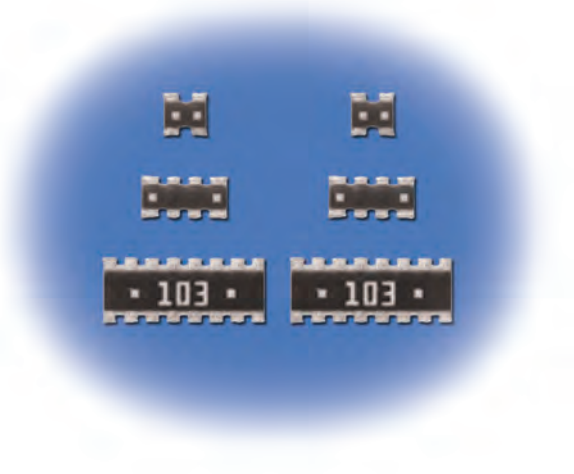
KOA SPEER ELECTRONICS, INC.

CN-KRT

anti sulfuration chip networks (convex termination)

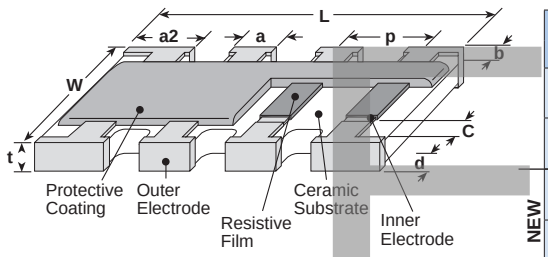


EU RoHS COMPLIANT

features

- Excellent anti-sulfuration characteristic due to using high sulfuration-proof inner top electrode material
- More advancement in the mounting density than individual chip resistors
- Mounting cost reduction by decreasing the number of parts to mount
- Easy soldering fillet inspection
- Suitable for an image recognition mounter due to square corner design
- Products with lead-free termination meet EU RoHS requirements. EU RoHS regulation is not intended for Pb-glass contained in electrode, resistor element and glass.

dimensions and construction



	Type	Dimensions inches (mm)								
		L	W	c	d	t	a	a2	b	P*
	CN1E2KRT (0402x2)	.039±.004 (1.0±0.1)	.039±.004 (1.0±0.1)	.006±.004 (0.15±0.1)	.010±.004 (0.25±0.1)	.014±.004 (0.35±0.1)	.013±.004 (0.33±0.1)	—	.007±.002 (0.17±0.05)	.026 (0.67)
	CN1E4KRT (0402x4)	.079±.004 (2.0±0.1)	.039±.004 (1.0±0.1)	.006±.004 (0.15±0.1)	.010±.008 (0.25±0.2)	.014±.004 (0.35±0.1)	.012±.006 (0.3±0.15)	.016±.006 (0.4±0.15)	.006±.004 (0.15±0.1)	.020 (0.5)
NEW	CN1J4KRT (0603x4)	.126±.006 (3.2±0.15)	.063±.006 (1.6±0.15)	.012±.008 (0.3±0.2)	.010±.004 (0.25±0.1)	.020±.004 (0.5±0.1)	.020±.006 (0.5±0.15)	.026±.006 (0.65±0.15)	.012±.004 (0.3±0.1)	.031 (0.8)
	CN1F8KRT (0602x8)	.150±.004 (3.8±0.1)	.063±.004 (1.6±0.1)	.012±.004 (0.3±0.1)	.012±.004 (0.3±0.1)	.018±.004 (0.45±0.1)	.012±.004 (0.3±0.1)	—	.006* (0.15)	.020 (0.5)

* Referential values.

ordering information

CN	1E	4	K	RT	TD	103	J
Type	**Size**	**Number of Resistors**	**Terminal Convex**	**Termination Material**	**Packaging**	**Nominal Resistance**	**Tolerance**
CN CNZ	1E 1F NEW 1J	2 4 8	K: Convex type with squared corners	RT: Sn	TD: 7" paper	±1%: 3 significant figures + 1 multiplier "R" indicates decimal on values <100Ω ±5%: 2 significant figures + 1 multiplier "R" indicates decimal on values <10Ω	F: ±1% J: ±5%

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

applications and ratings

	Part Designation	Power Rating per Element	Resistance Range		T.C.R. (×10⁻⁶/K)		Max. Working Voltage	Max. Overload Voltage	Rated Ambient Temperature	Operating Temperature Range
			F: ±1% E24,E96	J: ±5% E24	F: ±1% E24,E96	J: ±5% E24				
	CN1E2KRT	0.063	—	3~1M	—	±200: R≥10Ω ±400: R<10Ω	25V	50V	+70°C	−55°C~+125°C
	CN1E4KRT		10~1M		±200: R≥10Ω					
NEW	CN1J4KRT				±100: R≥10Ω		50V	100V		−55°C~+155°C
	CN1F8KRT	0.063*	—	10~1M	—		25V	50V		−55°C~+125°C

Please note that network resistors generate higher heat rather than single flat chip resistor even under rated power output.
*** 0.25W per package**

Rated voltage = $\sqrt{\text{Power Rating} \times \text{Resistance value}}$ or Max. working voltage, whichever is lower.

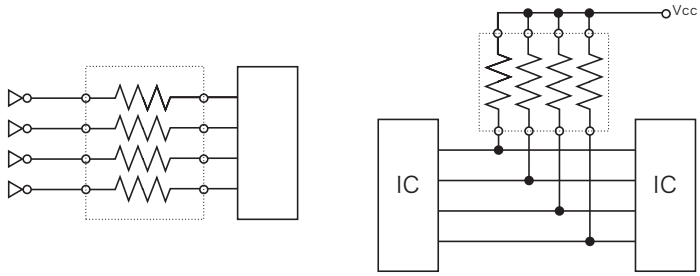
 11/28/16

environmental applications

Jumper Ratings

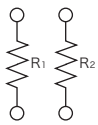
Type	Resistance	Current Rating	Maximum Surge Current
CNZ1E4KRT	100mΩ Max.	0.5A	2A
CNZ1J4KRT			

Circuit Board Application



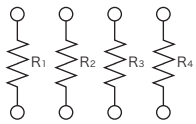
Circuit Construction

CN1E2KRT



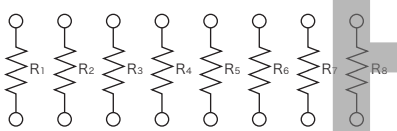
$R_1=R_2$

CN1E4KRT/CN1J4KRT



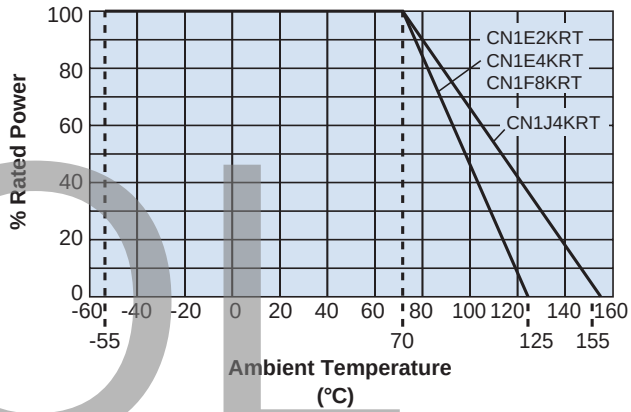
$R_1=R_2=R_3=R_4$

CN1F8KRT



$R_1=R_2=R_3=R_4=R_5=R_6=R_7=R_8$

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

Parameters	Performance Requirements ΔR ±(%+0.1Ω)		Test Methods
	Limit	Typical	
Resistance	Within specified tolerance	—	25°C
T.C.R.	Within specified T.C.R.	—	+25°C/−55°C and +25°C/+125°C
Overload (Short time)	2%	0.25%	Rated voltage × 2.5 for 5 seconds
Resistance to Soldering Heat	1%	0.75%	260°C ± 5°C, 10 seconds ± 1 second
Rapid Change of Temperature	1%	0.5%	−55°C (30 minutes) / +125°C (30 minutes) 5 cycles
Moisture Resistance	5%	1%	40°C ± 2°C, 90%~95%RH, 1000 hours 1.5 hr ON / 0.5 hr OFF cycle
Endurance at 70°C	5%	0.5%	70°C ± 2°C, 1000 hours 1.5 hr ON / 0.5 hr OFF cycle
High Temperature Exposure	1%	0.15%	+125°C, 1000 hours: CN1E2KRT, CN1E4KRT, CN1F8KRT
		0.25%	+155°C, 1000 hours: CN1J4KRT
Sulfuration Test	5%	—	Soaked in industrial oil with 3.5% sulfur concentration 105°C ± 3°C, 500 hours