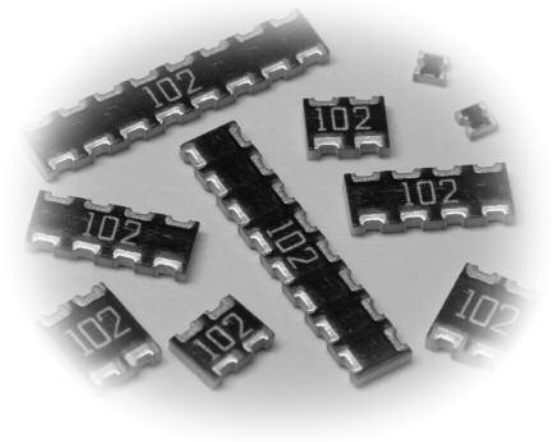
KOA SPEER ELECTRONICS, INC.

CN

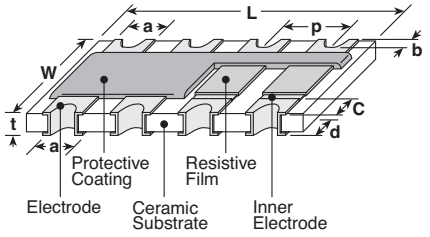
concave termination with square corners resistor array



features

- Manufactured to type RK73 standards
- Less board space than individual chips
- Isolated resistor elements
- 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.
- AEC-Q200 Qualified: CN1J4 only

dimensions and construction



Size Code	Dimensions inches (mm)								
	L	W	C	d	t	a (top)	a (bot.)	b	p (ref.)
1E2 (0402x2)	.039±.004 (1.0±0.1)	.039±.004 (1.0±0.1)	.008±.004 (0.2±0.1)	.010±.004 (0.25±0.1)	.014±.004 (0.35±0.1)	.012±.004 (0.3±0.1)	.012±.006 (0.3±0.1)	.003±.002 (0.07±0.05)	.020 (0.5)
1E4 (0402x4)	.079±.004 (2.0±0.1)				.018±.004 (0.45±0.1)				
1J2 (0603x2)	.063±.008 (1.6±0.2)	.063±.008 (1.6±0.2)	.012±.008 (0.3±0.2)	.016±.004 (0.4±0.1)	.024±.004 (0.6±0.1)	.020±.004 (0.5±0.1)	.016±.006 (0.4±0.15)	.006±.004 (0.15±0.1)	.031 (0.8)
1J4 (0603x4)	.126±.008 (3.2±0.2)								
1J8 (0603x8)	.252±.008 (6.4±0.2)								
2A2 (0805x2)	0.1±.008 (2.54±0.2)	.079±.008 (2.0±0.2)	.016±.008 (0.4±0.2)	.022±.004 (0.55±0.1)		.031±.004 (0.8±0.1)	.030±.006 (0.75±0.15)		.050 (1.27)
2A4 (0805x4)	0.2±.008 (5.08±0.2)								
2A8 (0805x8)	0.4±.008 (10.16±0.2)								
2B2 (1206x2)	0.1±.008 (2.54±0.2)	.126±.008 (3.2±0.2)	.020±.012 (0.5±0.3)						
2B4 (1206x4)	0.2±.008 (5.08±0.2)								
2B8 (1206x8)	0.4±.008 (10.16±0.2)								

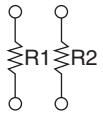
ordering information

CN	1J	4	T	TD	101	J
Type	Size	Elements	Termination Material	Packaging	Nominal Resistance	Tolerance
	1E 1J 2A 2B	2 4 8	T: Sn (1J ~ 2B: Other termination styles may be available, please contact factory for options)	TE: 7" embossed plastic TD: 7" paper tape TED: 10" embossed plastic TDD: 10" paper tape	2 significant figures + 1 multiplier for ±2 & ±5% 3 significant figures + 1 multiplier for ±1%	F: ±1% G: ±2% J: ±5%

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

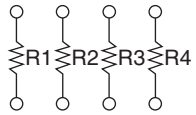
circuit schematic

CN1E2, CN1J2, CN2A2, CN2B2



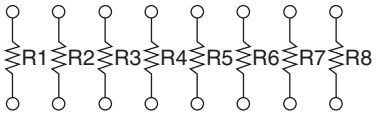
R1 = R2

CN1E4, CN1J4, CN2A4, CN2B4



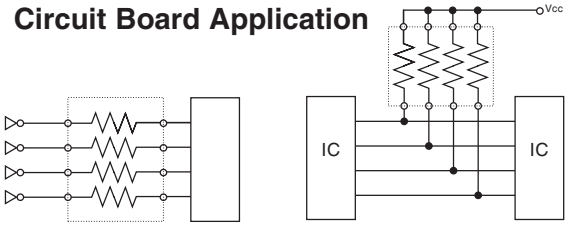
R1 = R2 = R3 = R4

CN1J8, CN2A8, CN2B8



R1 = R2 = R3 = R4 = R5 = R6 = R7 = R8

Circuit Board Application



applications and ratings

Part Designation	Power Rating @ 70°C (Per Element)	Rated Ambient Temp.	Rated Terminal Part Temp.	T.C.R. (ppm/°C) Max.		Resistance Range (Ω)			Absolute Maximum Working Voltage	Maximum Overload Voltage (5 Secs. Max.)
				F:±1%	J:±5%, G:±2%	E-24, E-96 (F:±1%)	E-24 (G:±2%)	E-24 (J:±5%)		
CN1E2	1/16W (.063W)	+70°C	—	—	±200: R≥10Ω ±400: R<10Ω	—	—	10 - 100k	25V	50V
CN1E4										
CN1J2	1/16W (.063W)		+125°C	±100: R≥10Ω		10 - 1M	10 - 1M	10 - 1M	50V	100V
CN1J4								1 - 1M		
CN1J8				±200: R≥10Ω				10 - 1M		
CN2A2	1/10W (.100W)					10 - 1M			100V	200V
CN2A4										
CN2A8				—		—				
CN2B2	1/8W (.125W)			±200: R≥10Ω		10 - 1M			200V	400V
CN2B4										
CN2B8				—		—				

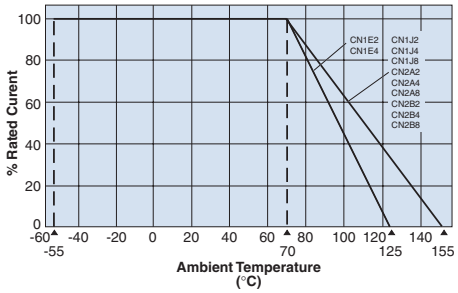
* Note that network resistors generate higher heat rather than single flat chip resistor under rated power output.

Operating Temperature Range: -55°C to +125°C (CN1E), -55°C to +155°C

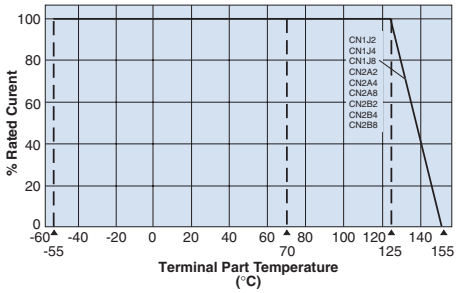
If any questions should arise whether to use the "Rated Ambient Temperature" or the "Rated Terminal Part Temperature," please give priority to the "Rated Terminal Part Temperature." Prior to use and for more details refer to "Introduction of the derating curves on the terminal part temperature" in the beginning of the catalog.

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.



For resistors operated at a terminal temperature of described for each size or above, a power rating shall be derated in accordance with the above derating curve.

Performance Characteristics

Parameter	Requirement Δ R ±%		Test Method
	Limit	Typical	
Resistance	Within specified tolerance	—	25°C
T.C.R.	Within specified T.C.R.	—	+25°C/-55°C, +25°C/+125°C
Overload (Short time)	±2.0%	±0.5%	Rated voltage x 2.5 for 5 seconds
Resistance to Solder Heat	±1.0%	±0.25%	260°C ± 5°C, 10 seconds ± 1 second
Rapid Change of Temperature	±1.0%	±0.5%	-55°C (30 minutes), +125°C (30 minutes), 5 cycles
Moisture Resistance	±5.0%	±1.0%	40°C ± 2°C, 90 - 95% RH, 1000 hours, 1.5 hr ON, 0.5 hr OFF cycle
Endurance at 70°C	±5.0%	±0.5%	70°C ± 2°C, 1000 hours, 1.5 hr ON, 0.5 hr OFF cycle
High Temperature Exposure	±1.0%	±0.2%: CN1E2, CN1E4	CN1E2, CN1E4: +125°C, 1000 hours
		±0.3%: Other	CN1J2, CN1J4J, CN1J8, CN2A2, CN2A4, CN2A8, CN2B2, CN2B4, CN2B8: +155°C, 1000 hours

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