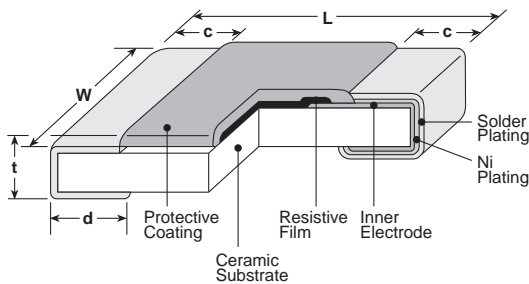


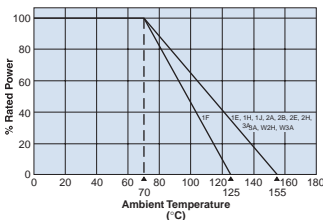
## features

- 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: 0201 (1H), 0402 (1E), 0603 (1J), 0805 (2A), 1206 (2B), 1210 (2E), 2010 (2H/W2H), 2512 (3A/W3A/W3A2)

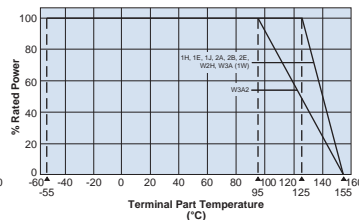
## dimensions and construction



### 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 part temperature of described for each size or above, a power rating shall be derated in accordance with the above derating curve.

Please refer to "Introduction of the derating curve based on the terminal part temperature" in the beginning of our catalog before use.

| Type*<br>(Inch Size Code) | Dimensions inches (mm)  |                         |                          |  |                          |
|---------------------------|---|-------------------------|--------------------------|--|--------------------------|
|                           | L   | W                       | c                        | d  | t                        |
| <b>1F</b><br>(01005)      | .015±.001<br>(0.4±0.02)   | .007±.001<br>(0.2±0.02) | .004±.001<br>(0.10±0.03) | .004±.001<br>(0.11±0.03)   | .005±.001<br>(0.13±0.02) |
| <b>1H</b><br>(0201)       | .024±.001<br>(0.6±0.03)   | .012±.001<br>(0.3±0.03) | .004±.002<br>(0.1±0.05)  | .006±.002<br>(0.15±0.05)   | .009±.001<br>(0.23±0.03) |
| <b>1E</b><br>(0402)       | .039 <sup>+0.004</sup> <sub>-.002</sub><br>(1.0 <sup>+0.1</sup> <sub>-.05</sub> ) | .02±.002<br>(0.5±0.05)  | .008±.004<br>(0.2±0.1)   | .01 <sup>+0.002</sup> <sub>-.004</sub><br>(0.25 <sup>+0.05</sup> <sub>-.01</sub> ) | .014±.002<br>(0.35±0.05) |
| <b>1J</b><br>(0603)       | .063±.008<br>(1.6±0.2)  | .031±.004<br>(0.8±0.1)  | .012±.004<br>(0.3±0.1)   | .012±.004<br>(0.3±0.1)   | .018±.004<br>(0.45±0.1)  |
| <b>2A</b><br>(0805)       | .079±.008<br>(2.0±0.2)  | .049±.004<br>(1.25±0.1) | .016±.008<br>(0.4±0.2)   | .012 <sup>+0.008</sup> <sub>-.004</sub><br>(0.3 <sup>+0.2</sup> <sub>-.01</sub> )  | .02±.004<br>(0.5±0.1)    |
| <b>2B</b><br>(1206)       | .126±.008<br>(3.2±0.2)  | .063±.008<br>(1.6±0.2)  | .02±.012<br>(0.5±0.3)    | .016 <sup>+0.008</sup> <sub>-.004</sub><br>(0.4 <sup>+0.2</sup> <sub>-.01</sub> )  | .024±.004<br>(0.6±0.1)   |
| <b>2E</b><br>(1210)       |   | .102±.008<br>(2.6±0.2)  |                          |  |                          |
| <b>2H</b><br>(2010)       | .197±.008<br>(5.0±0.2)  | .098±.008<br>(2.5±0.2)  | .02±.012<br>(0.5±0.3)    | .016 <sup>+0.008</sup> <sub>-.004</sub><br>(0.4 <sup>+0.2</sup> <sub>-.01</sub> )  | .024±.004<br>(0.6±0.1)   |
| <b>W2H</b><br>(2010)      |   |                         |                          |  |                          |
| <b>3A</b><br>(2512)       | .248±.008<br>(6.3±0.2)  | .122±.008<br>(3.1±0.2)  | .026±.006<br>(0.65±0.15) | .016 <sup>+0.008</sup> <sub>-.004</sub><br>(0.4 <sup>+0.2</sup> <sub>-.01</sub> )  | .024±.004<br>(0.6±0.1)   |
| <b>W3A/W3A2</b><br>(2512) |   |                         |                          |  |                          |

\* Parentheses indicate EIA package size codes.

## ordering information

| New Part # | RK73B | 2B   | T   | TD  | 102   | J                             |
|------------|-------|--|---|---|---|-------------------------------|
| Type       |       |  |   |   |   |                               |
| Size       |       | 1F<br>1H<br>1E<br>1J<br>2A<br>2B<br>2E<br>W2H<br>W3A<br>2H<br>3A<br>New W3A2 | Termination Material<br>T: Sn<br>(1F ~ W3A2)<br>Contact factory for below options:<br>L: SnPb<br>(1E, 1J, 2A, 2B, 2E, 2H, 3A)<br>G: Au<br>(1E ~ 2A:<br>10Ω ~ 1MΩ) | Packaging<br>TX: 01005 only: 4mm width - 1mm pitch plastic embossed<br>TBL: 01005 only: 2mm pitch pressed paper<br>TA: 0201 only: 1mm pitch pressed paper<br>TC: 0201 only: 7" 2mm pitch pressed paper<br>(TC: 10,000 pcs/reel, TCM: 15,000 pcs/reel)<br>TCD: 0201 only: 10" 2mm pitch pressed paper<br>TPD: 0402 only: 10" plastic embossed<br>TPL: 0402 only: 2mm pitch punched paper<br>TP: 0402, 0603 & 0805: 7" 2mm pitch punched paper<br>TD: 0603, 0805, 1206 & 1210: 7" 4mm pitch punched paper<br>TDD: 0603, 0805, 1206 & 1210: 10" paper tape<br>TE: 0805, 1206, 1210, 2010 & 2512: 7" plastic embossed<br>TED: 0805, 1206, 1210, 2010 & 2512: 10" plastic embossed<br>For further information on packaging, please refer to Appendix A | Nominal Resistance<br>2 significant figures + 1 multiplier<br>"R" indicates decimal on value <10Ω | Tolerance<br>G: ±2%<br>J: ±5% |

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

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## applications and ratings

| Part Designation     | Power Rating | Rated Ambient Temp. | Rated Terminal Part Temp. | T.C.R. (x10 <sup>-6</sup> /K) | Resistance Range |              | Maximum Working Voltage | Maximum Overload Voltage | Operating Temperature Range |           |                 |             |              |                 |          |              |                 |              |                 |                 |                 |                 |                 |                 |
|----------------------|--------------|---------------------|---------------------------|-------------------------------|------------------|--------------|-------------------------|--------------------------|-----------------------------|-----------|-----------------|-------------|--------------|-----------------|----------|--------------|-----------------|--------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
|                      |              |                     |                           |                               | G±2% E-24        | J±5% E-24    |                         |                          |                             |           |                 |             |              |                 |          |              |                 |              |                 |                 |                 |                 |                 |                 |
| RK73B1F (01005)      | 0.03W        | 70°C                | —                         | ±200                          | 100kΩ - 1MΩ      | 100kΩ - 10MΩ | 20V                     | 30V                      | -55°C to +125°C             |           |                 |             |              |                 |          |              |                 |              |                 |                 |                 |                 |                 |                 |
|                      |              |                     |                           | ±250                          | 10Ω - 91kΩ       | 10Ω - 91kΩ   |                         |                          |                             |           |                 |             |              |                 |          |              |                 |              |                 |                 |                 |                 |                 |                 |
|                      |              |                     |                           | 0~+300                        | 1Ω - 9.1Ω        | 1Ω - 9.1Ω    |                         |                          |                             |           |                 |             |              |                 |          |              |                 |              |                 |                 |                 |                 |                 |                 |
| RK73B1H (0201)       | 0.05W        |                     | 70°C                      | 125°C                         | ±200             | 10Ω - 10MΩ   | 10Ω - 10MΩ              | 25V                      |                             | 50V       | -55°C to +155°C |             |              |                 |          |              |                 |              |                 |                 |                 |                 |                 |                 |
|                      |              |                     |                           |                               | ±400             | —            | 1Ω - 9.1Ω               |                          |                             |           |                 |             |              |                 |          |              |                 |              |                 |                 |                 |                 |                 |                 |
| RK73B1E (0402)       | 0.1W         |                     |                           |                               | 70°C             | 125°C        | ±200                    | 1Ω - 10MΩ                |                             | 1Ω - 10MΩ |                 | 50V         | 100V         | -55°C to +155°C |          |              |                 |              |                 |                 |                 |                 |                 |                 |
|                      |              |                     |                           |                               |                  |              | ±400                    | —                        |                             | 1Ω - 9.1Ω |                 |             |              |                 |          |              |                 |              |                 |                 |                 |                 |                 |                 |
| RK73B1J (0603)       | 0.1W         |                     |                           |                               |                  |              | 70°C                    | 125°C                    |                             | ±200      |                 | 1.1kΩ - 1MΩ | 1.1kΩ - 10MΩ |                 | 75V      | 100V         | -55°C to +155°C |              |                 |                 |                 |                 |                 |                 |
|                      | 0.125W       |                     |                           |                               |                  |              |                         |                          |                             | ±400      |                 | —           | 11MΩ - 22MΩ  |                 |          |              |                 |              |                 |                 |                 |                 |                 |                 |
| RK73B2A (0805)       | 0.25W        |                     |                           |                               |                  |              |                         |                          |                             | 70°C      |                 | 125°C       | ±200         |                 | 1Ω - 1kΩ | 1Ω - 1kΩ     |                 | 150V         | 200V            | -55°C to +155°C |                 |                 |                 |                 |
|                      |              |                     |                           |                               |                  |              |                         |                          |                             |           |                 |             | ±400         |                 | —        | 1Ω - 1MΩ     |                 |              |                 |                 |                 |                 |                 |                 |
| RK73B2B (1206)       | 0.25W        |                     |                           |                               |                  |              |                         |                          |                             |           |                 |             | 70°C         |                 | 125°C    | ±200         |                 | 1Ω - 1MΩ     | 1Ω - 1MΩ        |                 | 150V            | 200V            | -55°C to +155°C |                 |
|                      |              | ±400                |                           |                               |                  |              |                         |                          | 1.1MΩ - 10MΩ                |           |                 |             |              |                 |          | 1.1MΩ - 10MΩ |                 |              |                 |                 |                 |                 |                 |                 |
| RK73B2E (1210)       | 0.50W        | 70°C                |                           |                               |                  |              |                         |                          | 125°C                       |           |                 |             |              |                 |          | ±200         |                 | 1Ω - 5.6MΩ   | 1Ω - 5.6MΩ      |                 | 200V            | 400V            |                 | -55°C to +155°C |
|                      |              |                     |                           |                               |                  |              |                         |                          |                             |           |                 |             |              |                 |          | ±400         |                 | —            | 6.2MΩ - 10MΩ    |                 |                 |                 |                 |                 |
| RK73BW2H/2H (2010)   | 0.75W        |                     | 70°C                      | 125°C                         |                  |              |                         |                          |                             |           | ±200            |             |              |                 |          | 10Ω - 5.6MΩ  |                 | 1Ω - 5.6MΩ   | 200V            |                 | 400V            | -55°C to +155°C |                 |                 |
|                      |              |                     |                           |                               |                  |              |                         |                          |                             |           | ±400            |             |              |                 |          | —            |                 | 6.2MΩ - 22MΩ |                 |                 |                 |                 |                 |                 |
| RK73BW3A/3A (2512)   | 1.0W         |                     |                           |                               | 70°C             | 125°C        |                         |                          |                             |           | ±200            |             |              | 10Ω - 5.6MΩ     |          | 1Ω - 5.6MΩ   |                 | 200V         | 400V            |                 | -55°C to +155°C |                 |                 |                 |
|                      |              |                     |                           |                               |                  |              |                         |                          |                             |           | ±400            |             |              | —               |          | 6.2MΩ - 22MΩ |                 |              |                 |                 |                 |                 |                 |                 |
| NEW RK73BW3A2 (2512) | 2.0W         |                     |                           |                               |                  |              | 70°C                    | 125°C                    |                             |           | ±200            |             |              | 10Ω - 5.6MΩ     |          | 1Ω - 5.6MΩ   | 200V            | 400V         | -55°C to +155°C |                 |                 |                 |                 |                 |
|                      |              |                     |                           |                               |                  |              |                         |                          |                             |           | ±400            |             |              | —               |          | 6.2MΩ - 22MΩ |                 |              |                 |                 |                 |                 |                 |                 |

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

If any questions arise on whether to use the "Rated Ambient Temperature" or the "Rated Terminal Part Temperature" in your usage conditions, please give priority to the "Rated Terminal Part Temperature." Prior to use and for more details, refer to "Introduction of the derating curves based on the terminal part temperature" in the beginning of our catalog. Temperature rise at high power will depend on PCB layout. Be sure to contact factory prior to use and monitor terminal part temperature.

## environmental applications

### Performance Characteristics

| Parameter                    | Requirement $\Delta R$ (%+0.1Ω)                         |   | Test Method   |
|------------------------------|---|---|---|
|                              | 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%   | ±1%: 1F<br>±0.5%: Another                               | Rated Voltage x 2.5 for 5 seconds<br>(1E, 2B, W3A2: Rated Voltage x 2 for 5 seconds)    |
| Resistance to Soldering Heat | ±1%: 1F-W3A2 (10Ω≤R≤1MΩ)<br>±3%: 1F-W3A2 (R<10Ω, R>1MΩ) | ±0.5%: 1F-W3A2 (10Ω≤R≤1MΩ); ±1%: 1F-W3A2 (R<10Ω, R>1MΩ) | 260°C ± 5°C, 10 seconds ± 1 second  |
| Rapid Change of Temperature  | ±1%: 1F<br>±0.5%: Another                               | ±0.5%: 1F<br>±0.3%: Another                             | -55°C (30 minutes), +125°C (30 minutes), 100 cycles                                     |
| Moisture Resistance          | ±2%: 1J, 2A, 2B<br>±3%: Another                         | ±0.75%: 1J, 2A, 2B<br>±1.5%: 1F<br>±1%: Another         | 40°C ± 2°C, 90%-95% RH, 1000 hours, 1.5 hr ON, 0.5 hr OFF cycle                         |
| Endurance at 70°C            | ±2%: 1J, 2A, 2B<br>±3%: Another                         | ±0.75%: 1J, 2A, 2B<br>±1%: Another                      | 70°C ± 2°C, 1000 hours, 1.5 hr ON, 0.5 hr OFF cycle                                     |
| High Temperature Exposure    | ±1%   | ±0.5%: 1F<br>±0.3%: Another                             | +125°C, 1000 hours: 1F; +155°C, 1000 hours: 1E, 1H, 1J, 2A, 2B, 2E, 2H/W2H, 3A/W3A/W3A2 |

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