

SHP Series — Thick Film on Metal Technology

The SHP series of resistors is a thick film on steel technology uniquely suited for wide-scale usage in resistor and heating applications where high power density, surge handling, and low inductance are required in a defined space.

The SHP series differentiates itself from other thick film on metal products through the manner in which the resistive film is deposited. Other manufacturers utilize crude screenprinting processes, while the SHP series employs a precision fine film dispensing system, capable of writing quality resistive traces on a non corrosive 300 or 400 series stainless steel substrate.



Features

- Superior thermal transfer
- Superior shock and vibration strength
- Integrated fusing for failsafe circuit protection
- Available in flat and tubular geometries
- Reduced size compared to power wirewounds
- Flameproof package
- Current and temperature sense options available
- Custom mounting and lead attachment
- RoHS compliant / lead-free

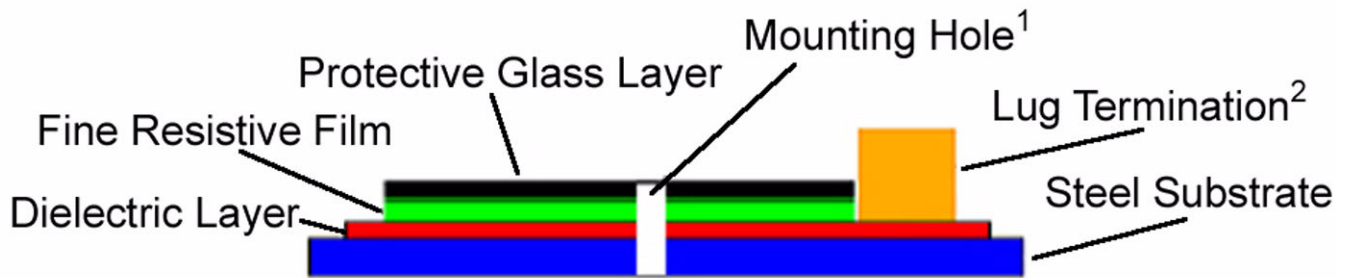
Electrical Specifications

Type / Code	Size to Power Dissipation Ratio	Resistance Values	Tolerance	Temperature Operation	Voltage Handling	Resistance Temperature Coefficient
SHP 1	+50 W/cm ²	0.1Ω – 1GΩ	From 10%	to 400°C	to 3,000 Vdc	±150 to ±2,000 ppm/°C
SHP 2	+50 W/cm ²	0.1Ω – 1GΩ	From 10%	to 400°C	to 3,000 Vdc	±150 to ±2,000 ppm/°C

Construction of SHP series

The SHP series is a ceramic encapsulated resistor constructed on a non-corrosive 300 or 400 series stainless steel substrate. Ceramic dielectric layers insulate the substrate with a matching thermal expansion coefficient to the stainless steel. A layer of a conductor and resistor are added and finally coated with an insulating layer of glass.

Cross Sectional Perspective



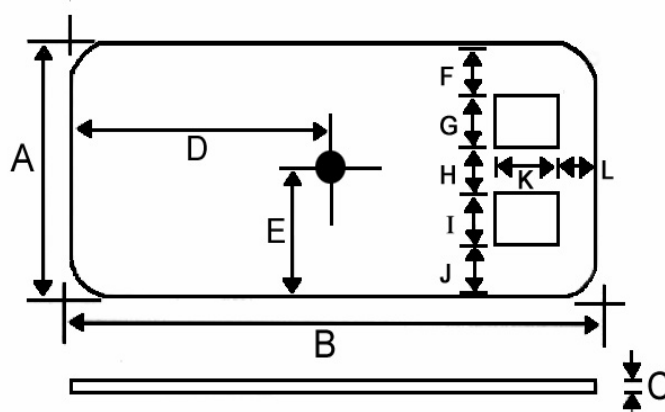
1. A heat sink can be mounted to the resistor to increase size to power dissipation ratio.
2. Wires or terminals are constructed to the requirements of the application. Contact SEI for more information on termination considerations.

How to Order

SHP 1	300	18	10%
SEI Type	Power Rating	Nominal Resistance	Tolerance

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While the SHP series is offered in only one size, SEI's manufacturing process can accommodate various geometries as well as steel tubing. Custom features including mounting holes and lead attachment options are available to meet the design needs.



Mechanical Specifications													
Type / Code	A	B	C	D	E	F	G	H	I	J	K	L	Units
SHP 1	1.65 41.91	3.50 88.90	0.0625 1.59	1.75 44.45	0.825 20.64	0.375 9.53	0.3125 7.94	0.125 3.18	0.3125 7.94	0.375 9.53	0.3125 7.94	0.1875 4.76	inches mm
SHP 2	4.50 114.30	4.50 114.30	-	2.25 57.15	4.2375 107.6325	0.2625 6.6675	-	-	-	-	-	-	inches mm

Where this technology can be applied:

Applications currently using bulky power wirewounds (+100W)

- Elevator load banks
- Defibrillators
- Industrial welding equipment
- Power supplies
- Hi voltage transformers
- Various load resistor circuits

Motor Control/ Dynamic Braking

- Motor drives
- Industrial tools

Heaters

- Instantaneous hot water
- White goods
- Spa heating
- Glue guns
- Fluid heating