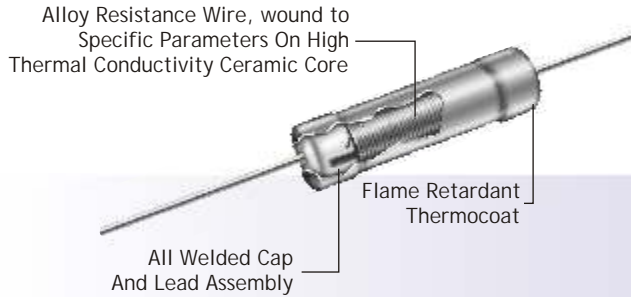




HIA SERIES

PRECISION POWER
Silicone Coated Wire Wound Resistors
Industrial / Professional Applications



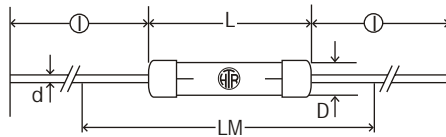
- Flame retardant coating.
- 0.5 W to 15 W.
- Tolerances as close as 0.25%
- R 01 to 100 K
- TCR as low as ± 20 ppm / °C available depending on application and resistance value.
- Special types available for pulse applications-IEC 61000-4-5.



APPLICABLE STANDARDS

ML- R 26 Char. U, EIA-RS-155-B Char. G, JIS-C 6401 Char. G, IEC - Pub 266 and Pub 266 A / Type 2D / 2F.

PHYSICAL CONFIGURATION



HTR TYPE	POWER RATING at 40°C (Ambient)	DIMENSIONS (mm)					RESISTANCE RANGE		TYPICAL WT. PER PC (gms)
		L (max)	D ± 0.5	L ± 1.5	d ± 0.05	LM ± 1	min	max	
H-0.5 D-0.5	0.5W	7.0	4.0	38	0.8	30	R01	1K2	0.55
H-1	1W	9.5	4.0	38	0.8	30	R01	3K5	0.6
H-2	2W	11.5	4.5	38	0.8	35	R01	5K6	0.8
D-2	2W (70°C)	14.0	5.5	38	0.8	35	R01	10K	1.1
H-3A	3W	12.5	5.5	38	0.8	35	R01	10K	1.1
H-3	3W	15.5	6.0	38	0.8	35	R01	12K	1.2
H-4	4W	16.0	6.0	38	0.8	40	R01	12K	1.3
H-5A	5W	19.5	6.5	38	0.8	40	R01	20K	2.0
D-5	5W (70°C)	22.5	7.5	38	0.8	45	R01	20K	3.1
H-5	5W	25.0	8.5	38	0.8	45	R01	39K	3.3
H-7A	7W	32.5	9.5	38	0.8	55	R01	68K	5.0
H-7	7W	39.0	8.5	38	0.8	60	R01	70K	5.4
H-10A	10W	45.0	9.5	38	0.8	65	R01	100K	5.7
H-10	10W	54.0	8.5	38	0.8	75	R01	100K	6.3
H-15	15W	45.0	10.0	38	1.0	65	R01	100K	5.9

- * For non-inductive types and for resistance values $< 1R0 + 0.8$ mm allowed.
- ▲ Coating overflow on each lead not to exceed half of 'D'.
- * For resistance values less than R10 and tolerance less than $\pm 2\%$ please measure resistance over centered length LM.

NON INDUCTIVE RESISTORS

Low inductance Aryton - Perry winding type resistors are available in this series. For non-inductive types reduce maximum resistance values shown to 50% and the continuous working voltage to 70% (Please refer to note (1) of ordering information for placing orders).

PULSE TYPE RESISTORS

Resistors for use under pulse conditions as per IEC - 61000 - 4 - 5 available. For further information please refer to "Understanding pulse & over load capability of wire wound resistors".

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



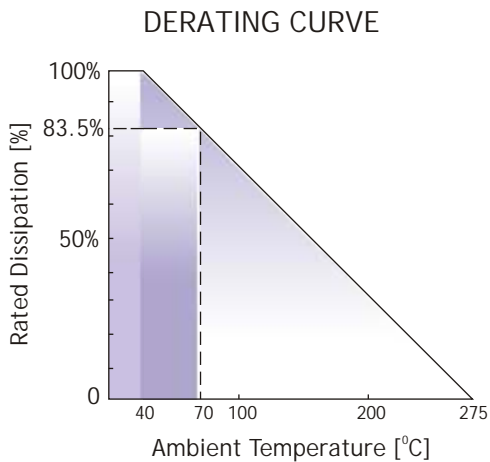
PRE-FORMED LEADS - The resistor terminations can be bent and cut as per requirements for quick PCB mounting. Please send detailed drawings of specific type of preforming required. Depending on application the resistor leads may be tin plated Copper Weld® instead of tin plated copper.

TAPING - Types H-0.5, D-0.5, H-1, H-2, H-3, H-3A, H-4, H-5A & H-5 can be supplied in taped form. Please refer to [tape/ammo pack specifications](#). [Tape/Reel](#) on request.

ELECTRICAL DATA/CHARACTERISTICS

Resistance tolerances available

±10% [K], ±5% [J], ±3% [H] ±2% [G], ±1% [F], ±0.5% [D], ±0.25% [C] [Test method no. 303 of MIL 202 F]



Voltage rating

The resistors shall have a rated DC, continuous working voltage or an approximate sine-wave root mean square (rms) working voltage at commercial line frequency corresponding to the power rating as determined by the following formula

$$E = \sqrt{PR}$$

where,

E = rated DC or rms continuous working voltage.

P = Power rating in watts.

R = Nominal resistance in ohms.

Rated ambient temperature - 40°C

Full power dissipation at upto 40°C and linearly derated down to zero dissipation at 275°C. [See derating curve]

Resistor temperature rise as a function of applied power

[see graph displayed below]

Dielectric withstanding voltage

Max. $R_{\pm}(1\%+R05)$. No flashover, mechanical damage, arcing or insulation breakdown.

[Test method no. 301 of MIL 202 F]

Insulation resistance

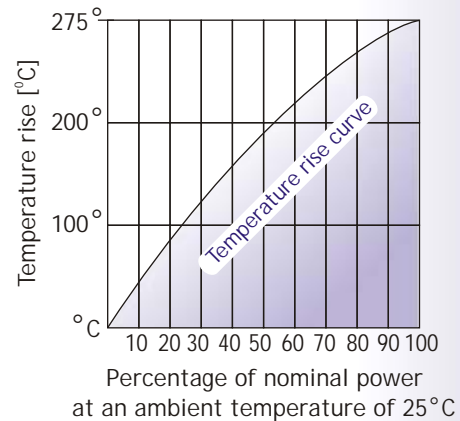
> 1000 M (dry) > 100 M (wet)

[Test method no. 302 of MIL 202 F]

Short time overload

Max. $R_{\pm}(2\%+R05)$. No arcing, burning or charring.

[Test method - 5 secs at 5 times rated power for 3 watts and smaller; 5 secs at 10 times rated power for 4 watts and larger]



Note : The temperature rise graph is indicative of general behaviour and is given for the guidance of designers. However if the data required is critical please refer to the factory as the curve could vary depending on power rating and resistance value.

ENVIRONMENTAL SPECIFICATIONS

Temperature Co-efficient

±120 ppm/ °C for < 1R10; ±90 ppm/ °C for < 1R0; ±60ppm/ °C for < 100R;

±100ppm/ °C or ±30ppm/ °C for >100R depending on wire selected. [Test method no. 304 of MIL 202 F]

Moisture resistance

Max. $R_{\pm}[3\% + R05]$.

No mechanical damage.

[Test method no. 106 E of MIL 202 F]

Load life

Max. $R_{\pm}[3.5\% + R05]$.

No mechanical damage.

[Test method no. 108 A of MIL 202 F]



MECHANICAL SPECIFICATIONS

Pull test

No mechanical damage

[Force supplied from 2 to 4.5 Kgs depending on size]

Solderability

Continuous and satisfactory

[Test method no. 208 F of MIL 202 F]

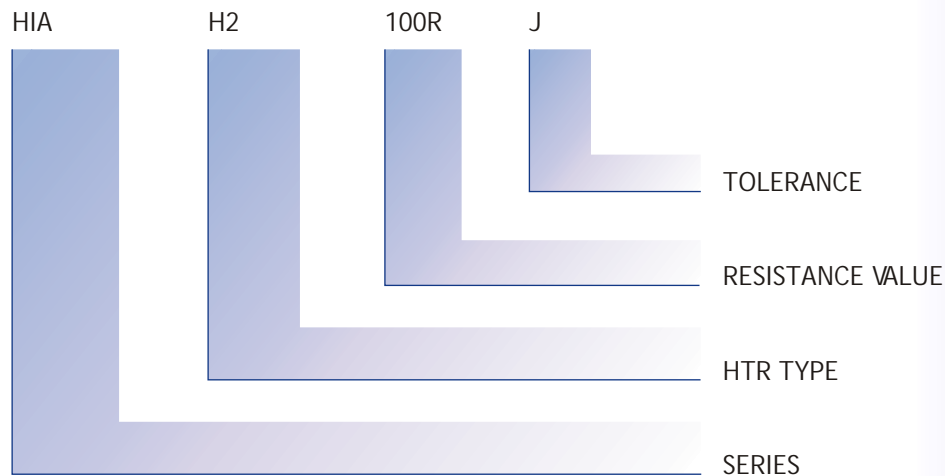
TYPICAL APPLICATIONS

The usage of HIA series resistors will expand circuit design limits significantly because they have precision resistor characteristics with low TC and are able to carry load at high ambient temperatures.

HIA series can effectively be used in all industrial, electrical, electronic and telecommunication equipment where large power dissipation is required (e.g. when used as a voltage divider or bleeder resistor in DC power supplies or for series dropping). They are generally satisfactory for use at frequencies upto 50 KHz.

HIA series when wound by the Aryton-Perry method can be used effectively for high frequency applications where fast rise time and minimum phase shift AC characteristics are necessary.

ORDERING INFORMATION



- Note :
- (1) In case non inductive type is required please prefix HTR TYPE with 'N' eg : NH - 2
 - (2) Type H5, H7, H7A, H10 and H10A can be supplied with lead diameter of 1.0 mm. Please specify to avoid confusion.
 - (3) In case Pulse type is required please suffix HTR Type with 'I' eg. H3I

The Words - "Applicable standards" do not necessarily signify certification to that standard, however the tests mentioned are carried out on the broad based guidelines set out in these standards.