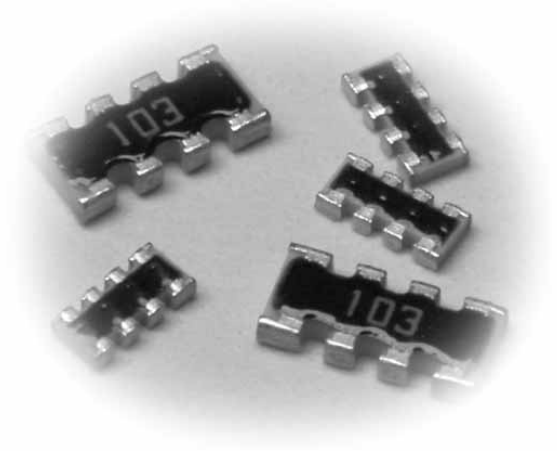
KOA SPEER ELECTRONICS, INC.

# CN___KIN

## convex termination with square corners resistor array

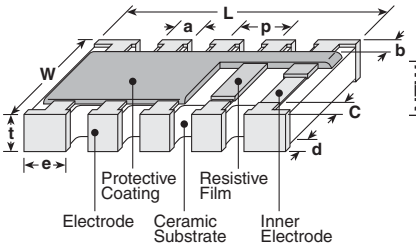


RoHS COMPLIANT

## features

- Manufactured to type RK73 standards
- Less board space than individual chips
- Isolated resistor elements
- Convex terminations with square corners
- Marking: Body color black
  1F8N, 1H, 1E no marking
  1J white three-digit marking
- Products with lead-free terminations meet RoHS requirements. Pb located in glass material, electrode and resistor element is exempt per Annex 1, exemption 5 of EU directive 2005/95/EC

## dimensions and construction




| | Size Code | Dimensions inches (mm) L | W | C | d | t | a (ref.) | b (ref.) | p (ref.) | e |
|---|---|---|---|---|---|---|---|---|---|---|
| NEW | 1H2N | .031±.004 (0.8±0.1) | .024±.004 (0.6±0.1) | .006±.004 (0.15±0.1) | .006±.004 (0.15±0.1) | .014±.004 (0.35±0.1) | .014±.004 (0.35±0.1) | — | .020 (0.5) | .014±.004 (0.35±0.1) |
| | 1E2K | .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 (0.35) | .013±.004 (0.33±0.1) | .007±.002 (0.17±0.05) | .026±.004 (0.65±0.1) | .013±.004 (0.33±0.1) |
| | 1E4K | .079±.004 (2.0±0.1) | | | | | .012±.006 (0.3±0.15) | .006±.004 (0.15±0.1) | .020 (0.5) | .013±.004 (0.33±0.1) |
| | 1J2K | .063±.006 (1.6±0.15) | .063±.006 (1.6±0.15) | .012±.008 (0.3±0.2) | .010±.004 (0.25±0.1) | .020 (0.5) | .020 (0.5) | .012 (0.3) | 0.31 (0.8) | .020 (0.5) |
| | 1J4K | .126±.006 (3.2±0.15) | | | | | | | | 0.024 (0.607) |
| | 1F8K 1F8N | .149±.004 (3.8±0.1) | .063±.008 (1.6±0.2) | .012±.004 (0.3±0.1) | — | .017±.004 (0.44±0.1) | .012±.004 (0.296±0.1) | .012±.004 (0.3±0.1) | .020±.004 (0.5±0.1) | .012±.004 (0.296±0.1) |

## ordering information

New Part #

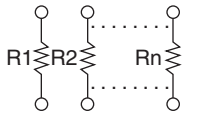
| CN | 1J | 4 | | K | T | TD | 101 | J |
|---|---|---|---|---|---|---|---|---|
| Type | Size | Elements | 1F8 Marking | Terminal Convex | Termination Material | Packaging | Nominal Resistance | Tolerance |
| | **NEW** 1H<br>1E<br>1J<br>1F | 2<br>4<br>8 | Blank: Marking<br>N: No Marking | K: Convex type with square corners<br>N: Flat type with square corners | T: Sn<br>(Other termination styles may be available, please contact factory for options) | TD: 7" paper tape<br>TDD: 10" paper tape | 2 significant figures + 1 multiplier for ±5%<br>3 significant figures + 1 multiplier for ±1% | F: ±1%<br>J: ±5% |

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



7/12/07

## circuit schematic




R1 = R2 = . . . = Rn
(n = 2, 4 or 8)

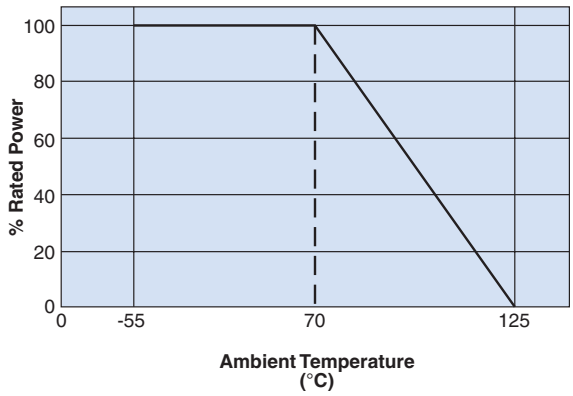
## applications and ratings

| | Part Designation | Power Rating @ 70°C (Per Element) | T.C.R. (ppm/°C) Max. | Resistance Range E-96 (F±1%) | Resistance Range E-24 (J±5%) | Absolute Maximum Working Voltage | Maximum Overload Voltage (5 Secs. Max.) | Operating Temperature Range |
|---|---|---|---|---|---|---|---|---|
| NEW | CN1H2N | 1/32W (.031W) | ±200:>10Ω<br>±400:R<10Ω | — | 10Ω - 1MΩ | 12.5V | 25V | -55°C to +125°C |
| | CN1E2K | 1/16W (.063W) | | 10Ω - 100kΩ | | 25V | 50V | |
| | CN1E4K | | | | | | | |
| | CN1J2K | | | | | 50V | 100V | |
| | CN1J4K | | | | 1Ω - 1MΩ | | | |
| | CN1F8K<br>CN1F8NK | 1/16W (.063W)*<br>0.25W per package | | | 10Ω - 1MΩ | 25V | 50V | |

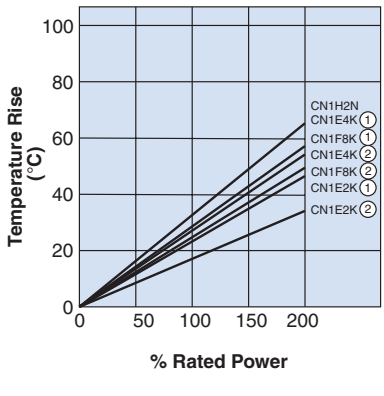
* Note that network resistors generate higher heat rather than single flat chip resistor under rated power output

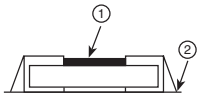
## environmental applications

### Derating Curve




### Surface Temperature Rise




### Performance Characteristics

| Parameter | Maximum Δ R | Test Method |
|---|---|---|
| Thermal Shock | ±(1.0% + 0.1Ω) | MIL-STD-202, Method 107, -55°C to +125°C, 5 cycles |
| Low Temperature Operation | | MIL-R-55342 π 4.7.4, 1 hour @ -55°C followed by 45 minutes of RCWV* |
| High Temperature Exposure | | MIL-R-55342 π 4.7.6, 100 hours @ 125°C |
| Short Time Overload | ±(2.0% + 0.05Ω) | MIL-R-55342 π 4.7.5, 2.5 x RCWV for 5 seconds |
| Resistance to Solder Heat | ±(1.0% + 0.1Ω) | MIL-R-55342 π 4.7.7, 260°C for 10 seconds |
| Terminal Strength-Push | | 1.2 Kg for 1 minute |
| Terminal Strength-Bend | ±(0.5% + 0.05Ω) | 5mm deflection in either direction for 10 seconds |
| Moisture Resistance | ±5.0% | MIL-STD-202, Method 103, 40°C, 90 - 95% RH, 1000 hours |
| Life | | MIL-STD-202, Method 108, 70°C, 1000 hours @ RCWV, 1.5 hr ON, 0.5 hr OFF |
| Pulse | | 2.5 x RCWV, not exceeding max. overload voltage, 1 sec. ON, 25 sec. OFF, 10,000 cycles |
| Temperature Cycling | ±1.0% | 30 min. @ -55°C, 15 min. @ +25°C, 30 min. @ +125°C, 15 min. @ +25°C, 5 cycles |
| Terminal Adhesion | 15 Grams Minimum | Axial pull, one terminal at a time |
| Dielectric Withstanding Voltage | 100V | 1 minute minimum, MIL-STD-202, Method 301 |
| Insulation Resistance | 1,000 MΩ Minimum | — |

* RCWV = Rated Continuous Working Voltage.