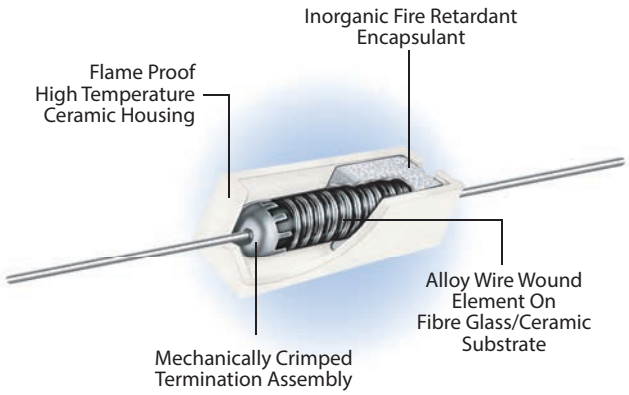


WIRE WOUND RESISTORS
CERAMIC ENCASED TYPE

HCA/HCV

SERIES

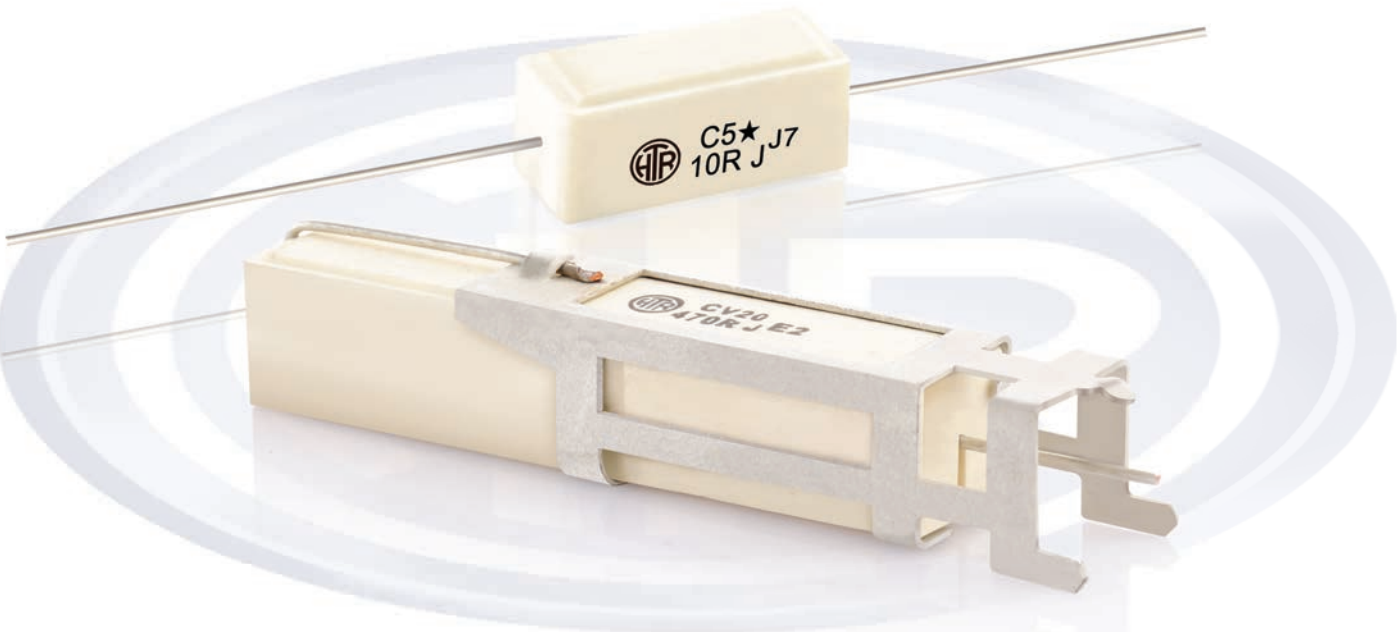
POWER TYPE

Ceramic Encased
Wire Wound Resistors
Fire Proof

- Moisture resistant
- Very high degree of insulation
- Low surface temperature
- 1W to 20W
- R05 to 56K

AEC-Q200 Qualified

Pb-free * RoHS COMPLIANT



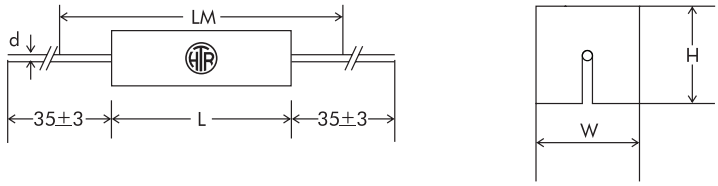
e : info@htr-india.com

WIRE WOUND
RESISTORS
CERAMIC
ENCASED
TYPE

HCA/ HCV

PHYSICAL CONFIGURATION

HCA SERIES



HTR TYPE	POWER RATING at 70°C	DIMENSIONS (mm)					RESISTANCE RANGE		TYPICAL WEIGHT PER PC (gms)
		Δ L ±1.5	W ±1	H ±1	d ±0.05	* LM ±1	min	max	
C-1A	1W	13.0	5.5	5.5	0.8	35	R20	3K3	1.4
C-1	1W	15.0	7.5	6.5	0.8	35	R05	4K7	1.9
C-2	2W	17.5	7.5	7.0	0.8	40	R05	7K5	3.0
C-3	3W	22.0	8.0	8.0	0.8	45	R05	11K	4.0
C-5	5W	22.0	9.5	9.5	0.8	45	R05	11K	4.9
C-7	7W	35.0	9.5	9.5	0.8	55	R05	30K	6.9
C-10	10W	48.0	9.5	9.5	0.8	70	R05	43K	9.3
C-15	15W (25°C)	48.0	12.5	12.5	1.0	70	R05	43K	16.2
C-20	20W (25°C)	63.5	12.5	12.5	1.0	85	R10	56K	21.0

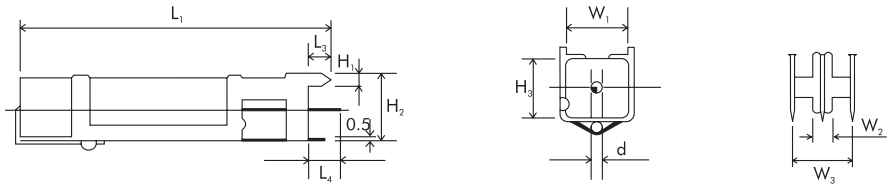
* For resistance values less than R10 and tolerance less than ±2%, please measure resistance over centered engthLM.

• Resistance values < 1R0 and tolerance < 5% are wound on ceramic substrate.

Δ A bead of potting compound may be observed at the point where the termination emerges.

PHYSICAL CONFIGURATION

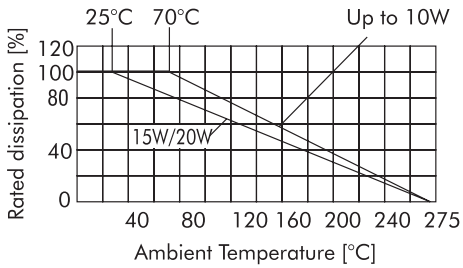
HCV SERIES



HTR TYPE	POWER RATING at 70°C	DIMENSIONS (mm)										RESISTANCE RANGE		TYPICAL WEIGHT PER PC (gms)
		L_1	L_2	L_3	H_1	H_2	H_3	W_1	W_2	W_3	d±0.1	min	max	
CV-7	7W	60±1.5	5±0.5	7±1	2.1±0.15	11±1	9.5±1	10±1	2.1±0.15	10±1	0.8	R05	30K	10.0
CV-10	10W	67±1.5	5±0.5	7±1	2.1±0.15	11±1	9.5±1	10±1	2.1±0.15	10±1	0.8	R05	43K	13.3
CV-15	15W (25°C)	62.5±2	4.5±0.2	6.5±1	2.5±0.15	14±1	12.5±1.2	13±1.2	2.5±0.15	13±1	1.0	R05	43K	22.1
CV-20	20W (25°C)	78±2	4.5±0.2	6.5±1	2.5±0.15	14±1	12.5±1.2	13±1.2	2.5±0.15	13±1	1.0	R10	56K	26.4

• In order to facilitate vertical mounting of the large 7W to 20W resistors in HCA series on heavily populated PCB's they can be supplied on request with mounting brackets as shown in HCV series.

DERATING CURVE



WIRE WOUND RESISTORS CERAMIC ENCASED TYPE

HCA/ HCV

ELECTRICAL CHARACTERISTICS / DATA

PARAMETER/PERFORMANCE TEST & TEST METHOD	PERFORMANCE REQUIREMENTS
Power Rating (Rated Ambient Temperature)	Upto 10W, full power dissipation at 70 °C and 15W / 20W full power dissipation at 25°C and linearly derated to zero at +275 °C (See Derating curve above)
Operating Temperature Range (Ambient)	-55°C to +275°C with suitable derating as per Derating Curve
Voltage Rating / Limiting Voltage / Max Working Voltage	$V = \sqrt{PxR}$
Maximum Overload Voltage	Varies depending on resistance value, duration of over load and type of pulse waveform (contact factory for details)
Resistance Tolerances Available JIS- C - 5202 para 5.1	±10% (K) ; ±5% (J) ; ±3% (H) ; ±2% (G) and ±1% (F)

ELECTRICAL AND ENVIRONMENTAL CHARACTERISTICS / DATA

PARAMETER/PERFORMANCE TEST	TEST METHOD- DETAILS	PERFORMANCE REQUIREMENTS
Short Time Overload	JIS - C - 5202 Para 5.5 Upto 3W - condition A (RV x 2.5 for 5 secs) 5W and above - condition B (voltage corresponding to 10 times power for 5 secs)	ΔR ± [2% + R05]
Dielectric Withstanding Voltage / Voltage Proof	JIS - C - 5202 Para 5.7 Condition F (Limiting Voltage x 2 or 500V)	ΔR ± [1% + R05] (No flashover, arcing or insulation breakdown)
Temperature Co-efficient of Resistance	JIS - C - 5202 Para 5.2	± 90 ppm/°C [>10R] ± 80 ppm/°C [<10R] ± 200 ppm/°C [<R10]
Insulation Resistance	JIS - C - 5202 Para 5.6 (condition F)	>1000MΩ (min)
Pulse Overload / Intermittent Overload	JIS - C - 5202 Para 5.8 (Limiting Voltage x 4) 1 sec on / 25 off 10,000 cycles ± 200 cycles	ΔR ± [2% + R05]
Endurance - under load with humidity	JIS - C - 5202 Para 7.9 1000 hours at 40°C ±2°C, 95% R.H with limiting voltage (1.5 hours on / 0.5 hours off)	ΔR ± [5% + R05]
Load Life	JIS - C - 5202 Para 7.10 1000 hours at 70°C with limiting voltage (1.5 hours on/0.5 hours off)	ΔR ± [5% + R05]
Temperature Cycling	JIS - C - 5202 Para 7.4 [Room Temperature ⟶-55°C⟶Room Temperature ⟶ 155°C⟶Room Temperature for 5 cycles]	ΔR ± [2% + R05]
Damp Heat (Steady State)	JIS - C - 5202 Para 7.5	ΔR ± [3% + R05]
Solvent Resistance	JIS - C - 5202 Para 6.9 Solvent A - IPA for 60 secs ±10 secs	No effect on case filling or marking

MECHANICAL SPECIFICATIONS

PARAMETER/PERFORMANCE TEST	TEST METHOD- DETAILS	PERFORMANCE REQUIREMENTS
Pull Test / Robustness of Terminations	Direct Load for 15 secs 2 to 4.5 kgs depending on size	No effect
Solderability	JIS - C - 5202 Para 6.5	ΔR ± [1% + R05] Continuous and satisfactory (95% Min coverage)

TYPICAL APPLICATIONS

HCA / HCV series resistors are almost universally used in the far east for almost all radio, TV and industrial equipment applications. This series enjoys the following distinct advantages over normal coated resistors:

1. As the resistive element is hermetically sealed in a ceramic case using a cement which enjoys flame retardant properties even at high overload, no damage can be caused to neighbouring components.
2. Due to very high degree of insulation and low surface temperature, these resistors can be mounted with their bodies relatively closer to the PCB.
3. These resistors are also commonly referred to in the far east as cement resistors owing to the nature of their construction.
4. In certain markets, these resistors are also wrongly called fusible resistors.

Note :

1. The ceramic cases used may be steatite ceramic or corderite ceramic or high alumina ceramic. Hence the ceramic cases may be off-white or variations of brown / grey, colours which are inherent to these ceramic material.
2. Types C-10, C-15 and C-20 may have cases with bottom bumps as per international practice.

ORDERING INFORMATION

Series	Type	Packing	Resistance Value	Tolerance
HCA [HCV]	C7 / C7* CV7 / CV7 *	Bulk C7 / C7* CV7 / CV7 *	100R	J

1. For RoHS version - C7 * ; [CV7 *]