x 2.5 for 5 seconds, SL1, SL2, SLN2, SL3: 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, SL3	±1%: SL07, TSL1, SL1, SL2, SL3	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, SL3	±0.5%: SL07, TSL1, SL1, SL2, SL3	-55°C (30 minutes), +150°C (30 minutes), 100 cycles
	±0.5%: SLN2	±0.25%: SLN2	-55°C (15 minutes), +150°C (15 minutes), 1000 cycles
Moisture Resistance	±2%: SL07, TSL1, SL1, SL2, SL3	±0.5%: SL07, TSL1, SL1, SL2, SL3	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, SL3 ±1%: SLN2	±0.5%	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, SL3: -55°C, 1 hour; SLN2: -65°C, 24 hours

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