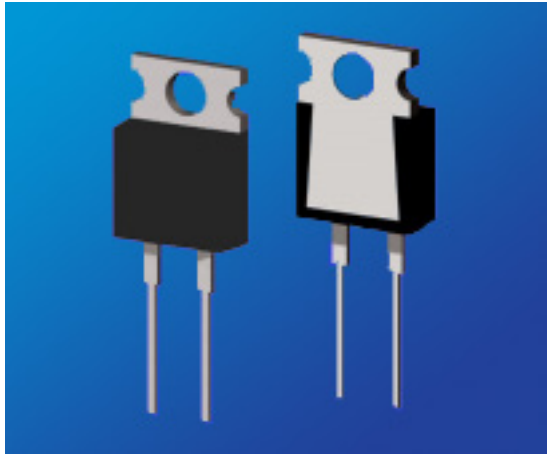


RESISTOR HIGH POWER LOW INDUCTANCE



RHX SERIES



KEY FEATURES

- Resistances from 51k Ohms
- High Stability Film Resistance Elements
- Rated Power of 35, 50 and 100 Watts
- TO-220 and TO-247 Housing
- Resistance tolerance of $\pm 0.1\%$ or $\pm 1\%$
- Low Inductance of $< 10\text{nH}$ for RHXH1 and RHXH2, $< 50\text{nH}$ for RHXH3

APPLICATIONS

- Power Inverters
- Engine Sensors
- Power Supplies
- Temperature Sensors

PRODUCT SUMMARY

| PRODUCT SERIES (RHX) | RESISTANCE RANGE (Ω) ³ | | POWER RATING (W) | | THERMAL RESISTANCE | TOLERANCES |
|----------------------|--|-----|-----------------------|-----------------------|--------------------|--|
| | MIN | MAX | HEATSINK ¹ | FREE AIR ² | | |
| RHXH1 | 0.02 | 51K | 35 | 1 | 3.3°C/W | $\pm 1\%$ ($R \geq 0.1\Omega$) $\pm 5\%$ |
| RHXH2 | 0.02 | 51K | 50 | 1 | 2.3°C/W | $\pm 1\%$ ($R \geq 0.1\Omega$) $\pm 5\%$ |
| RHXH3 | 0.02 | 51K | 100 | 3 | 1.3°C/W | $\pm 1\%$ ($R \geq 0.10\Omega$) $\pm 5\%$ |

¹ Power Rating based on 25°C Flange Temperature

² Power Rating based on 25°C Ambient Temperature

³ Contact Factory for Higher or Lower Values

AVAILABLE OPTIONS (Consult Factory)

- Special Testing Requirements

TEMPERATURE COEFFICIENTS:

- $\pm 50\text{ppm}/^\circ\text{C}$ ($R \geq 10\Omega$)
- $\pm 100\text{ppm}/^\circ\text{C}$ ($0.1\Omega \leq R < 10\Omega$)
- $\pm 250\text{ppm}/^\circ\text{C}$ ($R < 0.1\Omega$)

HOW TO ORDER

| RHX | H2 | Q | 038K0 | F | 4 |
|------------------------------------|--|---|---|---|----------|
| RESISTOR HIGH POWER LOW INDUCTANCE | PACKAGE CODE | TEMPERATURE COEFFICIENT OF RESISTANCE (TCR) | RESISTANCE | TOLERANCE | PACKING |
| | H1, 35W, TO-220 H2, 50W, TO-220 H3, 100W, TO-247 | Q = $\pm 50\text{ppm}/^\circ\text{C}$ N = $\pm 100\text{ppm}/^\circ\text{C}$ K = $\pm 250\text{ppm}/^\circ\text{C}$ | 0R038 = 0.038 Ω 003K8 = 3.8K Ω 038K0 = 38.0K Ω 380K0 = 380.0K Ω 003M8 = 3.8M Ω Letter denotes decimal place. R = decimal, "K" 10^3 , "M" 10^6 Remaining 4 digits are significant or placeholders. | F = $\pm 1.0\%$ ($R \geq 0.1\Omega$) J = $\pm 5.0\%$ | 4 = Tube |

Tin/Lead coated leads, add "- Pb" on part number.

Standard Termination Finish: Matte Tin (Sn)

Example P/N: RHXH2Q038K0F4 is Resistor High Power Low Inductance, 50W TO-220, $\pm 50\text{ppm}/^\circ\text{C}$, 38.0K Ω , $\pm 1.0\%$, tube

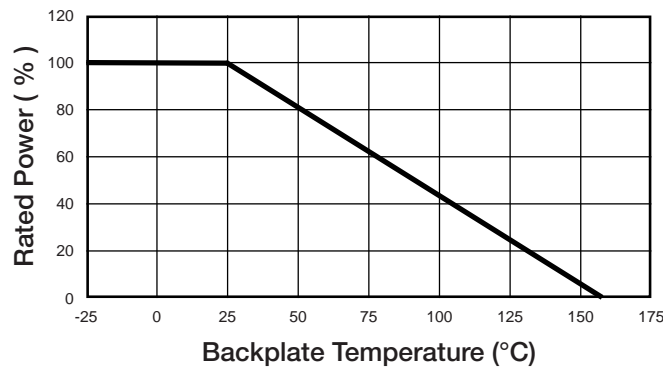
RESISTOR HIGH POWER LOW INDUCTANCE RHX SERIES



ENVIRONMENTAL CHARACTERISTICS

| Electrical Characteristics | RHXH1 & RHXH2 Values | RHXH3 Value |
|----------------------------|---|---|
| Maximum Current | 25A | - |
| Inductance | <10nH (At the Standoff) | - |
| Insulation Resistance | >1000 Megohm | >1000 Megohm |
| Dielectric Strength | 2000 VAC | 2500 VAC |
| Temperature Range | -55°C to +155°C | -55°C to +155°C |
| Maximum Working Voltage | $\sqrt{Power \times Resistance}$ (500V MAX) | 700 V or $\sqrt{Power \times Resistance}$, whichever is less |

Power Derating Curve



RHXH1 & RHXH2 POWER RATING NOTES:

- ◆ H1 and H2 High Power Low Inductance Resistors must be attached to a suitable heatsink. Without a heatsink, the maximum power rating is 1W.
- ◆ The maximum internal resistor temperature is 155°C.
- ◆ Use the following formula to specify an appropriate heatsink:

RHXH3 POWER RATING NOTES:

- ◆ H3 High Power Low Inductance Resistors must be attached to a suitable heatsink.
- ◆ The maximum internal resistor temperature is 155°C.
- ◆ Use the following formula to specify appropriate heatsink:

$$R_{\theta H} = \frac{T_{MAX} - (P * R_{\theta R}) - T_A}{P}$$

Where: $R_{\theta H}$ = Thermal Resistance of Heatsink (°C/W)
 $R_{\theta R}$ = Thermal Resistance of Resistor (°C/W)
 T_{MAX} = Maximum Temperature of Resistor (°C)
 T_A = Ambient Temperature of Heatsink (°C)
 P = Power Through Resistor (W)



RESISTOR HIGH POWER LOW INDUCTANCE

RHX SERIES



MECHANICAL CHARACTERISTICS

RHXH1 & RHXH2

MOUNTING NOTES:

- ♦ H1 and H2 High Power Low Inductance Resistors must be attached to a suitable heatsink.
- ♦ Use thermal grease to mount resistor to a clean, flat surface.
- ♦ Use a compression washer to provide 150 to 300 pounds (665 to 1330N) of mounting force.
- ♦ Torque mounting screw to 8 in-lbs (0.9 N-m).
- ♦ Mounting tab is isolated from both pins.

RHXH3

MOUNTING NOTES:

- ♦ H3 High Power Low Inductance Resistors must be attached to a suitable heatsink.
- ♦ Use thermal grease to mount resistor to a clean, flat surface.
- ♦ Use a compression washer to provide 150 to 300 pounds (665 to 1330N) of mounting force.
- ♦ Torque mounting screw to 8 in-lbs (0.9 N-m).
- ♦ Back plate is isolated from both pins.

ENVIRONMENTAL CHARACTERISTICS

| Environmental Performance | ΔR | | | Test Conditions |
|----------------------------|---------------------------|-------|-------|--|
| | RHXH1 | RHXH2 | RHXH3 | |
| Humidity Resistance | $\pm 1\% + 0.05\Omega$ | | | 40°C, 90-95% RH, DC 0.1W, 1000 hr |
| Load Life | $\pm 1\% + 0.05\Omega$ | | | 25°C, 90 min ON, 30 min OFF, 1000 hr |
| Temperature Cycle | $\pm 0.25\% + 0.05\Omega$ | | | -55°C for 30 min, +155°C for 30 min, 1000 hr |
| Vibration | $\pm 0.25\% + 0.05\Omega$ | | | IEC60068-2-6 |
| Solder Heat | $\pm 0.1\% + 0.05\Omega$ | | | +350°C, 3s |

Moisture Sensitivity Level: MSL-1

