

HV05 Series High Voltage Resistors

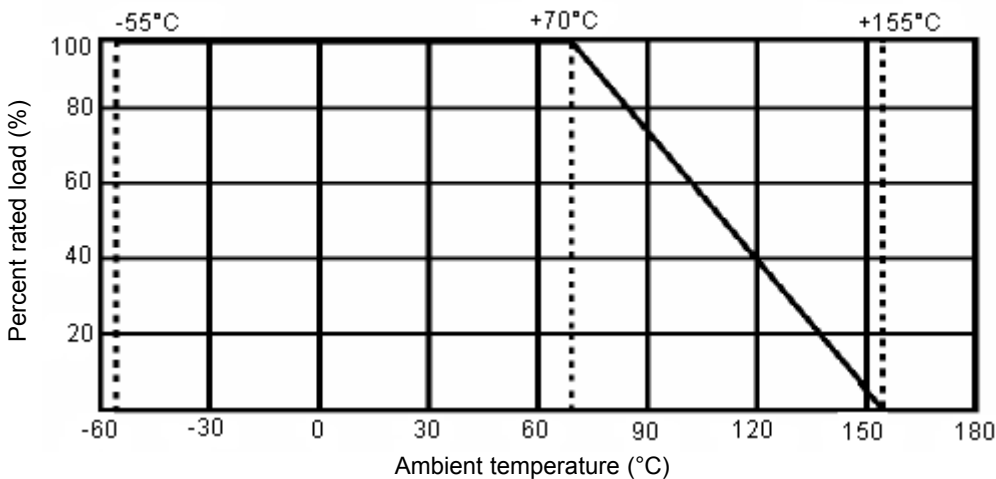


Specification

| Type | Power Rating (W) | Maximum Working Voltage (V) | Maximum Overload Voltage (V) | Temperature Range (°C) | Ambient Temperature (°C) |
|------|------------------|-----------------------------|------------------------------|------------------------|--------------------------|
| HV05 | 0.10 | 300 | 800 | -55 to +155 | 70 |

Power Rating:

Resistors shall have a power rating based on continuous load operation at an ambient temperature of 70°C. For temperature in excess of 70°C, The load shall be derate.



Nominal Resistance

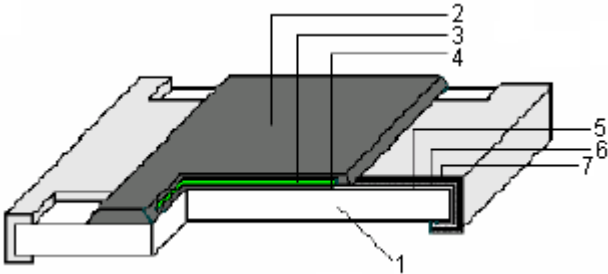
Effective figures of nominal resistance shall be in accordance with E-24 and E-96 series for 1% and E-24 series for 2% and 5%.



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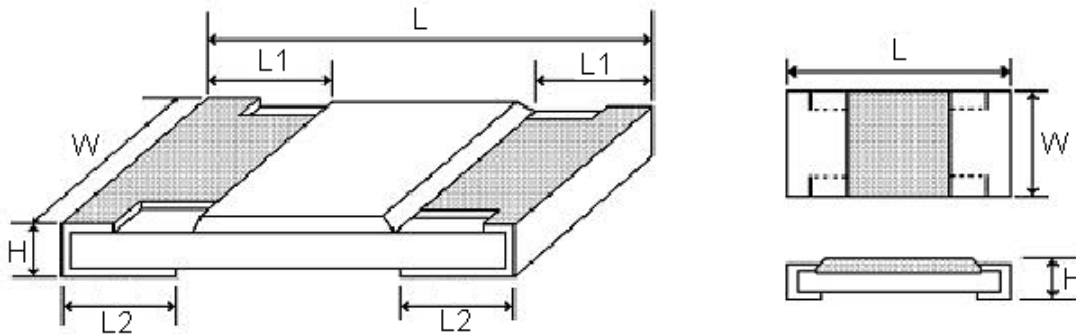


Construction:



1. High Purity Alumina Substrate.
2. Protective covering.
3. Protective covering.
4. Resistive covering.
5. Termination inner (Ag/Pd).
6. Termination (between) Ni plating.
7. Termination (outer) Sn plating.

Power rating and dimensions



Dimensions : Millimetres

Dimensions

| Type | $L \pm 0.15$ | $W + 0.15$ $- 0.10$ | $H \pm 0.10$ | $L1 \pm 0.20$ | $L2 \pm 0.20$ |
|------|--------------|------------------------|--------------|---------------|---------------|
| HV05 | 2.00 | 1.25 | 0.55 | 0.40 | 0.40 |

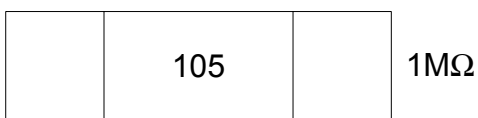
Dimensions : Millimetres

Power Rating

| Type | Power Rating at 70°C (W) | Tolerance % | Resistance Range (Ω) | Standard Series |
|------|--------------------------------|----------------|----------------------------------|-----------------|
| HV05 | 0.10 (1/10) | ± 5 | 100K to 10M | E-24 |

Marking on the Resistors

A $\pm 5\%$ Tolerance: the first two digits are significant figures of resistance and the third one denoted number of zeros.



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Performance specifications

| Characteristics | Limits | Test Methods (JIS C 5202) |
|-------------------------|---|---|
| Temperature coefficient | ± 200 PPM/ $^{\circ}$ C | Natural resistance change per temperature degree centigrade $R2-R1/ R1 (t2-t1) \times 10^6$ (PPM/ $^{\circ}$ C). R1 : Resistance value at room temperature (t1) R2 : Resistance value at room temperature plus 100 $^{\circ}$ C (t2). Test pattern : Room temperature(t1), Room temperature+100 $^{\circ}$ C(t2) |
| Short time overload | $\Delta R \leq \pm(2.0\% + 0.1\Omega)$ maximum | Permanent resistance change after the application of a potential of 2.5 times RCWV for 5 seconds. |
| Humidity (Steady State) | $\Delta R \leq \pm(3.0\% + 0.1\Omega)$ maximum | Temporary resistance change after 1000 hours exposure in a humidity test chamber controlled at 40 $\pm 2^{\circ}$ C and 90 to 95% relative humidity. |
| Terminal bending | $\Delta R \leq \pm(1.0\% + 0.05\Omega)$ maximum | Twist of Test Board : Y/X = 3/90 mm for 60 seconds. |
| Temperature cycling | 5%: $\Delta R \leq \pm(1.0\% + 0.05\Omega)$ maximum | Resistance change after continuous 5 cycles for duty cycles specified below Step 1 : 30 minutes at -55 $\pm 3^{\circ}$ C Step 2 : 10 to 15 minutes at room temperature Step 3 : 30 minutes at 155 $\pm 2^{\circ}$ C Step 4 : 10 to 15 minutes at room temperature |
| Load life in humidity | $\Delta R \leq \pm(3.0\% + 0.01\Omega)$ maximum | Resistance change after 1000 hours (1.5 hours "on", 0.5 hour "off") at RCWV in a humidity chamber controlled at 40 $^{\circ}$ C $\pm 3^{\circ}$ C and 90 to 95% relative humidity. |
| Load Life | $\Delta R \leq \pm(3.0\% + 0.01\Omega)$ maximum | Permanent resistance change after 1000 hours operating at RCWV, with duty cycle 1.5 hours "on", 0.5 hour"off" at 70 $^{\circ}$ C $\pm 2^{\circ}$ C ambient. |
| Solderability | 95% coverage minimum | Test temperature of solder : 245 $\pm 3^{\circ}$ C Dipping time in solder : 2 to 3 seconds. |
| | Go up tin rate bigger than half of end pole. | Reflow: |



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Resistance Preferred Value Range

| E6 | E12 | E24 | E96 | E6 | E12 | E24 | E96 | E6 | E12 | E24 | E96 |
|----|-----|-----|------|----|-----|-----|------|----|-----|-----|------|
| 10 | 10 | 10 | 10.0 | | | | 21.5 | | | | 46.4 |
| | | | 10.2 | 22 | 22 | 22 | 22.1 | 47 | 47 | 47 | 47.5 |
| | | | 10.5 | | | | 22.6 | | | | 48.7 |
| | | | 10.7 | | | | 23.2 | | | | 49.9 |
| | | 11 | 11.0 | | | | 23.7 | | | 51 | 51.1 |
| | | | 11.3 | | | 24 | 24.3 | | | | 52.3 |
| | | | 11.5 | | | | 24.9 | | | | 53.6 |
| | | | 11.8 | | | | 25.5 | | | | 54.9 |
| | 12 | 12 | 12.1 | | | | 26.1 | | 56 | 56 | 56.2 |
| | | | 12.4 | | | | 27.7 | | | | 57.6 |
| | | | 12.7 | | 27 | 27 | 27.4 | | | | 59.0 |
| | | 13 | 13.0 | | | | 28.0 | | | | 60.4 |
| | | | 13.3 | | | | 28.7 | | | 62 | 61.9 |
| | | | 13.7 | | | | 29.4 | | | | 63.4 |
| | | | 14.0 | | | 30 | 30.1 | | | | 64.9 |
| | | | 14.3 | | | | 30.9 | | | | 66.5 |
| | | | 14.7 | | | | 31.6 | 68 | 68 | 68 | 68.1 |
| 15 | 15 | 15 | 15.0 | | | | 32.4 | | | | 69.8 |
| | | | 15.4 | 33 | 33 | 33 | 33.2 | | | | 71.5 |
| | | | 15.8 | | | | 34.0 | | | | 73.2 |
| | | 16 | 16.2 | | | | 34.8 | | | 75 | 75.0 |
| | | | 16.5 | | | | 35.7 | | | | 76.8 |
| | | | 16.9 | | | 36 | 36.5 | | | | 78.7 |
| | | | 17.4 | | | | 37.4 | | | | 80.6 |
| | | | 17.8 | | | | 38.3 | | 82 | 82 | 82.5 |
| | 18 | 18 | 18.2 | | 39 | 39 | 39.2 | | | | 84.5 |
| | | | 18.7 | | | | 40.2 | | | | 86.6 |
| | | | 19.1 | | | | 41.2 | | | | 88.7 |
| | | | 19.6 | | | | 42.2 | | | 91 | 90.9 |
| | | 20 | 20.0 | | | 43 | 43.2 | | | | 93.1 |
| | | | 20.5 | | | | 44.2 | | | | 95.3 |
| | | | 21.0 | | | | 45.3 | | | | 97.6 |

Above values in accordance with IEC Publication 63 (1963) and BS2488



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Notes:

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