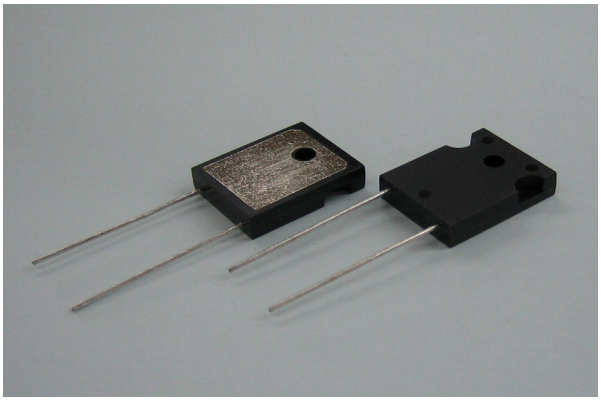
Tateyama Kagaku Industries Co.,Ltd.

# 100W HIGH POWER RESISTORS

## ■ TO247
## HPR10S



## Features :

- 100W high power resistor in TO247 package.
- Very low heat resistance of 1.3 deg C/W.
- Heat dissipation and vibration durable design.
- Small and thin package for high-density assembly.

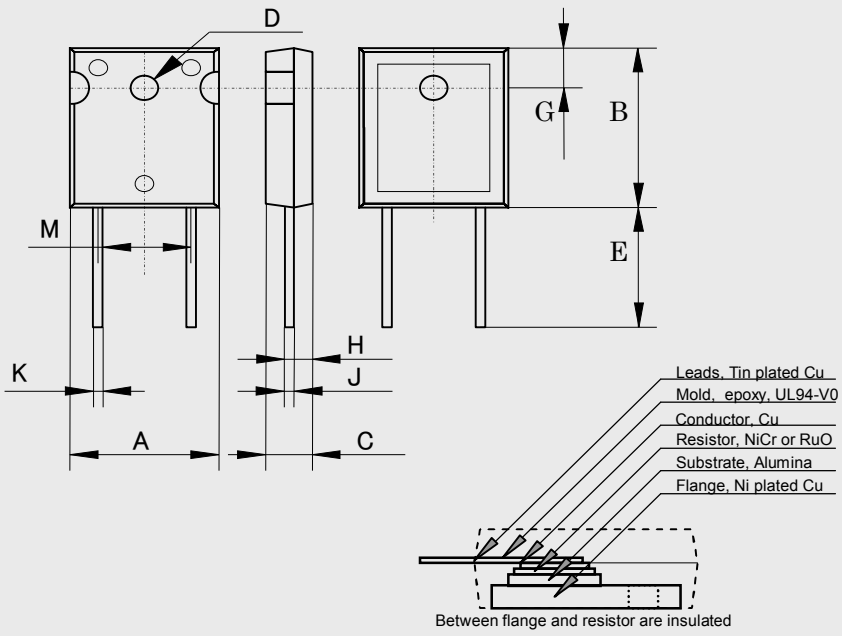
## Applications:

Non-inductive design suits high frequency applications and high-speed pulse circuits.

- UPS, power unit of machines, motor control, drive circuits, automotive, measurements, industrial computers and high frequency electronics.

## Structure and Dimensions (mm) :

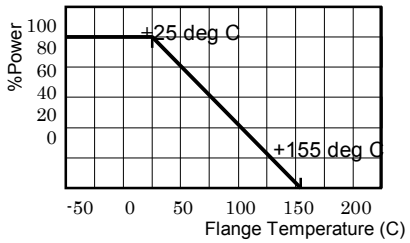
| HPR10S | | |
|---|---|---|
| | mm | +/-mm |
| A | 16.0 | +/-0.2 |
| B | 20.0 | +/-0.5 |
| C | 4.8 | +/-0.2 |
| D | 3.55 | +/-0.1 |
| E | 14.5 | +/-0.5 |
| F | - | - |
| G | 5.1 | +/-0.5 |
| H | 3.63 | +/-0.2 |
| J | - | - |
| K | 0.8 | +/-0.05 |
| L | - | |
| M | 10.9 | +/-0.1 |



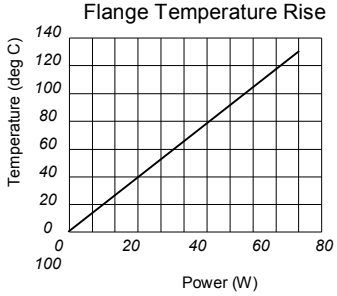
# Specifications

| | | | | |
|---|---|---|---|---|
| Rating Power | 100 W | | | -55 deg C to +25 deg C flange temperature. |
| Rating Power | 3.0 W | | | Free air. |
| Heat Resistance | 1.3 deg C/W | | | Hot spot to flange. |
| Resistance Range | 0.022-0.068Ω | 0.1-8.2 Ω | 10-51kΩ | Note 2 |
| Nominal Resistance | E6 | E12 | E24 | Include 2.5, 4.0, 5.0, 8.0 |
| TCR (ppm/deg C) | ±250 | ±100 | ±50 | Note 3 |
| Tolerance | +/-5% | +/-5% | +/-1%. 5% | - |
| Capacitance | 2.35pF | | | Equivalent parallel capacitance. |
| Inductance | 11.72nH | | | Equivalent series inductance |
| Operation Temp. Range | -55 deg C to+155 deg C | | | - |
| Max. Applied Voltage | smaller value either 700V or $\sqrt{P \cdot R}$ | | | P is rating power and R resistance |
| Withstanding Voltage | 2500 VAC | | | Terminal and flange, 60 seconds, 1mA |
| Load Life | +/- 1.0 % | | | 25 deg C, 90 min. ON, 30min.OFF, 1000hours. |
| Humidity | +/-1.0 % | | | 40 deg C, 90 - 95%RH, DC0.1W, 1000hours. |
| Temperature Cycle | +/- 0.25 % | | | -55C, 30 min., +155C, 30min., 5cycles. |
| Soldering Heat | +/- 0.25 % | | | 350+/-5 deg C, 3seconds, |
| Solder ability | Over 3/4 of round | | | 230+/-5 deg C, 3seconds. |
| Insulation Resistance | Over 1000 Meg ohm | | | Between terminals and flange |
| Vibration | +/- 0.25 % | | | IEC60068-2-6, see note 4 |
| Weight | 6.3 grams | | | - |

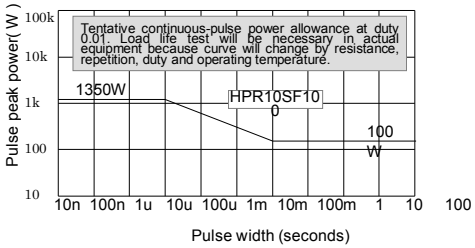
Power Derating



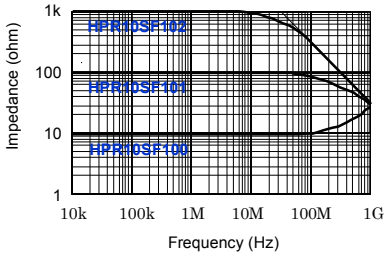

Flange Temperature Rise




Pulse Energy Durability




Frequency Characteristics




# Ordering information

| Model | Tolerance | Resistance Value | Packaging |
|---|---|---|---|
| HPR10S | F | 100 | T |
| HPR10S | J(5%) | R022-513 | T (Tray) |
| | F(1%) | | |

# Note:

(1)Insulation material is unnecessary between flange and heat-sink, flange and resistor is separated by alumina substrate.
(2)Resistance measurement shall be made at a point 2.54mm+/-1.0mm from the resistor body.
(3) TCR of low resistance will be increased as 300ppm/0.02ohm, 200ppm/0.05ohm, 140ppm/0.1ohm and 80ppm/0.2ohm typically. Testing point is at 2.54mm from bottom of molding of terminals.
(4) Test method is IEC60068-2-6, and specification is sine sweep wave form, 100Hz-2000Hz, 10 cycles, amplitude 0.75mm or 100m/s$^2$, 90minutes. direction x-y z, Amplitude 0.75mm will be applied under break point Frequency (about 60Hz) and 100m/ s$^2$ over break point
(5) When mounting resistor on heat-sink by screw, clip and pressure strip with using heat conduction grease on back side of resistor are recommended. Recommended screw torque is 0.5-0.6Nm. In case of screw mount, ISO M3 screw is necessary, 1/8" screw cannot be acceptable.
(6) Standard packaging is anti-static PE tray, which contains 50pcs / tray.