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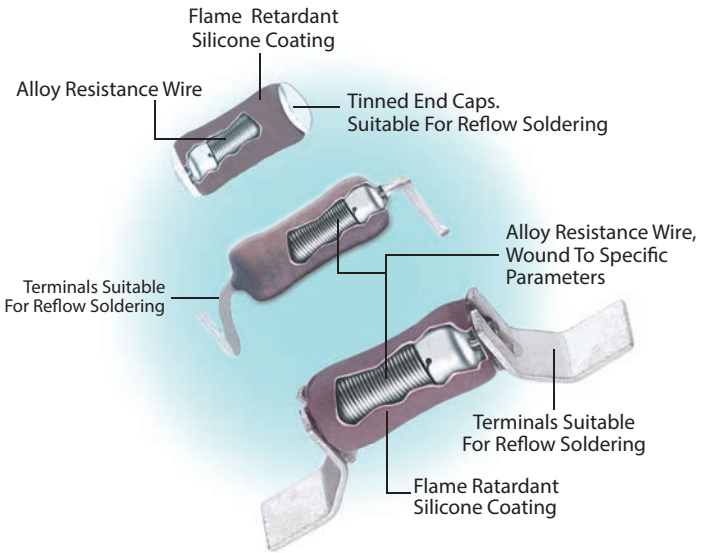


SURFACE MOUNT
SILICONE COATED TYPE

HIAS

SERIES

SURFACE MOUNT WIRE WOUND RESISTORS

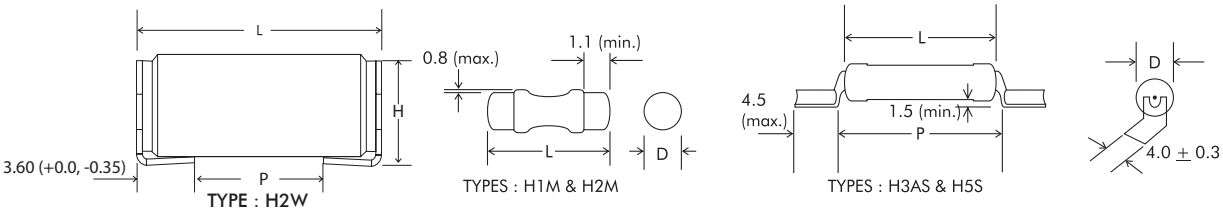
- 1 & 2W - Silicone Coated Melf Design
- 2,3,4 & 5W - Tin Plated Terminations
- R01 to 22K

AEC-Q200 Qualified

Pb-free RoHS COMPLIANT

e : info@htr-india.com

PHYSICAL CONFIGURATION

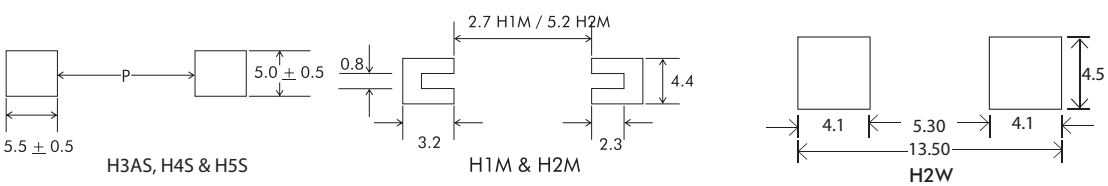


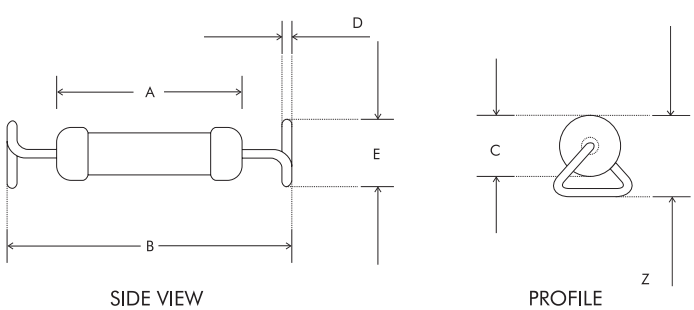
HTR TYPE	POWER RATING at 40°C	DIMENSIONS (mm)				RESISTANCE RANGE		TYPICAL WEIGHT PER PC (gms)
		L ±1.0	◊ D (max)	P ±1.0	# H (max)	min	max	
H-1M	1W	6.5	4.1	-	-	R10	1K5	0.5
H-2M	2W	9.0	4.1	-	-	R10	3K5	0.6
H-3AS	3W	13.0	5.7	18.0	8.00	R01	10K	1.2
H-4S	4W	15.5	6.0	19.5	8.00	R01	15K	1.5
H-5S	5W	19.5	6.5	24.5	8.25	R01	22K	2.0
H-2W	2W	13.5 Max	5.5	6.3 Min	6.0	R01	10K	0.6

◊ D for non-inductive types and for resistance values <1R0 +0.8mm allowed.
H for non-inductive types and for resistance values <1R0 +0.8mm allowed.
I Stands for the Impulse type resistor
F Stands for the fusible resistor as per customer request.

MOUNTING SPECIFICATIONS

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

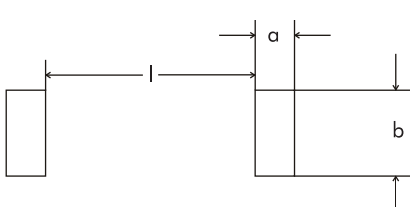




HTR TYPE	POWER RATING at 40°C	DIMENSIONS (mm)						RESISTANCE RANGE		TYPICAL WEIGHT PER PC (gms)
		A [max]	B [±1.0]	C [max]	D [±0.05]	E [±0.5]	Z [±1.0]	[min]	[max]	
2WS	2W	12.0	17.0	4.8	0.8	5.0	6.5	R10	5K6	0.95
2WSA	2W	9.0	13.4	4.5	0.8	4.5	6.5	R05	2K2	0.7
3WS	3W	14.5	18.7	6.0	0.8	6.5	8.0	R01	10K	1.2
3WSA	3W	13.0	18.7	5.1	0.8	6.5	6.9 (max)	R01	8K2	1.1
4WS	4W	15.5	20.0	6.0	0.8	8.0	8.0	R10	12K	1.25
5WS	5W	16.5	18.7	7.0	0.8	6.5	8.0	R01	12K	1.65

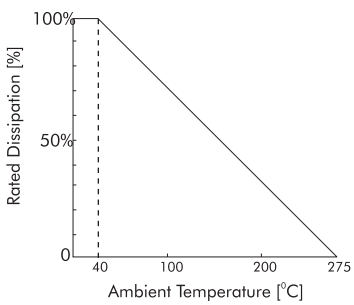
MOUNTING / ASSEMBLY DATA

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	l
2WS	2.5	5.5	14.0
2WSA	2.5 (min)	5.5 (min)	10.0 (max)
3WS	2.5 (min)	8.0 (min)	15.0 (max)
3WSA	2.5 (min)	8.0 (min)	15.0 (max)
4WS	2.5	9.5	17.0
5WS	2.5 (min)	8.0 (min)	15.0 (max)

DERATING CURVE



ELECTRICAL AND ENVIRONMENTAL CHARACTERISTICS / DATA

PARAMETER/ PERFORMANCE TEST	TEST METHOD - DETAILS	PERFORMANCE REQUIREMENTS
Power Rating (Rated Ambient Temperature)	Subject to size of solder pads used and type of PCB / pads (Performance requirements shown are based on use of FR4 test boards measuring 50mm x 50mm with 300g/m^2 copper pads)	Full power dissipation at 40°C and linearly derated to zero at 275°C (Refer derating curve shown)
Resistance Tolerances Available	JIS-C-5202- Para 5.1	±10% [K]; ±5% [J]; ±3% [H]; ±2%[G]; ±1% [F]
Operating Temperature Range		-55°C to +275°C (with suitable derating as per derating curve shown)
Voltage Rating / Limiting Voltage / Max Working Voltage	$V = \sqrt{PxR}$	
Maximum Overload Voltage (Pulse)	IEC 6100-4-5 (1.2/50µsec)	Varies depending on resistance value, duration between pulses & no. of pulses to be withstood (contact factory for details)
Rated load	JIS-C-5202- Para 5.4	ΔR ± [1% + R05]
Voltage Proof /Dielectric Withstanding Voltage	JIS-C-5202- Para 5.7 (based on limiting voltage x 2 or 500V whichever is applicable)	ΔR ± [1% + R05]
Temperature Rise	Will vary based on solder pad dimensions used	Consult factory with full details of pad size used
Short Time Overload	JIS-C-5202- Para 5.5 (upto 3W - condition A - R.V x 2.5 for 5 secs) (4W and above - condition B - voltage corre sponding to 10 times power for 5 secs)	ΔR ± [1.2% + R05] - Average
Insulation Resistance	JIS-C-5202- Para 5.6 (condition F)	> 1000M.Ω (dry)
Temperature Co-efficient of Resistance	JIS-C-5202- Para 5.2	± 90 ppm/°C [>10R] ± 80 ppm/°C [<10R] ± 200 ppm/°C [<R10]
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]
Damp Heat (Steady State)	JIS-C-5202- Para 7.5	ΔR ± [3% + 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] - Typical
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 ± [≤3% + R05] - Average
Climate Category		55/200/56
Solvent Resistant	JIS-C-5202- Para 6.9 Solvent A - 1PA for 60 secs ± 10 secs	No effect on coating or marking
Flame Retardant (under overload condition)	JIS-C-5202- Para 7.12.3.2	No flaming / arcing

SURFACE MOUNT SILICONE COATED TYPE

HIAS

MECHANICAL SPECIFICATIONS

PARAMETER/ PERFORMANCE TEST	TEST METHOD - DETAILS	PERFORMANCE REQUIREMENTS
Resistance to Soldering Heat	260°C - 270°C for 10 secs.	ΔR ± [0.75% + R05] - Typical
Solderability	JIS-C-5202- Para 6.5	Continuous and satisfactory (95% min coverage).

TYPICAL APPLICATIONS

This series has been evolved in order to fill the gap for melf and surface mount resistors in applications which are too severe for film resistors. The advantages are superior power to size zero ratio, higher tolerance to pulse, surge applications and negligible noise.

ORDERING INFORMATION

Series	HTR Type	Packing	Resistance Value	Tolerance
HIAS	H3AS / H3AS*	Bulk H3AS / H3AS*	100R	J

For RoHS version - H3AS *