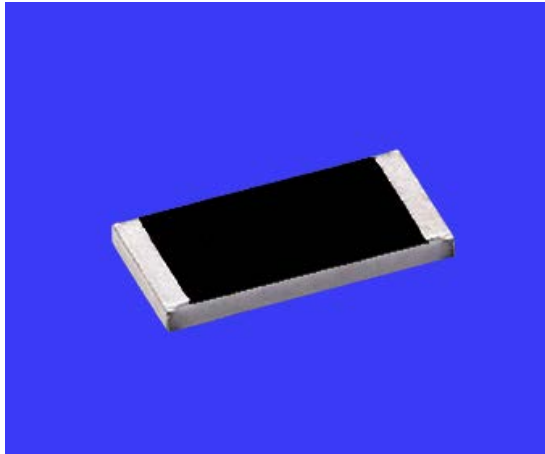


Resistor Thick Film, High Temperature RKS Series



KEY FEATURES

- Resistances from 10m to 1TOhms
- Resistance Tolerances to $\pm 0.25\%$
- Power Rating 0.05 to 2 Watts
- Non-Magnetic
- TCR's to $\pm 25\text{ppm}/^\circ\text{C}$
- Special High Temperature Version to 300°C
- High Value Thick Film Resistance Element
- Available in sizes 0420, 0603, 0805, 1206, 1210, 2512, 4020
- RoHS Compliant

APPLICATIONS

- Engine Sensors
- Surge Protection
- Data Recorders
- Temperature Sensors

PRODUCT SUMMARY

| PRODUCT SERIES (RKS) | SIZE | POWER RATING (W) ¹ | WORKING VOLTAGE (VAC) | | TEMPERATURE RANGE ² |
|----------------------|------|-------------------------------|-----------------------|--------------------------|--|
| | | | TRIMMED | UNTRIMMED ($\geq 5\%$) | |
| RKS07 | 0402 | 0.050 | 30 | 60 | <ul style="list-style-type: none"> ♦ - 55°C to + 155°C (Standard Version) ♦ - 55°C to + 300°C (High Temperature Version TCR valid + 25°C to + 125°C) |
| RKS14 | 0603 | 0.1 | 75 | 150 | |
| RKS15 | 0805 | 0.125 | 100 | 200 | |
| RKS18 | 1206 | 0.25 | 200 | 400 | |
| RKS41 | 1210 | 0.35 | 300 | 600 | |
| RKS20 | 2512 | 1.00 | 1500 | 2000 | |
| RKS21 | 4020 | 2.00 | 4000 | 6000 | |

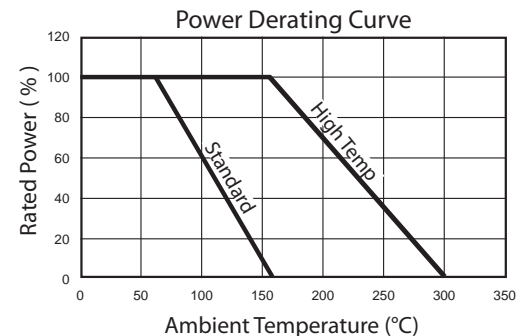
¹ Solder Pads must have sufficient heat conduction

² See Power Derating Curve

- ♦ TEMPERATURE COEFFICIENT: $\pm 25\text{ppm}/^\circ\text{C}$ to $\pm 3000\text{ppm}/^\circ\text{C}$
- ♦ TOLERANCE RANGE: $\pm 0.25\%$ to $\pm 30\%$

AVAILABLE OPTIONS (Consult Factory)

- Special Testing Requirements



HOW TO ORDER

| RKS | 21 | W | N | 038M0 | K | E |
|---------------------|---|--|---|--|---|--------------------------|
| RESISTOR THICK FILM | PACKAGE CODE | OPERATING TEMPERATURE | TEMPERATURE COEFFICIENT OF RESISTANCE (TCR) | RESISTANCE | TOLERANCE | PACKING |
| | 07 = 0402 14 = 0603 15 = 0805 18 = 1206 41 = 1210 20 = 2512 21 = 4020 | S = -55°C to + 155°C W = -55°C to + 300°C | T = $\pm 25\text{ppm}/^\circ\text{C}$ Q = $\pm 50\text{ppm}/^\circ\text{C}$ N = $\pm 100\text{ppm}/^\circ\text{C}$ K = $\pm 250\text{ppm}/^\circ\text{C}$ J = $\pm 500\text{ppm}/^\circ\text{C}$ H = $\pm 1000\text{ppm}/^\circ\text{C}$ G = $\pm 2000\text{ppm}/^\circ\text{C}$ F = $\pm 3000\text{ppm}/^\circ\text{C}$ | 038M0 = $38.0\text{M}\Omega$ 380M0 = $380\text{M}\Omega$ 00368 = 3.86Ω 03860 = 386Ω 001T0 = $1.0\text{T}\Omega$ Letter denotes decimal place. "M" 10^6 , "G" 10^9 , "T" 10^{12} Remaining 4 digits are significant or placeholders. | C = $\pm 0.25\%$ D = $\pm 0.50\%$ F = $\pm 1.0\%$ G = $\pm 2.0\%$ J = $\pm 5.0\%$ K = $\pm 10.0\%$ M = $\pm 20.0\%$ N = $\pm 30.0\%$ | E = Embossed Tape & Reel |

Example P/N: RKS21WN038M0KE is Resistor Thick Film, size 4020, -55°C to + 300°C , $\pm 100\text{ppm}/^\circ\text{C}$, $38.0\text{M}\Omega$, $\pm 10.0\%$, embossed tape & reel



Resistor Thick Film, High Temperature RKS Series

ELECTRICAL CHARACTERISTICS

| Package Size | Tolerances Available (%) Temperature Coefficients Available (± ppm/°C) ² Voltage Coefficients Available (ppm / V) ² | | | | | |
|-------------------|---|---------------------------------------|-------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|
| | Resistance Ranges (W) | | | | | |
| | 10M - 100M | >100M - 500M | >500M - 1G | >1G - 10G | >10G - 100G | >100G - 1T |
| 0402 | 5 to 20% 50, 100 500ppm/V | 5% to 20% 100, 250 1000ppm/V | 5% to 20% 250, 500 1000ppm/V | 10% to 30% 1000, 2000 2000ppm/V | 10% to 30% 2000, 3000 5000ppm/V | Contact Factory |
| 0603 | 1 to 20% 50, 100 500ppm/V | 2% to 20% 100, 250 500ppm/V | 5% to 20% 250, 500 1000ppm/V | 5% to 30% 500, 1000 2000ppm/V | 10% to 30% 2000, 3000 5000ppm/V | Contact Factory |
| 0805 | 0.5 to 20% 50, 100 500ppm/V | 2% to 20% 100, 250 500ppm/V | 5% to 20% 250, 500 500ppm/V | 5% to 20% 500, 1000 1000ppm/V | 10% to 30% 1000, 2000 3000ppm/V | - |
| 1206 | 0.5% to 20% 25, 50, 100 250ppm/V | 2% to 20% 50, 100, 250 500ppm/V | 5% to 20% 100, 250 500ppm/V | 5% to 20% 500, 1000 500ppm/V | 10% to 30% 1000, 2000 1000ppm/V | - |
| 1210 | 0.5% to 20% 25, 50, 100 25ppm/V | 2% to 20% 50, 100, 250 250ppm/V | 5% to 20% 100, 250 250ppm/V | 5% to 20% 250, 500 250ppm/V | 5% to 20% 500, 1000 500ppm/V | 10% to 30% 1000, 2000 2000ppm/V |
| 2512 ¹ | 0.5% to 20% 25, 50, 100 25ppm/V | 1% to 20% 25, 50, 100 50ppm/V | 1% to 20% 100, 250 50ppm/V | 2% to 20% 100, 250 100ppm/V | 5% to 20% 250, 500 250ppm/V | 10% to 30% 500, 1000 1000ppm/V |
| 4020 ¹ | 0.25% to 10% 25, 50, 100 10ppm/V | 0.5% to 20% 25, 50, 100 25ppm/V | 1% to 20% 25, 50, 100 25ppm/V | 2% to 20% 50, 100 50ppm/V | 5% to 30% 100, 250 100ppm/V | 10% to 30% 500, 1000 500ppm/V |

¹ TCR in ppm/K; +25°C to +125°C; TCR below standard TCR (highest value) and values >100G; +25°C to +85°C

² VCR: typical values, all negative, not for all TCR values available

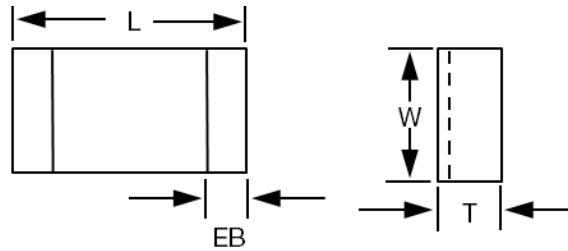
ENVIRONMENTAL PERFORMANCE

| Specification | Value |
|---------------------------|---------------|
| Solderability | 250°C, 3s |
| Max Soldering Temperature | 260°C, 10s |
| Climatic Category | 55 / 155 / 56 |

| Long Term Stability | Max ΔR | | |
|------------------------|--------|----------------|---------|
| | <1 G W | 1 G W - 10 G W | >10 G W |
| Storage 125°C, 1000h | <1% | <2% | <5% |
| Load Life 70°C, 1000h | <0.5% | <1% | <2% |
| Maximum Voltage, 1000h | <0.5% | <1% | <2% |

Resistor Thick Film, High Temperature RKS Series

MECHANICAL CHARACTERISTICS



| Package Size | Dimensions | | | |
|--------------|---|---|--|--|
| | L (Length) Inches [mm] | W (Width) Inches [mm] | T (Thickness) Inches [mm] | EB (End Band) Inches [mm] |
| 0402 | 0.037 ±0.002 [0.95 ±0.05] | 0.018 ±0.002 [0.48 ±0.10 / -0.05] | 0.012 ±0.002 [0.3 ±0.05] | 0.004 +0.004 / -0.002 [0.1 +0.10 / -0.05] |
| 0603 | 0.060 +0.006 / -0.002 [1.5 +0.15 / -0.05] | 0.030 +0.008 / -0.002 [0.8 +0.15 / -0.05] | 0.016 +0.006 / -0.002 [0.4 +0.15 / -0.05] | 0.008 +0.008 / -0.004 [0.2 +0.2 / -0.1] |
| 0805 | 0.080 +0.006 / -0.002 [2.0 +0.15 / -0.05] | 0.050 +0.006 / -0.002 [1.25 +0.15 / -0.05] | 0.016 +0.006 / -0.002 [0.4 +0.15 / -0.05] | 0.012 +0.008 / -0.004 [0.3 +0.2 / -0.1] |
| 1206 | 0.126 +0.006 / -0.002 [3.2 +0.15 / -0.05] | 0.060 +0.008 / -0.002 [1.5 +0.2 / -0.05] | 0.016 +0.006 / -0.002 [0.4 +0.15 / -0.05] | 0.012 +0.008 / -0.004 [0.3 +0.2 / -0.1] |
| 1210 | 0.126 +0.006 / -0.002 [3.2 +0.15 / -0.05] | 0.098 +0.008 / -0.002 [2.5 +0.2 / -0.05] | 0.020 +0.006 / -0.002 [0.5 +0.15 / -0.05] | 0.032 ±0.008 [0.8 ±0.2] |
| 2512 | 0.250 +0.006 / -0.002 [6.3 +0.15 / -0.05] | 0.138 +0.008 / -0.002 [3.5 +0.2 / -0.05] | 0.024 +0.006 / -0.002 [0.6 +0.15 / -0.05] | 0.035 ±0.008 [0.9 ±0.2] |
| 4020 | 0.400 +0.006 / -0.002 [10.2 +0.15 / -0.05] | 0.200 +0.008 / -0.002 [5.1 +0.2 / -0.05] | 0.024 +0.006 / -0.002 [0.6 +0.15 / -0.05] | 0.035 ±0.008 [0.9 ±0.2] |

PACKAGING INFORMATION

Bulk or Blister tape to IEC 60286-3

- Tape width 8mm / Reel Diameter 180 or 330mm
- Minimum quantity Bulk / 100 pieces per value (30 pieces per value for sizes 4020 and 2512)
- Minimum quantity Tape & Reel / 500 pieces per value
(Note: Except size 0402 / 1000 pieces per value)

* Moisture Sensitivity Level: MSL-1

This datasheet is subject to change without notice.

