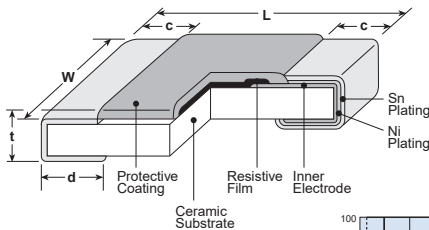




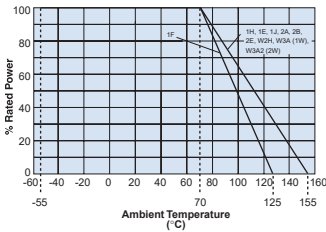
## features

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

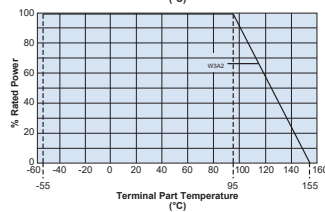
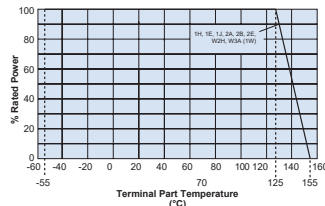
## dimensions and construction



### Derating Curve



For resistors operated at an ambient temperature of 70°C or higher, the power shall be derated in accordance with the above derating curve.



When the terminal part temperature of the resistor exceeds the rated terminal part temperature shown above, the power shall be derated according to the derating curve. Please refer to "Introduction of the derating curves based on the terminal part temperature" on 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)      | .016±.0008<br>(0.4±0.02)  | .008±.0008<br>(0.2±0.02) | .004±.001<br>(0.1±0.03) | .004±.001<br>(0.11±0.03)  | .005±.0008<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>-0.002</sub><br>(1.0 <sup>+0.1</sup> <sub>-0.05</sub> ) | .02±.002<br>(0.5±0.05)   | .008±.004<br>(0.2±0.1)  | .01 <sup>+0.002</sup> <sub>-0.004</sub><br>(0.25 <sup>+0.05</sup> <sub>-0.1</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>-0.004</sub><br>(0.3 <sup>+0.2</sup> <sub>-0.1</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>-0.004</sub><br>(0.4 <sup>+0.2</sup> <sub>-0.1</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)       |   | .098±.008<br>(2.5±0.2)   |                         |   |                           |
| <b>W2H</b><br>(2010)      | .197±.008<br>(5.0±0.2)  | .098±.008<br>(2.5±0.2)   |                         | .026±.006<br>(0.65±0.15)  |                           |
| <b>3A</b><br>(2512)       | .248±.008<br>(6.3±0.2)  | .122±.008<br>(3.1±0.2)   |                         | .016 <sup>+0.008</sup> <sub>-0.004</sub><br>(0.4 <sup>+0.2</sup> <sub>-0.1</sub> )  |                           |
| <b>W3A/W3A2</b><br>(2512) |   |                          |                         | .026±.006<br>(0.65±0.15)  |                           |

\* Parentheses indicate EIA package size codes.

## ordering information

| RK73H       | 2B   | T   | TD   | 1003   | F                  |
|-------------|--|---|--|--|--------------------|
| <b>Type</b> | <b>Size</b>  | <b>Termination Material</b>   | <b>Packaging</b>   | <b>Nominal Resistance</b>  | <b>Tolerance</b>   |
|             | 1F<br>1H<br>1E<br>1J<br>2A<br>2B<br>2E<br>W2H<br>W3A<br>2H<br>3A<br>W3A2 | 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) | TX: 01005 only: 4mm width - 1mm pitch plastic embossed<br>TBL: 01005 only: 2mm pitch pressed paper<br>TC: 0201 only: 7" 2mm pitch pressed paper (TC: 10,000 pcs/reel, TCM: 15,000 pcs/reel)<br>TPL: 0402 only: 2mm pitch punch paper<br>TP: 0402, 0603, 0805: 7" 2mm pitch punch paper<br>TD: 0603, 0805, 1206, 1210:<br>7" 4mm pitch punched paper<br>TE: 0805, 1206, 1210, 2010 & 2512:<br>7" 4mm embossed plastic<br>For further information on packaging, please refer to Appendix A | 3 significant figures + 1 multiplier<br>"R" indicates decimal on value <100Ω | D: ±0.5%<br>F: ±1% |

## applications and ratings

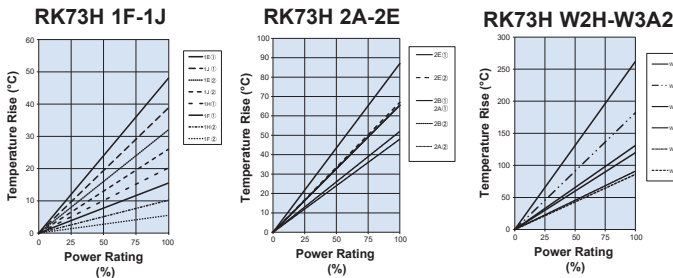
| Part Designation   | Power Rating | Rated Ambient Temp. | Rated Terminal Part Temp. | T.C.R. (x10 <sup>-6</sup> /K) | Resistance Range  |                              | Maximum Working Voltage | Maximum Overload Voltage | Operating Temperature Range |
|--------------------|--------------|---------------------|---------------------------|-------------------------------|-------------------|------------------------------|-------------------------|--------------------------|-----------------------------|
|                    |              |                     |                           |                               | D±0.5% E-24, E-96 | F±1% E-24, E-96*             |                         |                          |                             |
| RK73H1F (01005)    | 0.03W        | 70°C                | 125°C                     | ±200                          | —                 | 100kΩ - 2MΩ*                 | 20V                     | 30V                      | -55°C to +125°C             |
|                    |              |                     |                           | ±250                          | —                 | 10Ω - 91kΩ*                  |                         |                          |                             |
| RK73H1H (0201)     | 0.05W        |                     |                           | ±200                          | 10Ω - 1MΩ         | 10Ω - 10MΩ*                  | 25V                     | 50V                      |                             |
|                    |              |                     |                           | ±400                          | —                 | 1.0Ω - 9.1Ω*                 |                         |                          |                             |
| RK73H1E (0402)     | 0.1W         |                     |                           | ±100                          | 10Ω - 1MΩ         | 10Ω - 1MΩ                    | 75V                     | 100V                     |                             |
|                    |              |                     |                           | ±200                          | —                 | 1.0Ω - 9.76Ω, 1.02MΩ - 10MΩ  |                         |                          |                             |
| RK73H1J (0603)     | 0.1W         |                     |                           | ±100                          | 1.02kΩ - 1MΩ      | 1.02kΩ - 1MΩ                 | 75V                     |                          |                             |
|                    | 0.125W       |                     |                           | ±200                          | —                 | 1.02MΩ - 10MΩ                |                         |                          |                             |
|                    |              |                     |                           | ±100                          | 10Ω - 1kΩ         | 10Ω - 1kΩ                    |                         |                          |                             |
|                    |              |                     |                           | ±200                          | —                 | 1.0Ω - 9.76Ω                 |                         |                          |                             |
| RK73H2A (0805)     | 0.25W        |                     |                           | ±100                          | 10Ω - 1MΩ         | 10Ω - 1MΩ                    | 150V                    | 200V                     |                             |
|                    |              |                     |                           | ±200                          | —                 | 1.0Ω - 9.76Ω                 |                         |                          |                             |
|                    |              |                     |                           | ±400                          | —                 | 1.02MΩ - 10MΩ                |                         |                          |                             |
| RK73H2B (1206)     | 0.25W        |                     |                           | ±100                          | 10Ω - 1MΩ         | 10Ω - 1MΩ                    | 200V                    | 400V                     |                             |
|                    |              |                     |                           | ±200                          | —                 | 1.0Ω - 9.76Ω, 1.02MΩ - 5.6MΩ |                         |                          |                             |
|                    |              |                     |                           | ±400                          | —                 | 5.62MΩ - 10MΩ                |                         |                          |                             |
| RK73H2E (1210)     | 0.5W         | ±100                | 10Ω - 1MΩ                 | 10Ω - 1MΩ                     | 200V              | 400V                         |                         |                          |                             |
|                    |              | ±200                | —                         | 1.0Ω - 9.76Ω, 1.02MΩ - 5.6MΩ  |                   |                              |                         |                          |                             |
|                    |              | ±400                | —                         | 5.62MΩ - 10MΩ                 |                   |                              |                         |                          |                             |
| RK73HW2H/2H (2010) | 0.75W        | ±100                | 10Ω - 1MΩ                 | 10Ω - 1MΩ                     | 200V              | 400V                         |                         |                          |                             |
|                    |              | ±200                | —                         | 1.0Ω - 9.76Ω, 1.02MΩ - 5.6MΩ  |                   |                              |                         |                          |                             |
|                    |              | ±400                | —                         | 5.62MΩ - 10MΩ                 |                   |                              |                         |                          |                             |
| RK73HW3A/3A (2512) | 1.0W         | ±100                | 10Ω - 1MΩ                 | 10Ω - 1MΩ                     | 200V              | 400V                         |                         |                          |                             |
|                    |              | ±200                | —                         | 1.0Ω - 9.76Ω, 1.02MΩ - 5.6MΩ  |                   |                              |                         |                          |                             |
|                    |              | ±400                | —                         | 5.62MΩ - 10MΩ                 |                   |                              |                         |                          |                             |
| RK73HW3A2 (2512)   | 2.0W         | ±100                | 10Ω - 1MΩ                 | 10Ω - 1MΩ                     | 200V              | 400V                         |                         |                          |                             |
|                    |              | ±200                | —                         | 1.0Ω - 9.76Ω, 1.02MΩ - 5.6MΩ  |                   |                              |                         |                          |                             |
|                    |              | ±400                | —                         | 5.62MΩ - 10MΩ                 |                   |                              |                         |                          |                             |

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

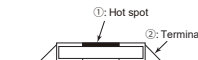
\* 1F: E-24, 1H: 1.0~9.1, 1M~10MΩ: E-24. If any questions arise whether to use the "Rated Ambient Temperature" or the "Rated Terminal Part Temperature," please give priority to the "Rated Terminal Part Temperature." Prior to use and for more details refer to "Introduction of the derating curves based on the terminal part temperature" in the beginning of the catalog. While using under high power, the temperature of the product may increase depending on the condition of heat dissipation from PCB. Be sure to check the terminal part temperature as well as precautions to use on delivery specification before use.

## environmental applications

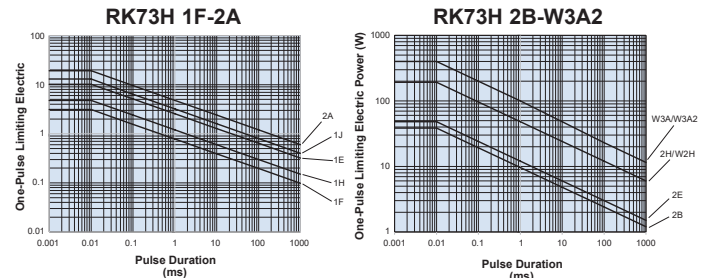
## Temperature Rise



Regarding the temperature rise, the value of the temperature varies per conditions and board for use since the temperature is measured under our measuring conditions.

 Measurement condition  
 Room temperature: 25°C  
 PCB: FR-4t = 1.6mm  
 Cu foil thickness: 35μm


## One-Pulse Limiting Electric Power



The maximum applicable voltage is equal to the max. overload voltage. Please ask us about the resistance characteristic of continuous applied pulse. The pulse endurance values are not assured values, so be sure to check the products on actual equipment when you use them.

## Performance Characteristics

| Parameter                    | Requirement ΔR (%+0.1%)  |  | 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; ±0.5%: Another  | Rated Voltage x 2.5 for 5 seconds (1E, 2B, W3A2: Rated Voltage x 2 for 5 seconds)          |
| Resistance to Soldering Heat | ±1%: 1F ~ W3A2 (10Ω ≤ R ≤ 1MΩ);<br>±3%: 1H ~ W3A2 (R < 10Ω, R > 1MΩ) | ±0.5%: 1F ~ W3A2 (10Ω < R < 1MΩ);<br>±1%: 1H ~ W3A2 (R < 10Ω, R > 1MΩ) | 260°C ± 5°C, 10 seconds ± 1 second   |
| Rapid Change of Temperature  | ±1%: 1F; ±0.5%: Another  | ±0.5%: 1F; ±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; ±1.5%: 1F,<br>±1%: Another                         | 40°C ± 2°C, 90%~95% RH, 1000 hours, 1.5 hr ON,<br>0.5 hr OFF cycle                         |
| Endurance at 70°C            | ±2%: 1J, 2A, 2B; ±3%: Another  | ±0.75%: 1J, 2A, 2B; ±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,<br>1J, 2A, 2B, 2E, 2H/W2H, 3A/W3A/W3A2 |