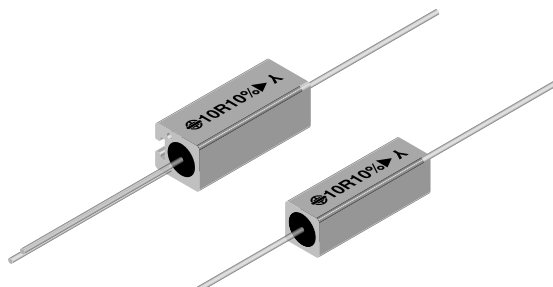


Wirewound and Fusible Leaded Wirewound Resistors in Ceramic Case



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
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912



RoHS
COMPLIANT
HALOGEN
FREE
GREEN
(5-2008)

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

Notes

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

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

**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 ± 50 ppm/K B = 0 ± 40 ppm/K C = 0 ± 10 ppm/K D = $+200... +1200$ ppm/K	3 digit value 1 digit multiplier MULTIPLIER F = $\times 10^{-4}$ 7 = $\times 10^{-3}$ 8 = $\times 10^{-2}$ 9 = $\times 10^{-1}$ 0 = $\times 10^0$ 1 = $\times 10^1$ 2 = $\times 10^2$	J = ± 5.0 % K = ± 10.0 %	(see Packaging table)	The 5 digit BV number will be encoded using a 36 character code. This code contains numbers 0 to 9 and letters A to Z (36 characters total) and allows to encode at least 46 655 five digit BV numbers. 000 = standard

Product Description: KKA4 10R 10 % 0 +40 -80 R1

KKA4	10R	10 %	0 ± 40	R1
MODEL ⁽¹⁾	VALUE ⁽¹⁾	TOLERANCE CODE ⁽¹⁾	TCR/MATERIAL ⁽¹⁾	PACKAGING DESCRIPTION ⁽²⁾

Notes

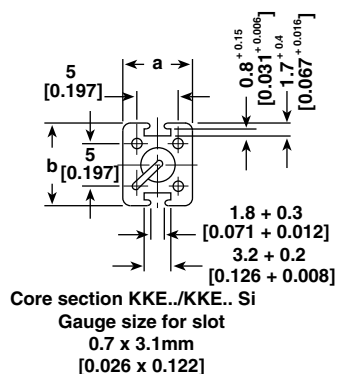
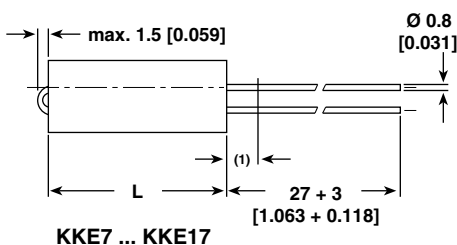
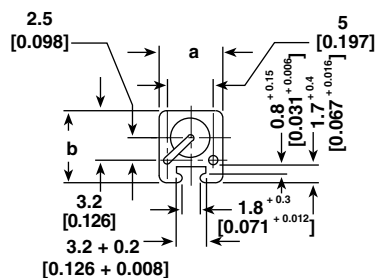
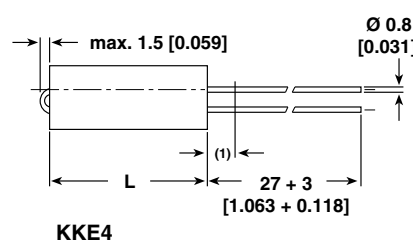
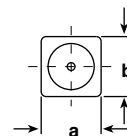
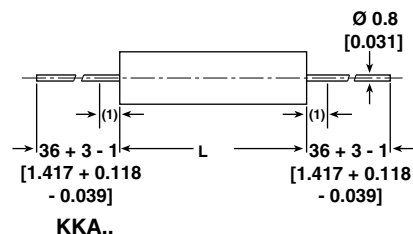
- (1) See "Part Number" above
(2) See "Packaging Table"

PACKAGING TABLE

MODEL	REEL ⁽¹⁾			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				200	LJ	LJ
KKE17				100	LA	LA
KKE7 Si				200	LJ	LJ
KKE9 Si				200	LJ	LJ
KKE11 Si				200	LJ	LJ

Note

- (1) Tape length for KKA4 and KKA5 = 80 mm

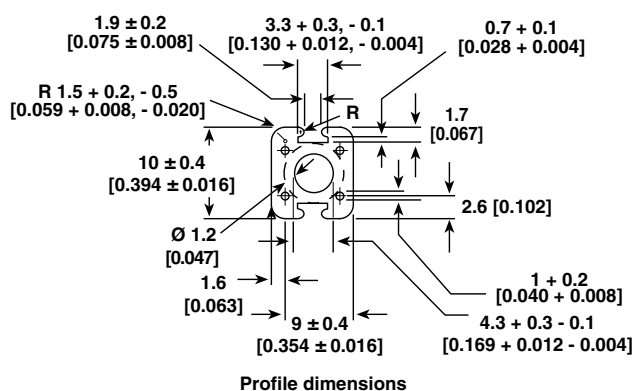
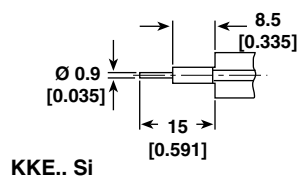
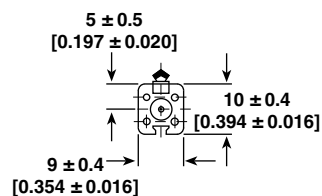
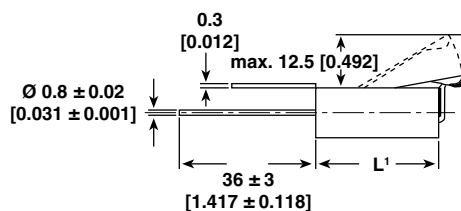
DIMENSIONS in millimeters [inches]


MODEL	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]	2.6
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

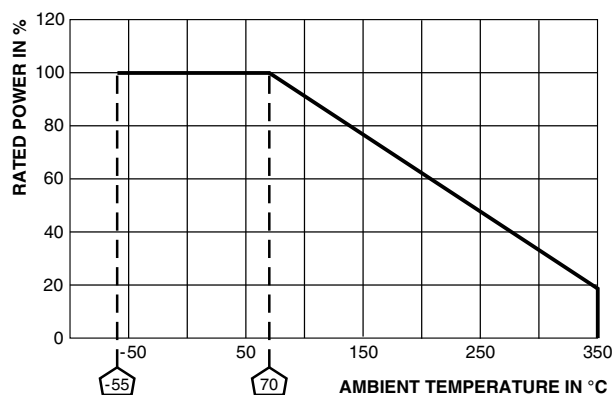
Note

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

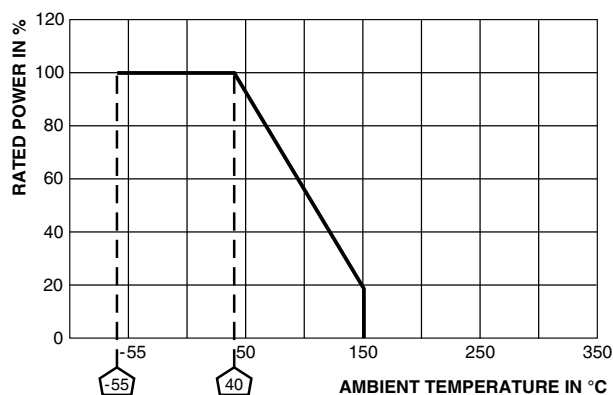
DIMENSIONS in millimeters [inches] (continued)



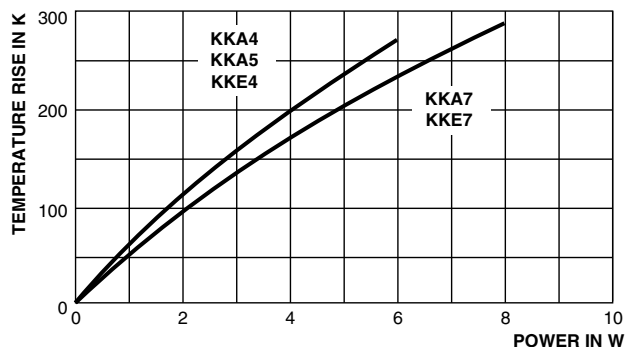
MODEL	a	b	L	MASS (g)
KKE7 Si	9 [0.354]	10.5 [0.413]	25 [0.984]	5.5
KKE9 Si	9 [0.354]	10.5 [0.413]	38 [1.496]	8
KKE11 Si	9 [0.354]	10.5 [0.413]	50 [1.969]	9.8



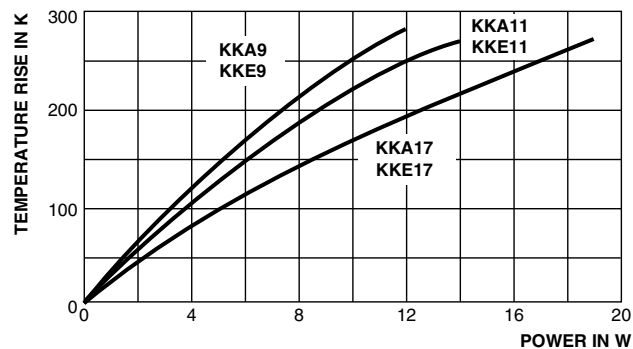
Derating KKA, KKE



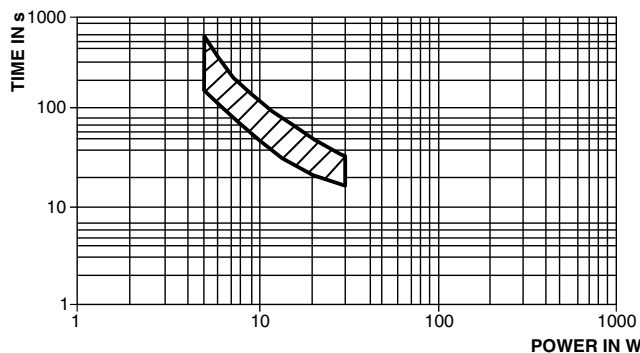
Derating KKE.. Si



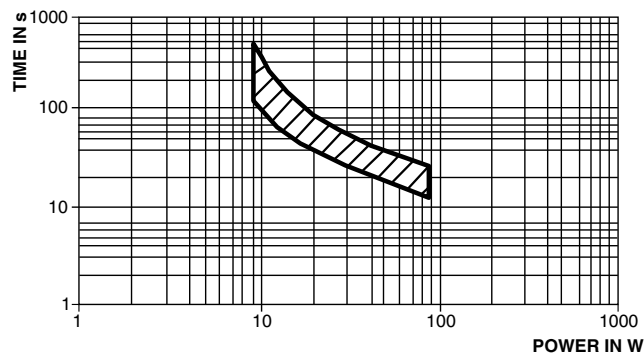
Temperature Rise



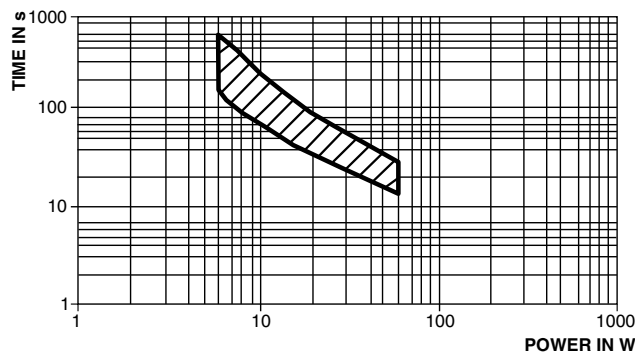
Temperature Rise



Fusing Characteristics KKE7 Si



Fusing Characteristics KKE11 Si



Fusing Characteristics KKE9 Si



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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