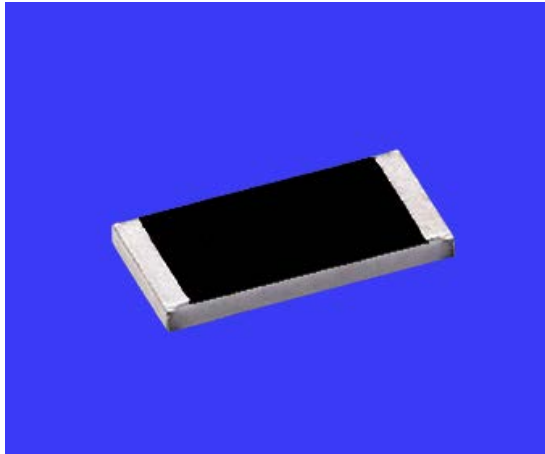


# Resistor Thick Film, High Temperature RKS Series



## 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  $300^\circ\text{C}$
- High Value Thick Film Resistance Element
- Available in sizes 0420, 0603, 0805, 1206, 1210, 2512, 4020

## APPLICATIONS

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

## PRODUCT SUMMARY

PRODUCT SERIES (RKS)	SIZE	POWER RATING (W) <sup>1</sup>	WORKING VOLTAGE (VAC)		TEMPERATURE RANGE <sup>2</sup>
			TRIMMED	UNTRIMMED ( $\geq 5\%$ )	
RKS07	0402	0.050	30	60	<ul style="list-style-type: none"> <li>♦ - <math>55^\circ\text{C}</math> to + <math>155^\circ\text{C}</math> (Standard Version)</li> <li>♦ - <math>55^\circ\text{C}</math> to + <math>300^\circ\text{C}</math> (High Temperature Version TCR valid + <math>25^\circ\text{C}</math> to + <math>125^\circ\text{C}</math>)</li> </ul>
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	

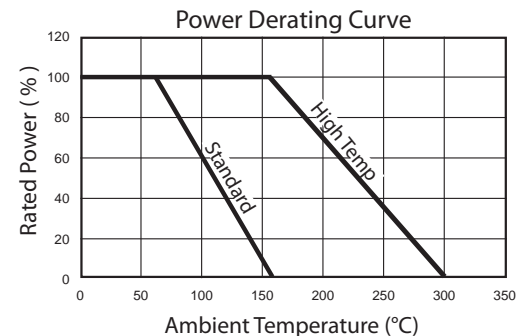
<sup>1</sup> Solder Pads must have sufficient heat conduction

<sup>2</sup> 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 = $-55^\circ\text{C}$ to + $155^\circ\text{C}$ W = $-55^\circ\text{C}$ to + $300^\circ\text{C}$	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 = 38.0M $\Omega$ 380M0 = 380M $\Omega$ 00368 = 3.86 $\Omega$ 03860 = 386 $\Omega$ 001T0 = 1.0T $\Omega$ Letter denotes decimal place. "M" 10 <sup>6</sup> , "G" 10 <sup>9</sup> , "T" 10 <sup>12</sup> 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,  $-55^\circ\text{C}$  to +  $300^\circ\text{C}$ ,  $\pm 100\text{ppm}/^\circ\text{C}$ , 38.0M $\Omega$ ,  $\pm 10.0\%$ , embossed tape & reel



# Resistor Thick Film, High Temperature RKS Series



## ELECTRICAL CHARACTERISTICS

Package Size	Tolerances Available ( % ) Temperature Coefficients Available ( ± ppm/°C ) <sup>2</sup> Voltage Coefficients Available ( ppm / V ) <sup>2</sup>					
	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 <sup>1</sup>	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 <sup>1</sup>	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

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

<sup>2</sup> 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

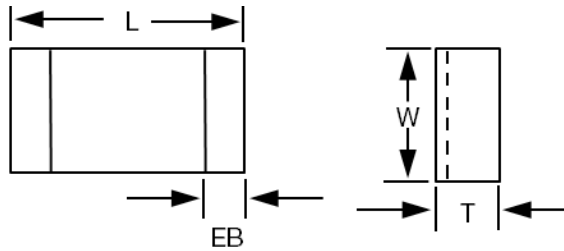
Long Term Stability	Max ΔR		
	<1 G W	1 G W - 10 G W	>10 G W
Storage 125°C, 1000h	<1%	<2%	<5%
Load Life 70°C, 1000h	<0.5%	<1%	<2%
Maximum Voltage, 1000h	<0.5%	<1%	<2%



# 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.

