Precision Surface Mount Resistors Wirewound or Metal Film Technologies

FEATURES

- Wide range of ohmic values
- Low temperature coefficient
- Electrical insulation
- Mechanical strength
- High power

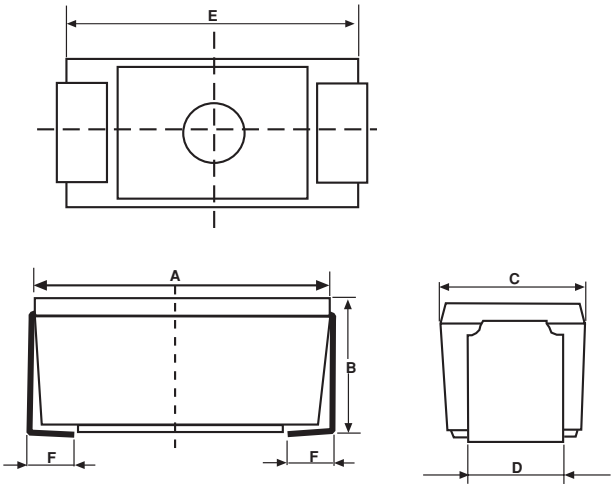
Specially designed for surface mounting, the MSP series uses either wirewound or metal film technology.

The molded package ensures mechanical and climatic protection as well as high dielectric insulation.

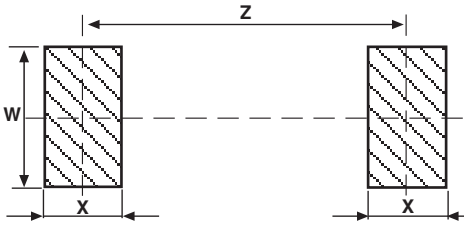
The MSP design is compatible with surface mounting equipment and can withstand wave and reflow soldering techniques.

DIMENSIONS in millimeters

MSP



RECOMMENDED SOLDERING AREAS



SERIES \ DIMENSIONS	A	B	C	D	E	F	W	X	Z
MSP 1	6.9	3.8	3.8	2.5	6.5	1.4	2.7	2.9	6
MSP 2	11.4	5	7	5	11	2.4	5.2	4.1	9.4
MSP 3	14.8	6.6	7	5	14.4	2.4	5.2	4.1	12.7

General tolerance: ± 0.2mm

TECHNICAL SPECIFICATIONS

RESISTIVE TECHNOLOGY		WIREWOUND			METAL FILM	
Vishay Sfernice Series		MSP 1B	MSP 2B	MSP 3B	MSP 1C	MSP 2C
Power Dissipation at + 25°C		1W	2W	2.5W	0.5W	1W
Ohmic Range in Relation to Tolerance	**± 5%**	0.04Ω 2.2kΩ	0.04Ω 4.7kΩ	0.04Ω 13kΩ	–	–
	± 2%	0.04Ω 2.2kΩ	0.04Ω 4.7kΩ	0.05Ω 13kΩ	–	–
	± 1%	0.04Ω 2.2kΩ	0.04Ω 4.7kΩ	0.05Ω 13kΩ	10Ω 332kΩ	10Ω 1MΩ
	± 0.5%	0.4Ω 2.2kΩ	0.4Ω 4.7kΩ	0.3Ω 13kΩ	10Ω 332kΩ	10Ω 1MΩ
	± 0.1%	Consult VISHAY SFERNICE			10Ω 332kΩ	10Ω 332kΩ
Limiting Element Voltage		50V	120 V	200 V	300 V	350V
Critical Resistance		–	–	–	180kΩ	122.5kΩ
Average Weight (in g)		0.2	0.8	1.5	0.2	0.8

PERFORMANCE					
TESTS	**CONDITIONS** Wirewound	Metal Film	**REQUIREMENTS** Wirewound NF C 83-210	Metal Film NF C 83-230	**TEST RESULTS**
Dielectric w/s Voltage	500 V RMS		± (0.1% + 0.05Ω)	± 0.25%	± 0.05%
Short Time Overload	5 Pr / 5 s		± (0.25% + 0.05Ω)	± 0.25%	± 0.15%
Climatic Sequence	5 cycles – 55°C + 200°C	– 55°C + 125°C	± (0.5% + 0.05Ω) Ins. resistance > 100MΩ	± 0.5% Ins. resistance > 100MΩ	± 0.2% Ins. resistance > 10^3MΩ
Humidity (Steady State)	56 days 95% RH	10 days low load	± (0.5% + 0.05Ω) Ins. resistance > 100MΩ	± 1% Ins. resistance > 100MΩ	± 0.3% Ins. resistance > 10^3MΩ
Vibration	10 / 2000 Hz	10 / 500 Hz	± (0.25% + 0.05Ω)	± 0.25%	± 0.05%
Load Life	Pr + 25°C 2000 h	1000 h Pr + 25°C 90'/30' cycle	± (0.5% + 0.05Ω) Ins. resistance ≥ 1GΩ	± 1%	± 0.5%
Thermal Shock	260°C 10 s		± (0.25% + 0.05Ω)	± 0.25% + 0.05Ω	± 0.2%

MSP B - Wirewound Technology

TEMPERATURE COEFFICIENT IN THE TEMPERATURE RANGE - 55°C + 200°C		
OHMIC RANGE	**NF C 83-210 LIMITS**	**TYPICAL VALUE**
< 1Ω	± 100ppm/°C	± 50ppm/°C
1Ω to < 10Ω	± 50ppm/°C	
≥ 10Ω	± 25ppm/°C	+ 0 to – 20ppm/°C

MSP C - Metal Film Technology

TEMPERATURE COEFFICIENT IN THE TEMPERATURE RANGE - 55°C + 155°C		
OHMIC RANGE	**MSP 1C**	**MSP 2C**
10Ω to 332KΩ	K3: ± 50ppm/°C K4: ± 25ppm/°C	
> 332KΩ	–	K3: ± 50ppm/°C

SURFACE MOUNTING

Soldering cycle: 2 minutes at 215°C or 10 seconds at 260°C or with an iron 40W : 3 seconds at 350°C.

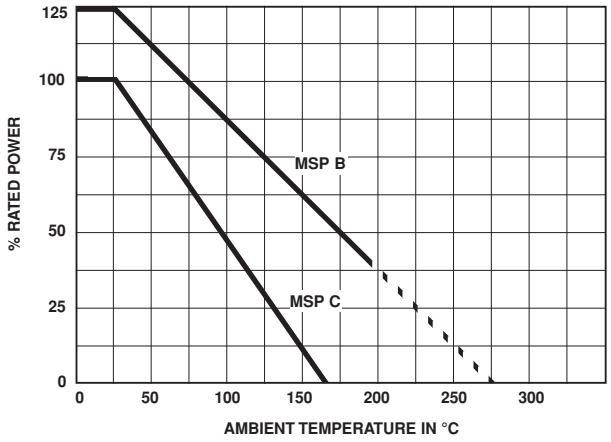
Soldering is possible by wave, reflow and vapor phase.

NON INDUCTIVE WINDING

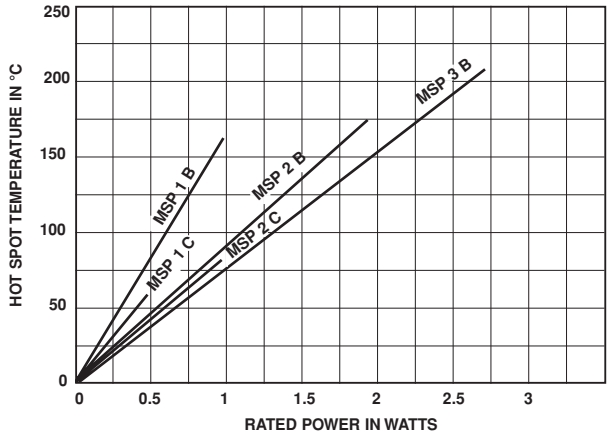
Non inductive (Ayrton Perry) winding available.

Please consult VISHAY SFERNICE.

POWER RATING CHART



TEMPERATURE RISE



PACKAGING

In bulk (plastic bag of 10 units or multiples).
In tube : MSP1 70 units per tube
MSP2 50 units per tube
MSP3 40 units per tube
In reel of 500 units for MSP1 and MSP2.

MARKING

SFERNICE trademark, ohmic value (in Ω), tolerance (in %), series and style, technology, manufacturing date.

ORDERING INFORMATION

MSP	1	B	NI	1.6kΩ	± 1%	
SERIES	STYLE	TECHNOLOGY	NON INDUCTIVE WINDING	OHMIC VALUE	TOLERANCE	PACKAGING
		B: Wirewound C: Metal Film	Optional			Optional