HSX Series

Superhigh Precision Hermetically Sealed Resistors

The HSX series resistors are hermetically sealed and exhibit excellent long-term stability and moisture resistance. The design of the HSX allows this even at high resistance values.

FEATURES

- Extremely low temperature coefficient.
- Small in size, light weight and highly reliable.
- Excellent moisture resistance and long-term stability.
- A wide range of resistance values are stably obtained
- Available in E24 values.

SERIES SPECIFICATIONS

Series	Rated power @25°C (W)*	Max. working voltage DC (kV)	TCR (ppm/°C) @ 25° & 75°C	Resistance Range (MΩ)†
HSX1	1	2	25	1-100
			50	1-500
			100	1-1,000
			200	1-10,000
HSX2	2	5	25	1-100
			50	1-500
			100	1-1,000
			200	1-10,000
HSX3	2.5	10	25	1-100
			50	1-500
			100	1-1,000
			200	1-10,000

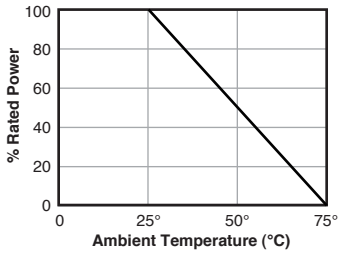
* For reliability, use at less than 50% rated power.

† Available in E24 values only.

CHARACTERISTICS

Terminals	Terminals are Tin plated copper wire, can be easily soldered.
Coating	The resistor element is in the ceramic sleeve. And both sides are sealed with Pb free solder. The surface of the ceramic sleeve is coated with the insulating resin.
Rated Voltage	$V = \sqrt{P \times R}$ up to max. working voltage
Oper. Temp. Range	-30°C ~ 75°C
Soldering	Max. tip temperature 350°C for three seconds
Storage	+5°C ~ 35°C; relative humidity less than 85%; in sealed polyethylene bag

Derating



Precautions for use

- For reliability, use at less than 50% rated power
- Do not touch with bare hands; may cause surface leakage
- Do not use or store in high temperature or high humidity environment
- Do not drop; resistors may be damaged by mechanical shock
- Do not use in dusty environment

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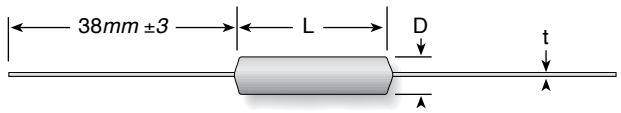
CHARACTERISTICS

Test	Characteristic ≤100M	≤1G	≤10G	Test Method
Operating Temp. Range	-30°C ~ +75°C			
Voltage coefficient	0 ~ –2ppm/V		0 ~ –5ppm/V	Rated voltage and 1/10 of rated voltage
Resistance to soldering heat	±0.1%		±0.2%	350°C for 3 sec.
Load life	±0.2%		±0.5%	25°C, 0.5 Rated power, 1,000hr.
Long-term stability	±0.1%	±0.2%	±0.5%	At normal temperature and humidity for 10,000hr.
Moisture resistance	±0.1%	±0.2%	±0.5%	40°C 90~95%RH for 3,000hr.
Terminal Tensile strength	0.8mm: 10N; 1.0mm: 20N			JIS C 5201-1(2011) 4.16.2
Terminal Torsion strength	No breakdown and damage			JIS C 5201-1(2011) 4.16.4
Temperature coefficient of resistance (TCR)	$\alpha_T = \frac{R_2-R_1}{R_1} \times \frac{1}{T_2-T_1} \times 10^6$ α_T: TCR ppm/°C			Measured at +25°C and +75°C Reference temperature: +25°C R_1: Resistance value at T_1 (+25°C) R_2: Resistance value at T_2 (+75°C)
Voltage coefficient of resistance (VCR)	$\alpha_V = \frac{R_2-R_1}{R_1} \times \frac{1}{U_2-U_1} \times 10^6$ α_V: VCR ppm/V			Measured at 1/10 of rated VDC and rated VDC. Ref. voltage is 1/10 of rated VDC. R_1: Res. value at U_1 (1/10 of rated VDC) R_2: Res. value at U_2 (rated VDC) *In the case of rated VDC being over 1000V, VDC set to U_1 = 100VDC, U_2 = 1000VDC
	$-2 \le \alpha_V < 0$		$-5 \le \alpha_V < 0$	

DIMENSIONS

(mm)



Size	L	D	t
HSX1	14 ±0.5	5.1 ±0.2	0.8 ±0.05
HSX2	27 ±0.5	6.5 ±0.2	1 ±0.05
HSX3	42 ±0.5	6.5 ±0.2	1 ±0.05

HOW TO ORDER

RoHS Compliant

HSX - 1W 1004 F E

- **Series**: HSX
- **Size**: 1
- **TCR**: W= 25ppm, V = 50ppm, T = 100ppm, Z = 200ppm
- **Ohms**: First 3 digits are significant; 4th digit is multiplier. 1506 = 150MΩ, 1509 = 150GΩ, 150A = 1.5TΩ, 100B = 10TΩ
- **Tolerance**: B = 0.1%, C = 0.25%, D = 0.5%, F = 1.0%, G = 2.0%, J = 5.0%

rev 7/23-2