

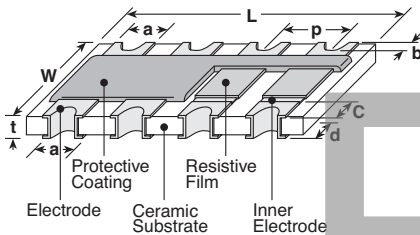
## concave termination with square corners resistor array



### 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<br>(0402x2) | .039±.004<br>(1.0±0.1)  | .039±.004<br>(1.0±0.1) | .008±.004<br>(0.2±0.1) | .010±.004<br>(0.25±0.1) | .014±.004<br>(0.35±0.1) | .012±.004<br>(0.3±0.1) | .012±.006<br>(0.3±0.1)   | .003±.002<br>(0.07±0.05) | .020<br>(0.5)  |  |
| 1E4<br>(0402x4) | .079±.004<br>(2.0±0.1)  | .039±.004<br>(1.0±0.1) | .008±.004<br>(0.2±0.1) | .010±.004<br>(0.25±0.1) | .018±.004<br>(0.45±0.1) | .012±.004<br>(0.3±0.1) | .012±.006<br>(0.3±0.1)   | .003±.002<br>(0.07±0.05) | .020<br>(0.5)  |  |
| 1J2<br>(0603x2) | .063±.008<br>(1.6±0.2)  | .063±.008<br>(1.6±0.2) | .012±.008<br>(0.3±0.2) | .016±.004<br>(0.4±0.1)  |                         | .020±.004<br>(0.5±0.1) | .016±.006<br>(0.4±0.15)  |                          | .031<br>(0.8)  |  |
| 1J4<br>(0603x4) | .126±.008<br>(3.2±0.2)  | .063±.008<br>(1.6±0.2) | .012±.008<br>(0.3±0.2) | .016±.004<br>(0.4±0.1)  |                         | .020±.004<br>(0.5±0.1) | .016±.006<br>(0.4±0.15)  |                          | .031<br>(0.8)  |  |
| 1J8<br>(0603x8) | .252±.008<br>(6.4±0.2)  | .063±.008<br>(1.6±0.2) | .012±.008<br>(0.3±0.2) | .016±.004<br>(0.4±0.1)  |                         | .020±.004<br>(0.5±0.1) | .016±.006<br>(0.4±0.15)  |                          | .031<br>(0.8)  |  |
| 2A2<br>(0805x2) | 0.1±.008<br>(2.54±0.2)  | .079±.008<br>(2.0±0.2) | .016±.008<br>(0.4±0.2) |                         | .024±.004<br>(0.6±0.1)  |                        |                          | .006±.004<br>(0.15±0.1)  |                |  |
| 2A4<br>(0805x4) | 0.2±.008<br>(5.08±0.2)  | .079±.008<br>(2.0±0.2) | .016±.008<br>(0.4±0.2) |                         | .024±.004<br>(0.6±0.1)  |                        |                          | .006±.004<br>(0.15±0.1)  |                |  |
| 2A8<br>(0805x8) | 0.4±.008<br>(10.16±0.2) | .079±.008<br>(2.0±0.2) | .016±.008<br>(0.4±0.2) |                         | .024±.004<br>(0.6±0.1)  |                        |                          | .006±.004<br>(0.15±0.1)  |                |  |
| 2B2<br>(1206x2) | 0.1±.008<br>(2.54±0.2)  | .126±.008<br>(3.2±0.2) | .020±.012<br>(0.5±0.3) |                         | .022±.004<br>(0.55±0.1) | .031±.004<br>(0.8±0.1) | .030±.006<br>(0.75±0.15) |                          | .050<br>(1.27) |  |
| 2B4<br>(1206x4) | 0.2±.008<br>(5.08±0.2)  | .126±.008<br>(3.2±0.2) | .020±.012<br>(0.5±0.3) |                         | .022±.004<br>(0.55±0.1) | .031±.004<br>(0.8±0.1) | .030±.006<br>(0.75±0.15) |                          | .050<br>(1.27) |  |
| 2B8<br>(1206x8) | 0.4±.008<br>(10.16±0.2) | .126±.008<br>(3.2±0.2) | .020±.012<br>(0.5±0.3) |                         | .022±.004<br>(0.55±0.1) | .031±.004<br>(0.8±0.1) | .030±.006<br>(0.75±0.15) |                          | .050<br>(1.27) |  |

### ordering information

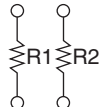
| CN   | 1J                   | 4           | T   | TD   | 101   | J                          |
|------|----------------------|-------------|---|--|---|----------------------------|
| Type | Size                 | Elements    | Termination Material  | Packaging  | Nominal Resistance  | Tolerance    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

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

## concave termination with square corners resistor array

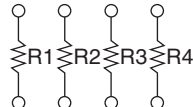
### circuit schematic

CN1E2, CN1J2,  
CN2A2, CN2B2



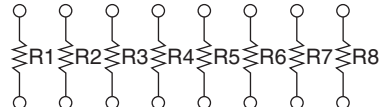
R1 = R2

CN1E4, CN1J4,  
CN2A4, CN2B4



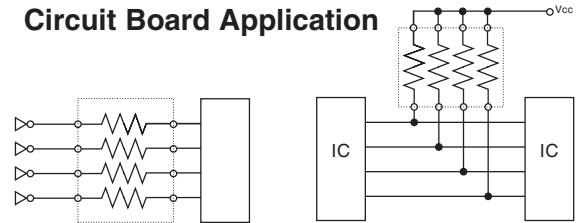
R1 = R2 = R3 = R4

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               | —                         | —                    | —              | —                    | —            | 10 - 100k    | 25V                              | 50V                                     |
| CN1E4            |                                   |                     |                           |                      |                |                      |              |              |                                  |   |
| CN1J2            | 1/16W (.063W)                     | +70°C               | —                         | ±100:<br>R≥10Ω       | ±200:<br>R≥10Ω | 10 - 1M              | 10 - 1M      | 10 - 1M      | 50V                              | 100V                                    |
| CN1J4            |                                   |                     |                           |                      |                |                      |              |              |                                  |   |
| CN1J8            | 1/10W (.100W)                     | +70°C               | +125°C                    | ±200:<br>R≥10Ω       | ±400:<br>R<10Ω | 10 - 1M              | 10 - 1M      | 10 - 1M      | 100V                             | 200V                                    |
| CN2A2            |                                   |                     |                           |                      |                |                      |              |              |                                  |   |
| CN2A4            | 1/10W (.100W)                     | +70°C               | +125°C                    | ±200:<br>R≥10Ω       | ±400:<br>R<10Ω | 10 - 1M              | 10 - 1M      | 10 - 1M      | 100V                             | 200V                                    |
| CN2A8            |                                   |                     |                           |                      |                |                      |              |              |                                  |   |
| CN2B2            | 1/8W (.125W)                      | +70°C               | +125°C                    | ±200:<br>R≥10Ω       | ±400:<br>R<10Ω | 10 - 1M              | 10 - 1M      | 10 - 1M      | 200V                             | 400V                                    |
| CN2B4            |                                   |                     |                           |                      |                |                      |              |              |                                  |   |
| CN2B8            | 1/8W (.125W)                      | +70°C               | +125°C                    | ±200:<br>R≥10Ω       | ±400:<br>R<10Ω | 10 - 1M              | 10 - 1M      | 10 - 1M      | 200V                             | 400V                                    |
| CN2B8            |                                   |                     |                           |                      |                |                      |              |              |                                  |   |

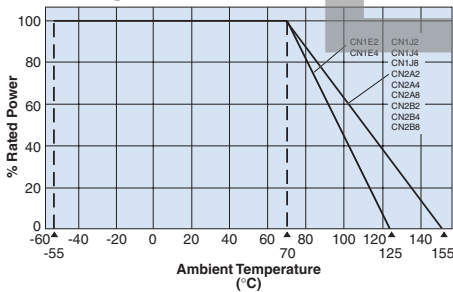
\* Note that network resistors generate higher heat rather than single flat chip resistor under rated power output.

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

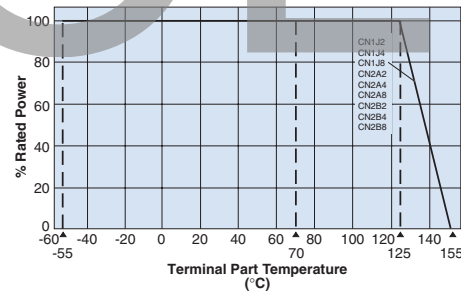
If any questions should arise whether to use the "Rated Ambient Temperature" or the "Rated Terminal Part Temperature," please give priority to the "Rated Terminal Part Temperature." Prior to use and for more details refer to "Introduction of the derating curves on the terminal part temperature" in the 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, CN1J4, CN1J8, CN2A2, CN2A4, CN2A8, CN2B2, CN2B4, CN2B8: +155°C, 1000 hours |

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

3/28/19

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