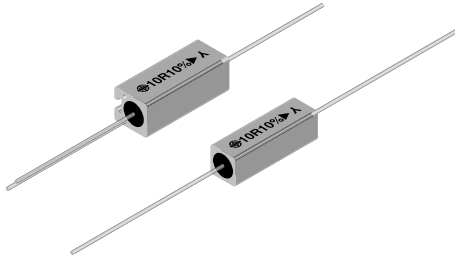


## Wirewound and Fusible Wirewound Resistors in Ceramic Case



### FEATURES

- Fiberglass core, ceramic case
- Fireproof inorganic construction
- Axial or radial leaded
- Fusing styles available as style KKE.. Si
- Pure tin plating provides compatibility with lead (Pb)-free and lead containing soldering processes
- Compliant to RoHS directive 2002/95/EC



RoHS  
COMPLIANT

GREEN  
[5-2009]\*\*

STANDARD ELECTRICAL SPECIFICATIONS						
MODEL	POWER RATING $P_{70\text{ }^\circ\text{C}}$	LIMITING VOLTAGE	RESISTANCE RANGE <sup>(1)</sup>			TOLERANCE
			TCR + 400 ± 50 ppm/K	TCR + 0 ± 40 ppm/K	TCR + 0 ± 10 ppm/K	
KKA4	4 W	125 V	0.056 Ω to 0.20 Ω	0.22 Ω to 300 Ω	330 Ω to 9.1 kΩ	± 10 %
			0.10 Ω to 0.20 Ω			± 5 %
KKA5	5 W	185 V	0.075 Ω to 0.30 Ω	0.33 Ω to 470 Ω	510 Ω to 15 kΩ	± 10 %
			0.15 Ω to 0.30 Ω			± 5 %
KKA7	7 W	250 V	0.11 Ω to 0.68 Ω	0.75 Ω to 910 Ω	1 kΩ to 33 kΩ	± 10 %
			0.33 Ω to 0.68 Ω			± 5 %
KKA9	9 W	250 V	0.11 Ω to 0.68 Ω	0.75 Ω to 910 Ω	1 kΩ to 33 kΩ	± 10 %
			0.33 Ω to 0.68 Ω			± 5 %
KKA11	11 W	350 V	0.15 Ω to 1.0 Ω	1.1 Ω to 1.3 kΩ	1.5 kΩ to 47 kΩ	± 10 %
			0.51 Ω to 1.0 Ω			± 5 %
KKA17	17 W	500 V	0.27 Ω to 1.6 Ω	1.8 Ω to 2.4 kΩ	2.7 kΩ to 82 kΩ	± 10 %
			0.91 Ω to 1.6 Ω			± 5 %
KKE4	4 W	125 V	0.056 Ω to 0.20 Ω	0.22 Ω to 300 Ω	330 Ω to 9.1 kΩ	± 10 %
			0.10 Ω to 0.20 Ω			± 5 %
KKE7	7 W	250 V	0.075 Ω to 0.30 Ω	0.33 Ω to 470 Ω	510 Ω to 15 kΩ	± 10 %
			0.15 Ω to 0.30 Ω			± 5 %
KKE9	9 W	250 V	0.11 Ω to 0.68 Ω	0.75 Ω to 910 Ω	1 kΩ to 33 kΩ	± 10 %
			0.33 Ω to 0.68 Ω			± 5 %
KKE11	11 W	350 V	0.15 Ω to 1.0 Ω	1.1 Ω to 1.3 kΩ	1.5 kΩ to 47 kΩ	± 10 %
			0.51 Ω to 1.0 Ω			± 5 %
KKE17	17 W	500 V	0.27 Ω to 1.6 Ω	1.8 Ω to 2.4 kΩ	2.7 kΩ to 82 kΩ	± 10 %
			0.91 Ω to 1.6 Ω			± 5 %
KKE7 Si <sup>(2)</sup>	4 W	165 V	0.075 Ω to 0.13 Ω	-	-	± 10 %
			-	0.15 Ω to 12 kΩ	-	± 5 %
KKE9 Si <sup>(2)</sup>	5.5 W	250 V	0.11 Ω to 0.30 Ω	-	-	± 10 %
			-	0.33 Ω to 33 kΩ	-	± 5 %
KKE11 Si <sup>(2)</sup>	7 W	350 V	0.28 Ω to 0.47 Ω	-	-	± 10 %
			-	0.51 Ω to 47 kΩ	-	± 5 %
KKE17 Si <sup>(2)</sup>	10 W	500 V	0.27 Ω to 0.82 Ω	-	-	± 10 %
			-	0.91 Ω to 82 kΩ	-	± 5 %

**Note**

<sup>(1)</sup> Resistance value to be selected for ± 10 % tolerance from E12 and for ± 5 % from E24

<sup>(2)</sup> Power rating at  $P_{40\text{ }^\circ\text{C}}$

\*\* Please see document "Vishay Material Category Policy": [www.vishay.com/doc?99902](http://www.vishay.com/doc?99902)

PART NUMBER AND PRODUCT DESCRIPTION																
Part Number: KKA040B1009KG1000																
K	K	A	0	4	0	B	1	0	0	9	K	G	1	0	0	0
MODEL	VARIANT	TCR/MATERIAL		VALUE		TOLERANCE CODE	PACKAGING CODE		SPECIAL							
KKA04 = KKA4 KKA05 = KKA5 KKA07 = KKA7 KKA09 = KKA9 KKA11 = KKA11 KKA17 = KKA17 KKE04 = KKE4 KKE07 = KKE7 KKE09 = KKE9 KKE11 = KKE11 KKE17 = KKE17	0 = Neutral L = Si	0 = SWI per BV A = $400 \pm 50$ ppm/K B = $0 \pm 40$ ppm/K C = $0 \pm 10$ ppm/K D = $+200... + 1200$ ppm/K		3 digit value 1 digit multiplier MULTIPLIER F = $*10^{-4}$ 7 = $*10^{-3}$ 8 = $*10^{-2}$ 9 = $*10^{-1}$ 0 = $*10^0$ 1 = $*10^1$ 2 = $*10^2$		J = $\pm 5.0\%$ K = $\pm 10.0\%$	(See Packaging table)		The 5 digit BV number will be encoded using a 36 character code. This code contains numbers 0...9 and letters A...Z (36 characters total) and allows to encode at least 46 655 five digit BV numbers. <b>000</b> = Standard							
Product Description: KKA4 10R 10% 0 + 40 - 80 R1																
KKA4	10R	10%		0 + 40 - 80		R1										
MODEL (1)	VALUE (1)	TOLERANCE CODE (1)		TCR/MATERIAL (1)		PACKAGING DESCRIPTION (2)										

**Notes**

(1) See "Part Number" above

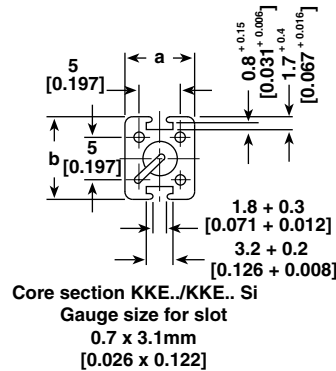
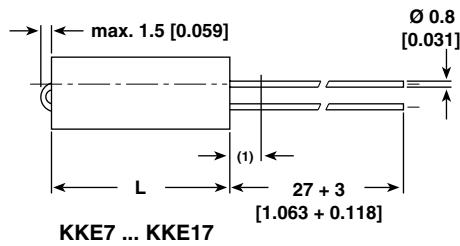
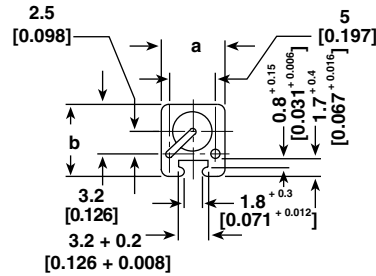
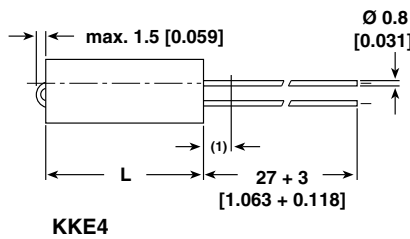
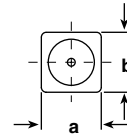
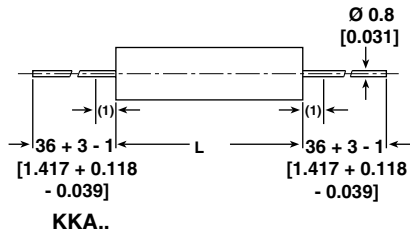
(2) See "Packaging Table"

PACKAGING TABLE						
MODEL	REEL (3)			LOOSE		
	PIECES	PACKAGING CODE	PACKAGING DESCRIPTION	PIECES	PACKAGING CODE	PACKAGING DESCRIPTION
KKA4	1000	G1	R1	200	LJ	LJ
KKA5	1000	G1	R1	200	LJ	LJ
KKA7				200	LJ	LJ
KKA9				100	LA	LA
KKA11				100	LA	LA
KKA17				100	LA	LA
KKE4				200	LJ	LJ
KKE7				200	LJ	LJ
KKE9				200	LJ	LJ
KKE11				100	LA	LA
				200	LJ	LJ
KKE17				100	LA	LA
KKE7 Si				200	LJ	LJ
KKE9 Si				200	LJ	LJ
KKE11 Si				100	LA	LA
				200	LJ	LJ
KKE17 Si				100	LA	LA

**Note**

(3) Tape length for KKA4 and KKA5 = 80 mm

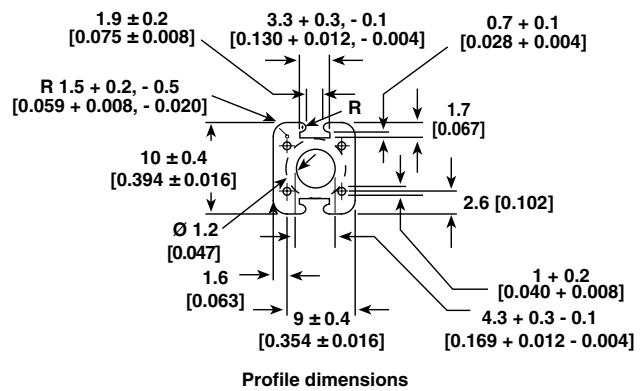
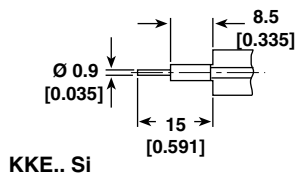
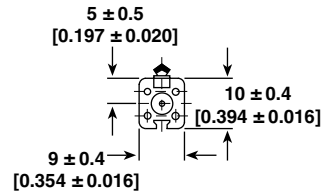
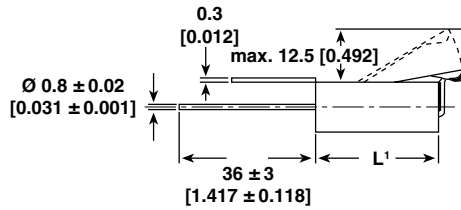
**DIMENSIONS** in millimeters [inches]



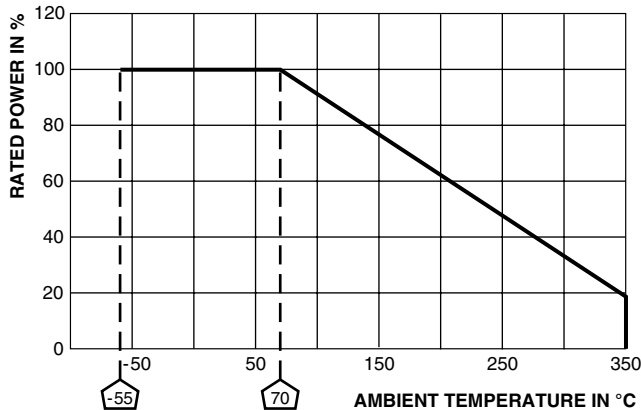
**Note**

(1) In this section confined solderability 6 mm [0.157]

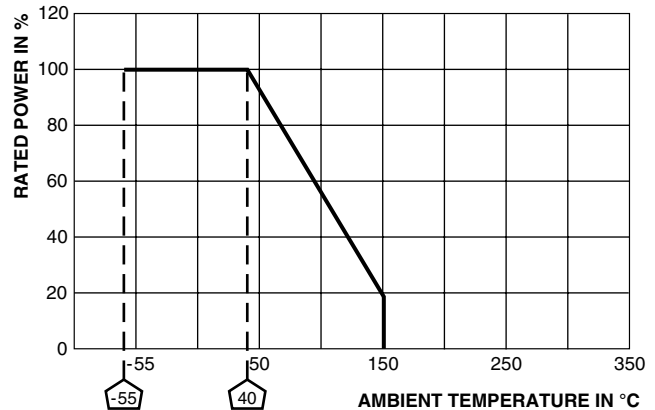
MODEL	DIMENSIONS in millimeters [inches]			
	a	b	L	MASS (g)
KKA4	6.4 [0.256]	6.4 [0.256]	20 [0.787]	1.8
KKA5	6.4 [0.256]	6.4 [0.256]	25 [0.984]	5.5
KKA7	6.4 [0.256]	6.4 [0.256]	38 [1.496]	3.2
KKA9	9 [0.354]	9 [0.354]	38 [1.496]	7
KKA11	9 [0.354]	9 [0.354]	50 [1.969]	9
KKA17	9 [0.354]	9 [0.354]	75 [2.953]	13
KKE4	7 [0.276]	7.8 [0.307]	19.5 [0.768]	2
KKE7	9 [0.354]	10.5 [0.413]	25 [0.984]	4
KKE9	9 [0.354]	10.5 [0.413]	38 [1.496]	7.5
KKE11	9 [0.354]	10.5 [0.413]	50 [1.969]	9.5
KKE17	9 [0.354]	10.5 [0.413]	75 [2.953]	13.5

**DIMENSIONS** in millimeters [inches] (continued)


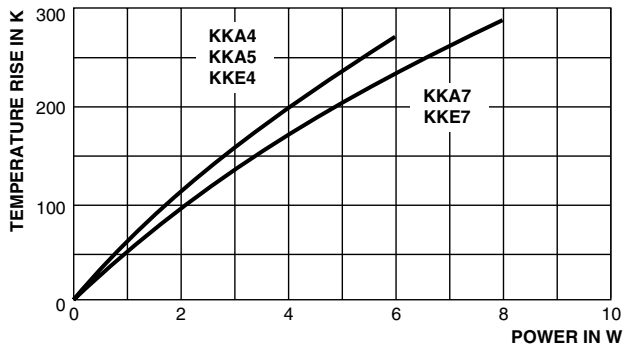
MODEL	DIMENSIONS in millimeters [inches]			
	a	b	L	MASS (g)
KKE7 Si	9 [0.354]	10.5 [0.413]	25 [0.984]	5.5
KKE9 Si	9 [0.354]	10.5 [0.413]	38 [1.496]	8
KKE11 Si	9 [0.354]	10.5 [0.413]	50 [1.969]	9.8
KKE17 Si	9 [0.354]	10.5 [0.413]	75 [2.953]	13.7



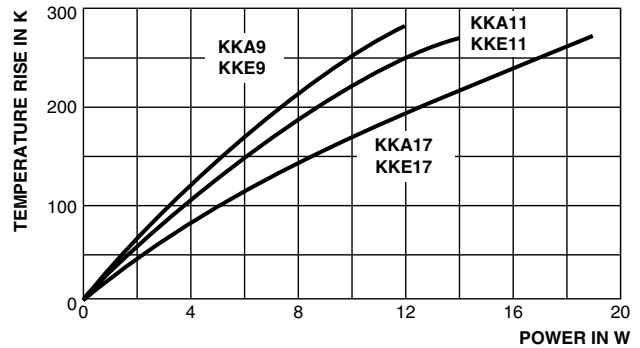
**Derating KKA, KKE**



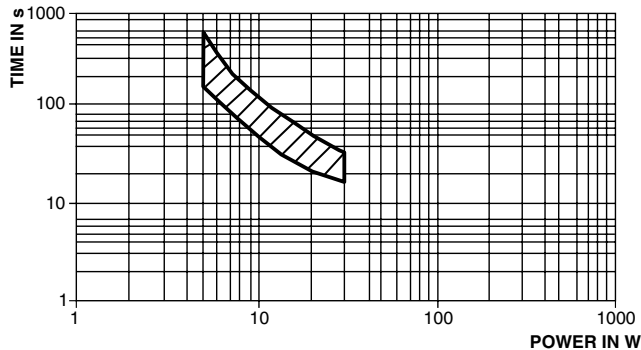
**Derating KKE.. Si**



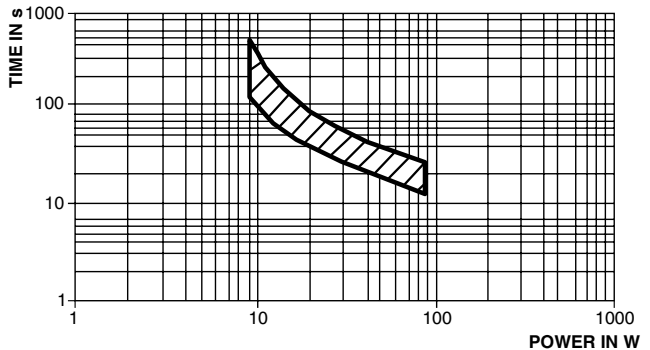
**Temperature Rise**



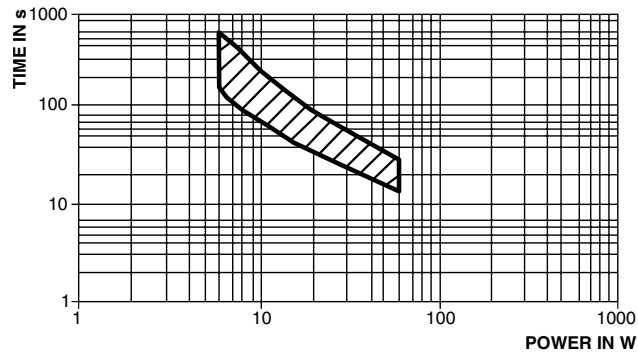
**Temperature Rise**



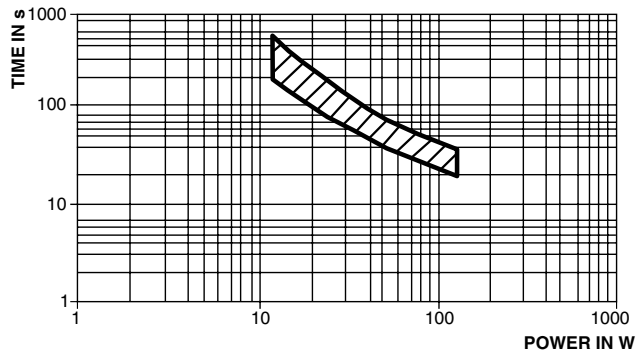
**Fusing Characteristics KKE7 Si**



**Fusing Characteristics KKE11 Si**



**Fusing Characteristics KKE9 Si**



**Fusing Characteristics KKE17 Si**



Wirewound and Fusible Wirewound Resistors  
in Ceramic Case

Vishay Draloric

PERFORMANCE	
TEST	TEST RESULTS
Load Life $P_{70}$ , 70 °C, 1000 h	$\leq \pm 3.0 \% \Delta R$ average
Climatic Sequence IEC 60115-1 4.23	$\leq \pm 2.0 \% \Delta R$
Damp Heat, Steady State (40 ± 2) °C, 56 days, (93 ± 3) % RH	$\leq \pm 2.0 \% \Delta R$
Resistance to Solder Heat (260 ± 5) °C, (10 ± 1) s	$\leq \pm 0.2 \% \Delta R$ typical



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