



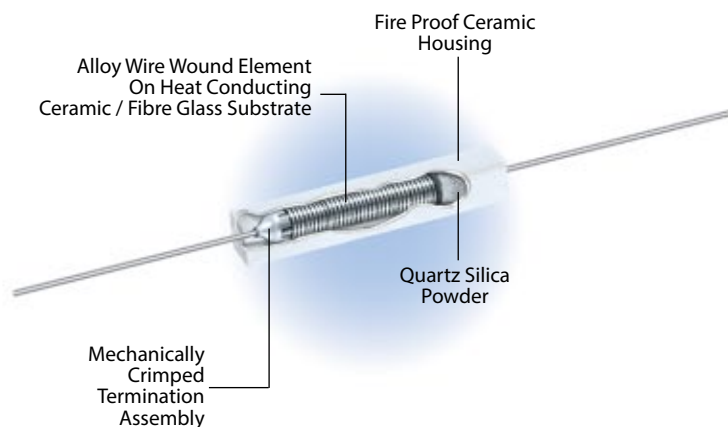
WIRE WOUND RESISTORS CERAMIC ENCASED TYPE

HEA SERIES

EUROPEAN STYLE

Power Ceramic Encased Wire Wound

- 1 W to 17 W
- R025 to 82K
- Non Inductive Aryton-Perry style available upto 1K0

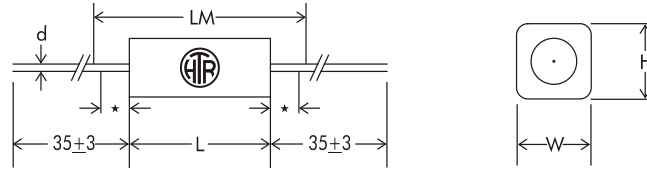




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RESISTORS
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PHYSICAL CONFIGURATION



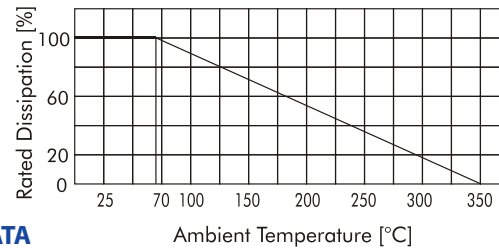
*6mm, reduced solderability in this area

HTR TYPE	POWER RATING at 70°C	DIMENSIONS (mm)					RESISTANCE RANGE		TYPICAL WEIGHT PER PC (gms)
		L ±1.5	W ±1	H ±1	d ±0.05	* LM ±1	min	max	
C-1B	1W	13.0	6.0	6.0	0.8	35	R025	5K6	1.3
C-2A	2.5W	15.0	6.0	6.0	0.8	35	R025	6K8	1.6
C-4	4W	20.0	6.0	6.0	0.8	40	R04	11K	2.0
C-5B	5W	25.0	6.0	6.0	0.8	45	R05	16K	2.3
C-6	6W	30.0	6.0	6.0	0.8	50	R10	22K	2.8
C-7A	7W	38.0	6.0	6.0	0.8	60	R10	33K	4.9
C-7B	7W	25.0	9.0	9.0	0.8	45	R05	16K	4.8
C-9/ C-10A	9W/ 10W	38.0	9.0	9.0	0.8	60	R10	33K	7.3
C-11	11W	50.0	9.0	9.0	0.8	70	R10	47K	9.5
C-17	17W	75.0	9.0	9.0	0.8	95	R10	82K	13.8

* For resistance values less than R10 and tolerance less than ±2%, please measure resistance over centered length LM.

* If customer requires extra tough moulding then mark resistor with letter "GS"

DERATING CURVE



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 350°C (Refer Derating Curve above)
Resistance Tolerances Available	±10% (K); ±5% (J); ±3% (H); ±2% (G); ±1% (F)
Temperature Range	-55°C to +350°C with suitable derating as per derating curve
Voltage Rating / Limiting Voltage / Max. Working Voltage	$V = \sqrt{P \times R}$
Maximum Overload Voltage	Varies depending on resistance value, duration of overload and type of pulse waveform (contact factory for details)
Voltage Proof / Dielectric Withstanding Voltage (based on limiting voltage x 2 for 60 secs)	$\Delta R \pm [1\% + R05]$ - No flashover, mechanical damage, arcing or insulation breakdown
Short Time Overload (5 x Rated Power for 5 secs)	$\Delta R \pm [2\% + R05]$
Temperature Co-efficient of Resistance	± 120 ppm/°C for <R10 (Average) ± 80 ppm/°C for <R10 (Average) ± 60 ppm/°C for <100R (Average) ± 90 ppm/°C or ± 30 ppm/°C for >100R depending on wire selected
Insulation Resistance	>1000MΩ (Min)
Temperature Cycling (Room Temperature → -55°C → Room Temperature → 200°C → Room Temperature for 5 cycles)	$\Delta R \pm [2\% + R05]$
Damp Heat (Steady State) (40°C at 93% R.H for 1000 hours - no load applied)	$\Delta R \pm [2\% + R05]$ - Average
Endurance - Load life (70°C with limiting voltage - 1.5 hours on / 0.5 hours off for 1000 hours)	$\Delta R \pm [\leq 3\% + R05]$ - Average



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MECHANICAL SPECIFICATIONS

PARAMETER/PERFORMANCE TEST & TEST METHOD	PERFORMANCE REQUIREMENTS
Terminal Tensile Strength	50 Newtons
Resistance to Soldering Heat (260°C - 270°C for 10 secs)	$\Delta R \pm [0.2\% + R05]$ - Typical
Solderability (As per IEC - 60068 - 2 - 20Ta)	Must meet the requirements laid down
Marking	As per IEC Pub. 60062

TYPICAL APPLICATIONS

HEA series enjoys a wide market in audio and TV field.

Apart from these applications and as they are available in close tolerance, they have increasingly found favour with OEM's in the industrial field, especially where the following properties are required -

- High degree of insulation
- Low surface temperature

Depending on resistance value and application, the resistors core may be fiberglass or ceramic. These resistors are also available for use in pulse application. For further information please refer to "Pulse / Surge capability of resistors".

In case tailor-made pulse resistor is required, please refer to "Questionnaire of data required" and provide data accordingly.

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.
- In case the device is to be subjected to aggressive solvents, please inform factory so case filling can be changed to solvent resistant type.

TAPING : Types C-2A, C-4, C-5B, C-6, C-7A, C-9, C-10A, C11 can be supplied in taped form. Please refer to Tape / Reel specifications.

ORDERING INFORMATION

Series	HTR type	Packing	Resistance Value	Tolerance
HEA	C4 / C4*	Bulk C4 / C4* Tape & Ammo C4T / C4*T Tape & Reel C4TR / C4*TR	100R	J

- For RoHS version - C-4 *
- For Pulse type - C-4 I
- For Non Inductive type - N C-4
- For Tape / Reel - C-4 TR
- C4* GS - "GS" stands for grey silicon - applicable for customer who washes PCB with solvents.