

ISA-PLAN SHUNT CHIP RESISTORS

SMK, SMP, SMT, SMS

Features

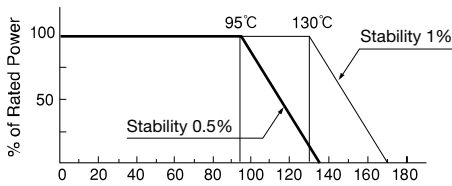
- Isa-Plan Shunt Chip Resistors with characteristic terminals
- Small internal thermal resistance, emphasizing heat dissipation

Type	Load Capacity (W) [Free air]	Resistance Range (Ω)	Resistance Tolerance (%)	Temp. Coefficient (20°C ~ 60°C)	Operating Temp.(°C)	Solder Reflow	Internal Thermal Resistance (foil / contacts)
SMK	0.5 [0.1]	0.01 ~ 0.5	±1	±50ppm/°C (R≥15mΩ) ±100ppm/°C (R<15mΩ)	-55~+170	MAX.255°C (t<40sec)	60°C/W
SMP	1 [0.2]	0.005 ~ 1	±1	±50ppm/°C (R≥10mΩ) ±100ppm/°C (R<10mΩ)			30°C/W
SMT	3 [0.5]	0.004 ~ 0.68	±1	±50ppm/°C (R≥10mΩ) ±100ppm/°C (R<10mΩ)			13°C/W
SMS	2 [0.5]	0.005 ~ 1	±1	±50ppm/°C (R≥10mΩ) ±100ppm/°C (R<10mΩ)	-55~+170	MAX.255°C (山路を通過するから)	20°C/W

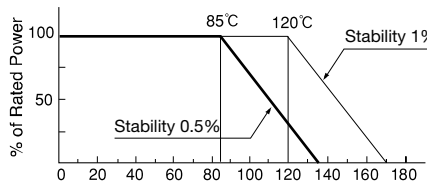
*Refer to the power derating curve. Proper measures for heat radiation should be taken.

Precautions

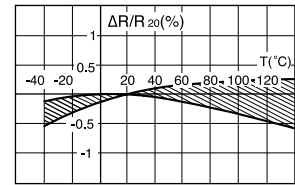
Power Derating Curve SMK, SMP, SMT



Power Derating Curve SMS



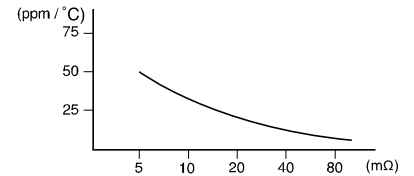
Resistance Change Versus Temp.



Precautions Terminal Temperature (°C)

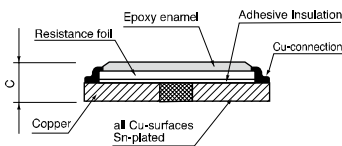
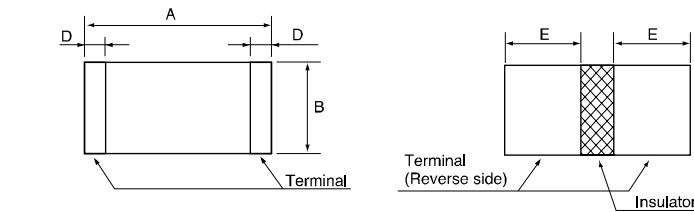
Precautions Terminal Temperature (°C)

Temperature Coefficient (Low Resistance Values) SMP, SMS, SMT



Dimensions (mm)

SMK, SMP, SMS, SMT



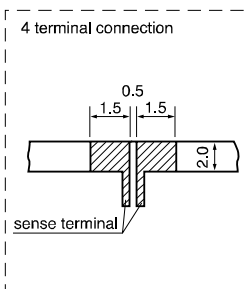
Type	Dimensions (mm)					Weight (g)
	A	B	C	D	E	
SMK	3.05	1.52	0.6	1.0	1.28	0.05
SMP	5.08	2.54	0.7	1.0	2.14	0.08
SMS	6.35	3.05	0.8	1.0	2.72	0.1
SMT	7.1	4.2	0.8	1.0	3.1	0.13

Performance

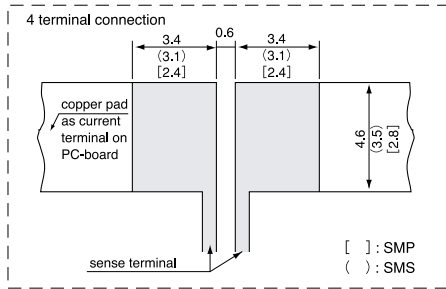
Parameters	Test Condition	Specification	Typical Test Data
Thermal Shock	-65°C, 25°C, 125°C, 25°C 25cycles	±0.1%	±0.1%
Over Load	5×Wattage Rating (Free Air) 5sec	±0.2%	±0.1%
Resistance to Solvents	IPA 3min	No Damage	No Damage
Low Temp. Storage and Operation	MIL-R-26E	±0.1%	±0.05%
Resistance to Soldering Heat	260°C 10sec	±0.3%	±0.1%
Moisture Resistance	Near 100%RH, +25°C, +65°C, -10°C 10cycles (10days)	±0.1%	±0.1%
Shock	50g's, 11ms	±0.2%	±0.2%
Vibration, High Frequency	MIL-STD-202 Method 204D-B	±0.2%	±0.2%
Load Life (Terminal Temp. Max. 95°C *3)	Wattage Rating (1.5Hr ON-0.5Hr OFF) 2000Hr	±0.5%	±0.1%
Load Life (Terminal Temp. Max. 130°C *4)	Wattage Rating (1.5Hr ON-0.5Hr OFF) 2000Hr	±1%	±0.5%
Storage Life at Elevated Temp.	MIL-STD-202 method 108A-F	±0.3%	±0.3%
High Temperature Exposure	140°C 2000Hr	±0.2%	±0.2%
Current Noise	MIL-STD-202 method 308	±0.01%	none
Voltage Coefficient	MIL-STD-202 method 309	linearly error less than 120dB	
Thermal EMF	0~100°C	-3μV/°C MAX	-2 μV/°C
Frequency Characteristic	Inductance (10mΩ)	<3nH	<2nH

*3 SMS : Terminal Temp.Max.85°C
 *4 SMS : Terminal Temp.Max.120°C

Recommended PCB layout : SMK (Solder Reflow)



Recommended PCB layout : SMP, SMS, SMT (Solder Reflow)



How to order

SMT 10mΩ ±1%

●Standard Resistance E-06 Series

●AEC-Q200 Qualified

●Taping Specification

- SMK : DIN EN60286-3 Tape width 8mm 12500 pcs
- SMP : DIN EN60286-3 Tape width 12mm 10000 pcs
- SMS : DIN EN60286-3 Tape width 12mm 5000 pcs
- SMT : DIN EN60286-3 Tape width 12mm 5000 pcs

●Order for a single piece of standard in-stock items accepted

SMT Standard Resistance (Stock)

	4	5	6.8	(mΩ)±1%			
	10	15	22	33	47	68	(mΩ)±1%
	100	150	220	330	470	680	(mΩ)±1%



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