



**SURFACE MOUNT RESISTORS
CERAMIC ENCASED TYPE**

HCAS

SERIES

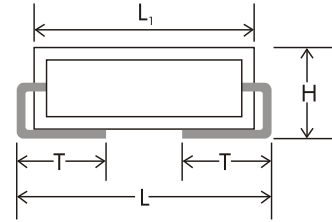
POWER TYPE

**Ceramic Encased Wire
Wound Resistors
Surface Mount -
Fire Retardant**

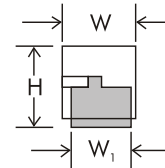
- Fusible safety version available
- Tape and Reel packing available
- Non Inductive style with Aryton - Perry winding available
 - 2W to 3W
 - R10 to 5K6



PHYSICAL CONFIGURATION



SIDE VIEW



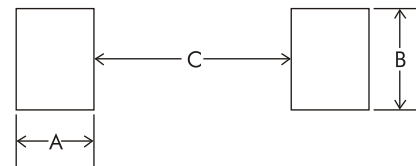
PROFILE

HTR TYPE	POWER RATING 70°C	DIMENSIONS (mm)						RESISTANCE RANGE		TYPICAL WEIGHT PER PC (gms)	SIZE	PACKING NO. OF PCS PER REEL
		L	L ₁	H	W	W ₁	T	min	max			
C2S	2W	11.0 (±0.8)	10.0 (±0.5)	5.0 (±0.3)	7.0 (±0.5)	5.5 (±0.3)	2.25 (min)	R10	1K6	0.8	4527	1000
C3S	3W	17.0 (±0.8)	16.0 (±0.7)	7.8 (±0.6)	7.0 (±0.7)	5.5 (±0.3)	2.5 (min)	R10	5K6	2.0	6927	700

• For Non Inductive winding, please reduce maximum resistance to one half of value shown.

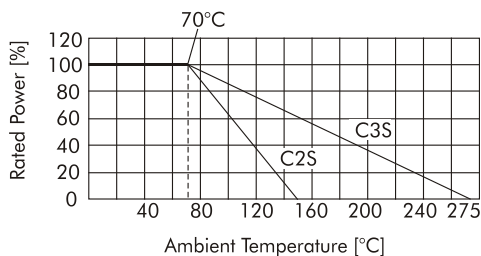
IMPORTANT MOUNTING / ASSEMBLY DATA

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

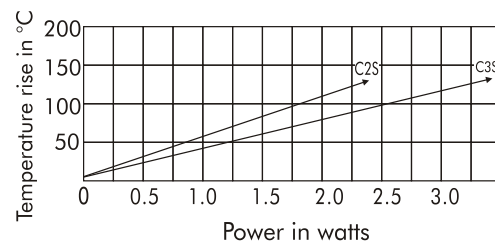


HTR TYPE	DIMENSIONS (mm)		
	A	B	C
C2S	3.94	5.84	5.21
C3S	3.94	5.97	11.94

DERATING CURVE



TEMPERATURE RISE CURVE





SURFACE
MOUNT
RESISTORS
CERAMIC EN-
CASED TYPE
HCAS

ELECTRICAL AND ENVIRONMENTAL CHARACTERISTICS / DATA

PARAMETER/PERFORMANCE TEST & TEST METHOD	PERFORMANCE REQUIREMENTS
Power Rating (Rated Ambient Temperature)	Full Power dissipation at 70°C and linearly derated to zero at 275°C for C3S / C3FS & at 160°C for C2S / C2FS (Refer Derating Curve above)
Resistance Tolerances Available	±10% (K); ±5% (J); ±3% (H); ±2% (G); ±1% (F)
Operating Temperature Range	-55°C to +160°C (C2S / C2SFS) and -55°C to +275°C (C3S / C3SFS) with suitable derating as per derating curve
Voltage Rating / Limiting Voltage / Max Working Voltage	$V = \sqrt{P \times R}$
Voltage Proof / Dielectric Withstanding Voltage (based on 1000V rms for 60 secs)	$\Delta R \pm [0.2\% + R05]$ - No flashover or mechanical damage
Insulation Resistance (MIL STD 202F - Test Method 302)	>1000M (Min)
Short Time Overload (5 x Rated Power for 5 secs)	$\Delta R \pm [0.2\% + R05]$ - Average
Temperature Co-efficient of Resistance	<1R0 ±80 ppm/°C <100R ±60 ppm/°C >100R ±90 ppm/°C or ±30 ppm/°C (Depending on wire selected)
Thermal Shock [-65°C to +125°C, 5 cycles, 15 min. at each extreme temperature]	$\Delta R \pm [0.2\% + R05]$ - Average
Temperature Rise (Ambient 30°C)	Refer Temperature Rise Curve shown above
Moisture Resistance (MIL STD 202F - Test Method 106E with step 7b eliminated)	$\Delta R \pm [0.5\% + R05]$ - Average
Damp Heat (Steady State) / Humidity (40°C at 95% R.H for 250 hours)	$\Delta R \pm [0.5\% + R05]$ - Typical
Endurance - Load Life (70°C with limiting voltage - 1.5 hours on / 0.5 hours off for 1000 hours)	$\Delta R \pm [1.0\% + R05]$ - Average
Solvent Resistance [IPA for 60 secs ± 10 secs]	No effect on case filling / marking

MECHANICAL SPECIFICATIONS

PARAMETER/PERFORMANCE TEST & TEST METHOD	PERFORMANCE REQUIREMENTS
Resistance to Soldering Heat (260°C - 270°C for 4 secs)	$\Delta R \pm [0.5\% + R05]$ - Typical
Solderability (MIL STD 202F - Test Method 208F)	Must meet the requirements laid down (95% satisfactory coverage)

- At HTR, a special "Safety Version" is available in HCAS series for resistance values $\geq 10R$ wherein the resistor will fuse instantaneously when mains voltage 220/240V is applied with no flame or explosion.
- For resistance values $< 10R$, the fusing time and suitability must be tested and validated by the buyer for his particular application.
- For Tape and Reel packing, add 100% to typical weight per pc given to ascertain gross weight of consignment.

Note: Due to recent technological advances, the ceramic cases used may be steatite ceramic or cordierite ceramic or high alumina ceramic depending on the nature of the application. 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
HCAS	C2S / C2S*	Bulk C2S / C2S* Tape & Reel C2STR / C2S*TR	10R	J

- For RoHS version - C2S *
- For Non Inductive type - N C2S
- For Tape & Reel packing - C2S TR
- For Fusible Safety Version - C2S FS