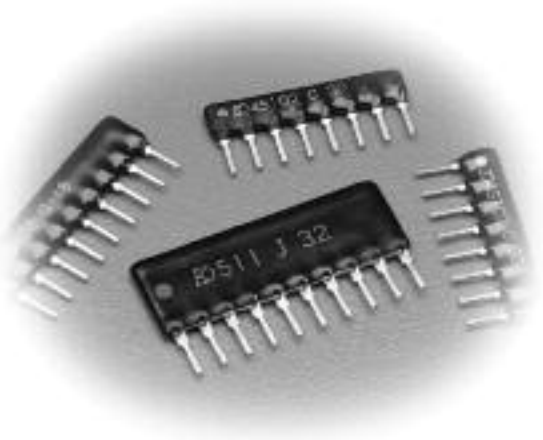
KOA SPEER ELECTRONICS, INC.

RKC, RKH, RKL

thick film SIP resistors

EU RoHS COMPLIANT

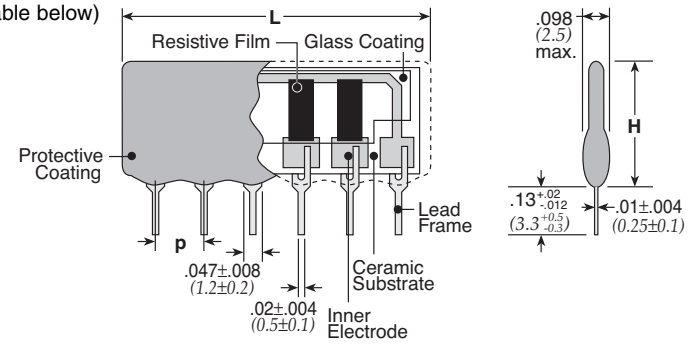


features

- Available in various types of standard circuits in different sizes and power
- Higher temperature soldering of the leads prevents terminals from loosening during board assembly
- For automatic insertion machines, stick magazines and taping packages are available
- Marking: Black body color with white marking
- Products with lead-free terminations meet EU RoHS requirements. EU RoHS regulation is not intended for Pb-glass contained in electrode, resistor element and glass.

dimensions and construction

(See table below)



Size Code			Number of Pins 3	4	5	6	7	8	9	10	11	12	13	14	15	16	Dimen. in. (mm) H max.	p
RKL		L	8.20	10.16	12.70	15.24	17.78	20.32	22.86	25.40	27.94	30.48	—	—	—	—	.200 (5.08)	.100±.008 (2.54±0.2)
	W	B,A,R circuit	250	375	500	625	750	875	1000	1050	1150	1250	—	—	—	—		
		C,T,E circuit	—	—	500	—	750	—	1000	—	1150	—	—	—	—	—		
		D circuit	—	—	375	500	625	750	875	1000	1125	1250	—	—	—	—		
		S Circuit	—	—	—	600	—	800	—	1000	—	1200	—	—	—	—		
RKC (2.54 pitch)		L	8.20	10.8	13.2	15.8	18.3	20.9	23.4	25.9	28.5	31.0	33.6	36.1	38.7	41.3	.256 (6.5)	.100±.008 (2.54±0.2)
	W	B,A,R circuit	250	375	500	625	750	875	1000	1050	1150	1250	1350	1450	1500	1550		
		C,T,E circuit	—	—	500	—	750	—	1000	—	1150	—	1350	—	—	—		
		D circuit	—	—	375	500	625	750	875	1000	1125	1250	1350	1450	—	—		
		S Circuit	—	500	—	750	—	1000	—	1050	—	1250	—	1450	—	—		
RKH		L	—	10.8	13.3	15.8	18.3	20.9	23.4	25.9	28.5	31.0	33.6	—	—	—	.421 (10.7)	.100±.008 (2.54±0.2)
	W	B,A,R circuit	—	525	700	875	1050	1250	1400	1500	1600	1700	1800	—	—	—		
		C,T,E circuit	—	—	700	—	1050	—	1400	—	1600	—	1800	—	—	—		
		D circuit	—	—	700	875	1050	1250	1400	1500	1600	1700	—	—	—	—		
		S Circuit	—	500	—	1050	—	1400	1400	1500	—	1700	—	—	—	—		
RKC (1.8 pitch)		L	—	10.2	10.8	12.7	15.5	15.8	17.8	20.4	20.9	23.5	25.4	28.5	—	—	.256 (6.5)	.071±.006 (1.8±0.15)
		W	—	300	400	500	580	650	720	760	820	850	880	900	—	—		
RKS (2.0 pitch)		L	—	10.1	12.7	12.7	15.3	17.8	20.3	22.8	22.8	25.4	—	—	—	—	.200 (5.08)	.079±.008 (2.0±0.2)
		W	—	195	260	325	390	455	520	585	650	715	—	—	—	—		

L= L dimension (mm) max. W= Wattage/Package (mW) max.

ordering information

New Part #

RKC	8	B	D	STP	103	F
Type	**Number of Resistors**	**Circuit Symbol**	**Termination Material**	**Packaging**	**Nominal Resistance**	**Tolerance**
RKC RKH RKL	3 - 16	B, S, C, D, A, T, E, R RKC: L, K	D: SnAgCu (Other termination styles available, contact factory for options)	STP, STB, TBA, TPA, TUA	2 significant figures + 1 multiplier for ±2% & ±5% 3 significant figures + 1 multiplier for ±1% R1/R2 3 digits/3 digits	F: ±1% G: ±2% J: ±5%

For further information on packaging, please refer to Appendix C.

Specifications given herein may be changed at any time without prior notice. Please confirm technical specifications before you order and/or use. 12/18/12

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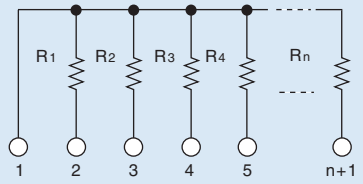
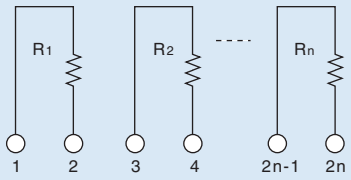
circuit schematics

B circuit



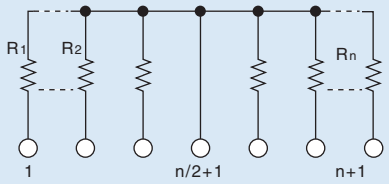
R1=R2=R3=R4=.....=Rn
n: number of elements
Example: RKC8B 103 J
RKL8B 472 J
RKH8B 332 J

S circuit



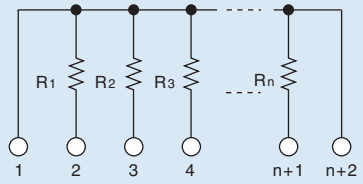
R1=R2=.....=Rn
n: number of elements
Example: RKC4S 103 J
RKL4S 472 J
RKH4S 332 J

C circuit



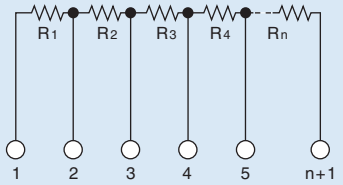
R1=R2=R3=R4=.....=Rn
n: number of elements
Example: RKC8C 103 J
RKL8C 472 J
RKH8C 332 J

D circuit



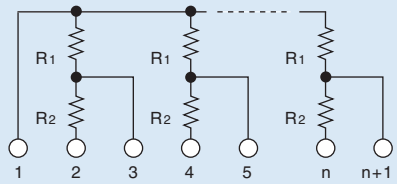
R1=R2=R3=.....=Rn
n: number of elements
Example: RKC8D 103 J
RKL8D 472 J
RKH8D 332 J

A circuit



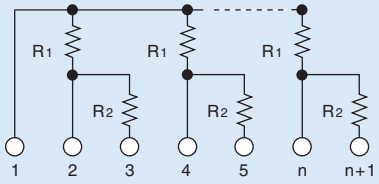
R1=R2=R3=R4=.....=Rn
n: number of elements
Example: RKC8A 103 J
RKL8A 472 J
RKH8A 332 J

T circuit



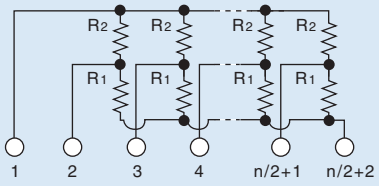
R1=R2 or R1≠R2
n: number of elements
Example: RKC8T 103/103 J
RKL8T 103/103 J
RKH8T 103/103 J

E circuit



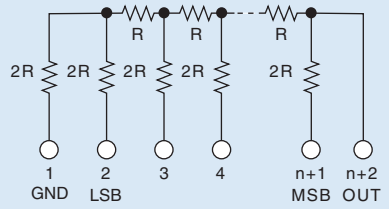
R1=R2 or R1≠R2
n: number of elements
Example: RKC8E 103/103 J
RKL8E 103/103 J
RKH8E 103/103 J

R circuit



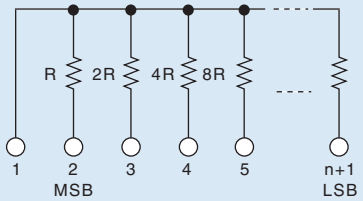
R1=R2 or R1≠R2
n: number of elements
Example: RKC16R 331/471 J
RKL16R 331/471 J
RKH16R 331/471 J

L circuit



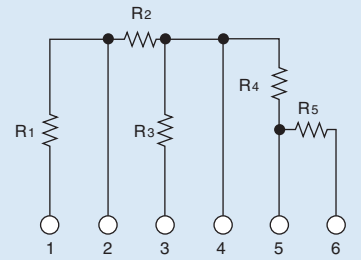
n: number of elements
Example: RKC5L 253

K circuit

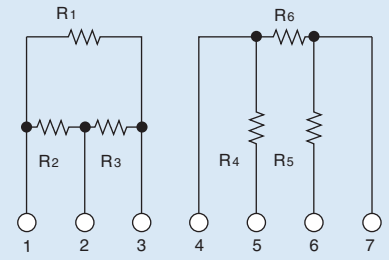


n: number of elements
Example: RKC4K 102

Example of custom circuit



Example of custom circuit



applications and ratings

Part Designation	Circuit Symbol	Number of Pins	Power Rating/ Element	T.C.R. (ppm/°C) Max.	Resistance Range (Ω)	Resistance Tolerance	Maximum Working Voltage	Rated Ambient Temperature	Operating Temperature Range
RKC	B	3-16	125mW	±200	22-2.2M (E24)	F: ±1% G: ±2% J: ±5%	200V	+70°C	-55°C to +155°C
	C	5-13							
	D	5-14							
	A	4-14							
	T	5-13							
	E	5-13							
	S	4-16	250mW						
	R	4-16	125mW		100-100k (E24)	G: ±2% J: ±5%			
	L	6-11	20mW	±200	R=2.5k, 5k 10k, 25k 50k, 100k	±1/2LSB (Bit Error)	20V	+70°C	-55°C to +125°C
	K	5-9	40mW		R1(MSB):100 Min Rn(LSB):1M Max	±1/2LSB (Bit Error)			
RKL	B	3-12	125mW	±200	22-1M (E24)	F: ±1% G: ±2% J: ±5%	100V	+70°C	-55°C to +125°C
	C	5-11							
	D	5-12							
	A	3-12							
	T	5-11							
	E	5-11							
	S	4-12	200mW						
	R	4-11	125mW		100-100k (E24)	G: ±2% J: ±5%			
RKH	B	4-13	250mW	±200	56-2.2M (E24)	F: ±1% G: ±2% J: ±5%	250V	+70°C	-55°C to +155°C
	C	5-13							
	D	5-12							
	A	4-12							
	T	5-13							
	E	5-13							
	S	4-12	500mW						
	R	5-11	250mW		100-100k (E24)	G: ±2% J: ±5%			
Custom	RKL	3-12	0.1W 0.125W 0.25W 0.5W 1W	±100 ±150 ±200	10-1M	±0.5% ±1% ±2% ±5%	100V	+70°C	-55°C to +125°C
	RKC (1.8 pitch)	4-14					50V		
	RKC (2.54 pitch)	3-16					200V		
	RKH	4-13					250V		
	RKS (2.0 pitch)	4-12					100V		

Rated voltage = $\sqrt{\text{power rating X resistance value}}$ or max. working voltage, whichever is lower.

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RKC, RKH, RKL

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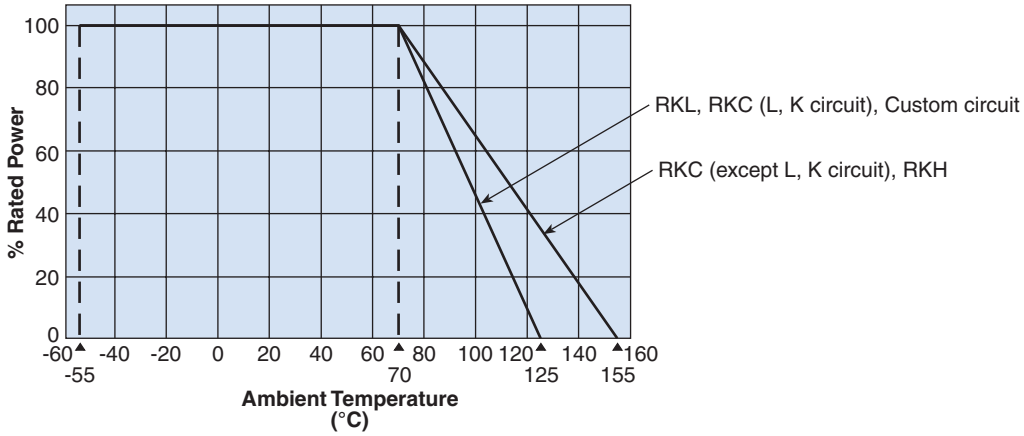
weight (g/1000 pcs)

	Number of Pins						
	3	4	5	6	7	8	9
RKL	147	185	228	271	314	357	400
RKC	160	217	273	330	387	444	501
RKH	—	416	511	606	701	796	891

	Number of Pins						
	10	11	12	13	14	15	16
RKL	443	486	529	—	—	—	—
RKC	558	615	672	728	785	842	893
RKH	986	1081	1176	1271	—	—	—

environmental applications

Derating Curve



For resistors operated at an ambient temperature of 70°C or above, a power rating shall be derated in accordance with the above derating curve.

Performance Characteristics

Parameter	Requirement Δ R ±(%+0.05Ω) Limit	Typical	Test Method
Resistance	Within specified tolerance	—	25°C
T.C.R.	Within specified T.C.R.	—	+25°C/-55°C, +25°C/+125°C (RKL) +25°C/-55°C, +25°C/+155°C (RKC, RKH)
Overload (Short time)	±0.5%	±0.25%	Rated voltage x 2.5 for 5 seconds
Resistance to Solder Heat	±0.5%	±0.25%	260°C ± 5°C, 10 seconds ± 1 second
Temperature Cycling	±0.5%	±0.25%	-40°C (30 minutes), +85°C (30 minutes), 5 cycles
Moisture Resistance	±2.0%	±1.0%	40°C ± 2°C, 90 - 95% RH, 1000 hours, 1.5 hr ON, 0.5 hr OFF cycle
Endurance at 70°C	±2.0%	±1.0%	70°C ± 2°C, 1000 hours, 1.5 hr ON, 0.5 hr OFF cycle

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