



**SURFACE MOUNT  
CERAMIC ENCASED TYPE**

**HSVAS/  
HSVALS**

**SERIES**

**Surface Mount  
Wire Wound/Current Sense  
Resistors**

- 4W to 5W
- R003 to 16K

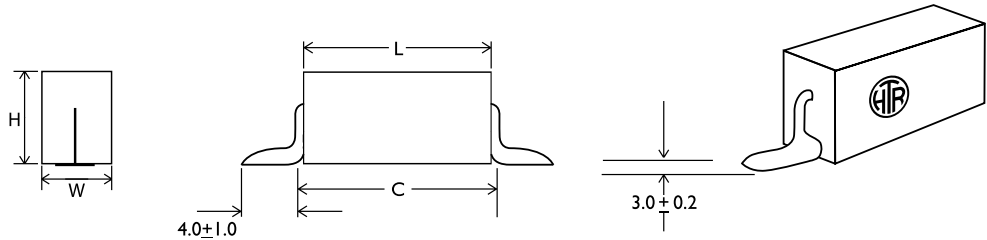
**As per AEC-Q200**



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PHYSICAL CONFIGURATION



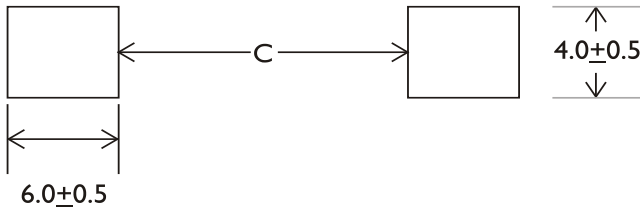
SERIES	TYPE	POWER RATING at 70°C	DIMENSIONS (mm)				RESISTANCE RANGE		TYPICAL WEIGHT PER PC (gms)
			L (±1.5)	C (±1.5)	H (max)	W (max)	min	max	
HSVAS	SV4AS	4W	20.0	20.5	9.00	8.00	R10	11K	2.5
HSVAS	SV5AS	5W	25.0	25.5	9.00	8.00	R10	16K	3.0
HSVALS	SV4ALS	4W	20.0	20.5	9.00	8.00	R003	R051	2.5
HSVALS	SV5ALS	5W	25.0	25.5	9.00	8.00	R004	R068	3.0

SV4ALS & SV5ALS :

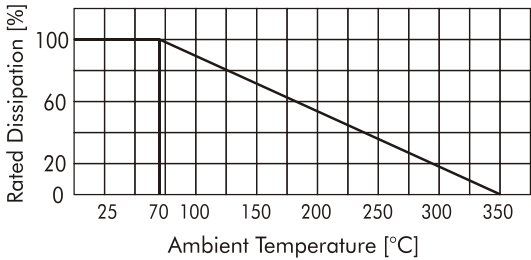
Resistance value must be checked using 4½ digit micro-ohm meter with four wire system and insulated clips and the designer of the pad layout might prefer to split the pad for four wire checking.

MOUNTING / ASSEMBLY DATA

For the guidance of the Design Engineer, our applications laboratory has given the recommended pad size and geometry which is shown below :



DERATING CURVE





SURFACE  
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## ELECTRICAL AND ENVIRONMENTAL CHARACTERISTICS / DATA

PARAMETER/PERFORMANCE TEST & TEST METHOD	PERFORMANCE REQUIREMENTS
<b>Power Rating</b> (Rated Ambient Temperature)	Full power dissipation at 70°C and linearly derated to zero at 350°C (Refer derating curve above)
<b>Resistance Tolerances Available</b>	±10% [K]; ±5% [J]; ±3% [H]; ±2%[G]; ±1% [F]
<b>Temperature Range</b>	-55°C to 350°C (with suitable derating as per derating curve above)
<b>Voltage Rating / Limiting Voltage / Max Working Voltage</b>	$V = \sqrt{P \times R}$
<b>Maximum Overload Voltage</b>	Varies depending on resistance value, duration of overload and type of pulse waveform (Contact factory for details)
<b>Voltage Proof / Dielectric Withstanding Voltage</b> (Based on limiting voltage x 2 for 60 secs)	$\Delta R \pm (1\% + R05)$ No flashover, mechanical damage, arcing or insulation breakdown.
<b>Short Time Overload</b> (5 x Rated power for 5 secs)	$\Delta R \pm [2\% + R05]$ - HSVAS $\Delta R \pm [0.75\% + R0005]$ - HSVALS - Typical
<b>Temperature Co-efficient of Resistance</b> <b>HSVAS</b>	± 120 ppm/°C for <R10 (Average) ± 80 ppm/°C for <1R0 (Average) ± 60 ppm/°C for <100R (Average) ± 90 ppm/°C or 30 ppm/°C for >100R depending on wire selected
<b>HSVALS</b>	± 60 ppm/°C to ± 900 ppm/°C depending on resistance value (measured from - 55°C to +125°C referenced to +25°C)
<b>Insulation Resistance</b>	> 1000MΩ (Min)
<b>Temperature Cycling</b> (Room temperature → -55°C → Room temperature → 200°C → Room temperature for 5 cycles ) <b>HSVAS</b> <b>HSVALS</b>	$\Delta R \pm [2\% + R05]$ $\Delta R \pm [0.5\% + R0005]$
<b>Damp Heat (Steady State)</b> <b>HSVAS</b> <b>HSVALS</b> (40°C at 93% R.H for 1000 hours, no load applied)	$\Delta R \pm [2\% + R05]$ - Average $\Delta R \pm [0.5\% + R0005]$ - Average
<b>Endurance - Load Life</b> (70°C with limiting voltage - 1.5 hours on / 0.5 hours off for 1000 hours)	$\Delta R \pm [\leq 3\% + R05]$ - Average

## MECHANICAL SPECIFICATIONS

PARAMETER/PERFORMANCE TEST & TEST METHOD	PERFORMANCE REQUIREMENTS
<b>Resistance to Soldering heat</b> (260 - 270°C for 10 secs)	$\Delta R \pm [0.2\% + R05]$ - Typical
<b>Solderability</b> (As per IEC Pub. 60068-2-20 Ta)	Must meet the requirements laid down
<b>Marking</b>	As per IEC Pub. 60062

## TYPICAL APPLICATIONS

These devices have been introduced to answer the increased demand for power resistors which can be surface mounted. The HSVAS series caters to those who require a normal wire wound with surface mounting and the HSVALS series caters to those who require a shunt / current sense device which is surface mounted.

Note:

The ceramic cases used may be steatite ceramic or cordierite ceramic or high alumina ceramic. Hence, the ceramic cases may be off-white or variations of brown and variations of grey; colours which are inherent to these ceramic materials.

## ORDERING INFORMATION

Series	HTR Type	Packing	Resistance Value	Tolerance
HSVAS /	HV4AS /	Bulk SV4AS / SV4AS*	5K0 /	J
HSVALS	HV5ALS	Bulk SV5ALS / SV5ALS*	R03	J

a) RoHS version - SV4AS \*/ SV5ALS \*