

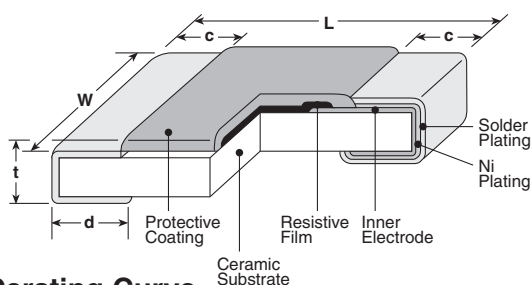
# precision 0.5%, 1% tolerance thick film chip resistor



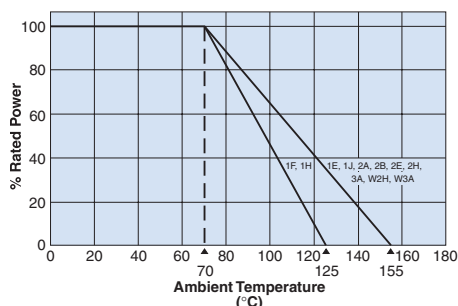
## features

- Marking: 1F, 1H, 1E no marking, black body.  
1J: three-digit black marking (E-24 only)  
on blue protective coat. 2A ~ 3A four-digit  
black marking on blue protective coat.
- 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.

## dimensions and construction



## Derating Curve



| 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>(0.1±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>+0.04</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>+0.02</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)       |                                                                                  | .098±.008<br>(2.5±0.2)   |                         |                                                                                   |                           |
| <b>W2H</b><br>(2010)      |                                                                                  | .098±.008<br>(2.5±0.2)   |                         |                                                                                   |                           |
| <b>3A</b><br>(2512)       | .248±.008<br>(6.3±0.2)                                                           | .122±.008<br>(3.1±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>W3A</b><br>(2512)      |                                                                                  |                          |                         | .026±.006<br>(0.65±0.15)                                                          |                           |

\* Parentheses indicate EIA package size codes.

## ordering information

| New Part # | RK73H | 2B                                                   | T                                                                                                                                                              | TD                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 1003                                                                         | F                  |
|------------|-------|------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|--------------------|
| Type       |       |                                                      |                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Nominal Resistance                                                           | Tolerance          |
|            |       | Size                                                 | Termination Material                                                                                                                                           | Packaging                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                              |                    |
|            |       | 1F<br>1H<br>1E<br>1J<br>2A<br>2B<br>2E<br>W2H<br>W3A | T: Sn<br>(1F ~ 3A)<br>Contact factory for below options:<br>L: SnPb<br>(1E ~ 3A)<br>G: Au<br>(1E ~ 2A:<br>10Ω ~ 1MΩ)<br>X: Bondable<br>(1J ~ 2E:<br>10Ω ~ 1MΩ) | 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>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>TDD: 0603, 0805, 1206, 1210: 10" paper tape<br>TE: 0805, 1206, 1210, 2010 & 2512:<br>7" embossed plastic<br>TED: 0805, 1206, 1210, 2010 & 2512: 10" embossed plastic<br>For further information on packaging,<br>please refer to Appendix A | 3 significant figures + 1 multiplier<br>"R" indicates decimal on value <100Ω | D: ±0.5%<br>F: ±1% |

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 @ 70°C | T.C.R. (ppm/°C) Max. | Resistance Range E-24, E-96 (D±0.5%) | Resistance Range E-24, E-96 (F±1%) | Absolute Maximum Working Voltage | Absolute Maximum Overload Voltage | Operating Temperature Range |
|--------------------|---------------------|----------------------|--------------------------------------|------------------------------------|----------------------------------|-----------------------------------|-----------------------------|
| RK73H1F (01005)    | 1/32W (.03W)        | ±250                 | —                                    | 6.8kΩ - 1MΩ <sup>1</sup>           | 15V                              | 30V                               | -55°C to +125°C             |
|                    |                     | ±300                 | —                                    | 10Ω - 6.2KΩ <sup>1</sup>           |                                  |                                   |                             |
| RK73H1H (0201)     | 1/20W (.05W)        | ±200                 | 10Ω - 1MΩ                            | 10Ω - 10MΩ                         | 25V                              | 50V                               | -55°C to +125°C             |
|                    |                     | ±400                 | —                                    | 1.0Ω - 9.1Ω <sup>1</sup>           |                                  |                                   |                             |
| RK73H1E (0402)     | 1/16W (.063W)       | ±100                 | 10Ω - 1MΩ                            | 10Ω - 1MΩ                          | 50V                              | 100V                              | -55°C to +125°C             |
|                    |                     | ±200                 | —                                    | 1.0Ω - 9.76Ω<br>1.02MΩ - 10MΩ      |                                  |                                   |                             |
| RK73H1J (0603)     | 1/10W (.10W)        | ±100                 | 10Ω - 1MΩ                            | 10Ω - 1MΩ                          | 150V                             | 200V                              | -55°C to +125°C             |
|                    |                     | ±200                 | —                                    | 1.0Ω - 9.76Ω<br>1.02MΩ - 10MΩ      |                                  |                                   |                             |
| RK73H2A (0805)     | 1/8W (.125W)        | ±100                 | 10Ω - 1MΩ                            | 10Ω - 1MΩ                          | 200V                             | 400V                              | -55°C to +125°C             |
|                    |                     | ±200                 | —                                    | 1.0Ω - 9.76Ω                       |                                  |                                   |                             |
|                    |                     | ±400                 | —                                    | 1.02MΩ - 10MΩ                      | 200V                             | 400V                              | -55°C to +125°C             |
| RK73H2B (1206)     | 1/4W (.25W)         | ±100                 | 10Ω - 1MΩ                            | 10Ω - 1MΩ                          |                                  |                                   |                             |
|                    |                     | ±200                 | —                                    | 1.0Ω - 9.76Ω<br>1.02MΩ - 5.6MΩ     | 200V                             | 400V                              | -55°C to +125°C             |
|                    |                     | ±400                 | —                                    | 5.62MΩ - 10MΩ                      |                                  |                                   |                             |
| RK73H2E (1210)     | 1/2W (.50W)         | ±100                 | 10Ω - 1KΩ                            | 10Ω - 1KΩ                          | 200V                             | 400V                              | -55°C to +125°C             |
|                    | 1/3W (.33W)         |                      | 1.02KΩ - 1MΩ                         | 1.02KΩ - 1MΩ                       |                                  |                                   |                             |
|                    | 1/2W (.50W)         | ±200                 | —                                    | 1.0Ω - 9.76Ω                       |                                  |                                   |                             |
|                    | 1/3W (.33W)         | ±200                 | —                                    | 1.02MΩ - 5.6MΩ                     |                                  |                                   |                             |
|                    | 1/3W (.33W)         | ±400                 | —                                    | 5.62MΩ - 10MΩ                      |                                  |                                   |                             |
| RK73HW2H/2H (2010) | 3/4W (.75W)         | ±100                 | 10Ω - 1MΩ                            | 10Ω - 1MΩ                          | 200V (500V*)                     | 400V (500V*)                      | -55°C to +125°C             |
|                    |                     | ±200                 | —                                    | 1.0Ω - 9.76Ω<br>1.02MΩ - 5.6MΩ     |                                  |                                   |                             |
|                    |                     | ±400                 | —                                    | 5.62MΩ - 10MΩ                      |                                  |                                   |                             |
| RK73HW3A/3A (2512) | 1W                  | ±100                 | 10Ω - 1MΩ                            | 10Ω - 1MΩ                          | 200V (500V*)                     | 400V (500V*)                      | -55°C to +125°C             |
|                    |                     | ±200                 | —                                    | 1.0Ω - 9.76Ω<br>1.02MΩ - 5.6MΩ     |                                  |                                   |                             |
|                    |                     | ±400                 | —                                    | 5.62MΩ - 10MΩ                      |                                  |                                   |                             |

\* Please contact KOA Speer for the Max. working voltage and the Max. overload voltage.

<sup>1</sup> 1H and 1F (1.0~9.1Ω, 1M~10MΩ) E-24 values only.

## environmental applications

### Performance Characteristics

| Parameter                    | Requirement Δ R (%+0.05Ω)                                  |                                                                             | 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>(2B: Rated Voltage x 2 for 5 seconds)     |
| Resistance to Soldering Heat | ±1%: 1F ~ W3A<br>(10Ω≤R≤1MΩ); ±3%: 1E ~ W3A (R<10Ω, R>1MΩ) | ±0.75%: 1F, 1H (10Ω<R<1MΩ);<br>±1%: 1E ~ W3A (R<10Ω, R>1MΩ); ±0.5%: Another | 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, ±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, 1H<br>+155°C, 1000 hours: 1E, 1J, 2A, 2B, 2E, W2H, W3A |

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