

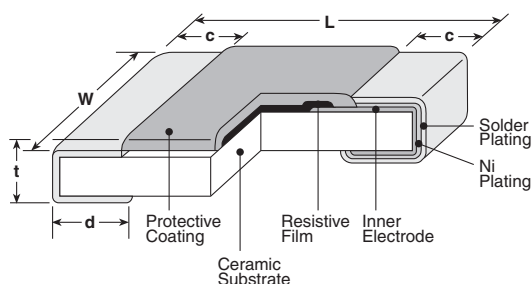
# general purpose 2%, 5% tolerance thick film chip resistor



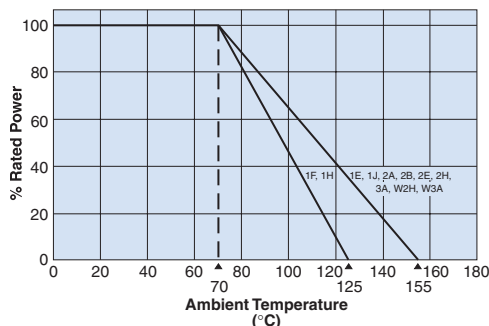
## features

- RuO<sub>2</sub> thick film resistor element
- Anti-leaching nickel barrier terminations
- Meets or exceeds EIA 575, EIAJ RC 2690A, EIA PDP-100, MIL-R-55342F
- Marking: White three-digit on black protective coat  
No marking on 1F, 1H and 1E sizes
- Products with lead-free terminations meet EU 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



## Derating Curve



| 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>+0.04</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>+0.08</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>+0.08</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)  |                          |                                                                                   |                          |
| <b>W2H</b><br>(2010)     |                                                                                  |                         |                          |                                                                                   |                          |
| <b>3A</b><br>(2512)      | .248±.008<br>(6.3±0.2)                                                           | .122±.008<br>(3.1±0.2)  |                          | .016 <sup>+0.08</sup> <sub>-.004</sub><br>(0.4 <sup>+0.2</sup> <sub>-.01</sub> )  |                          |
| <b>W3A</b><br>(2512)     |                                                                                  |                         |                          | .026±.006<br>(0.65±0.15)                                                          |                          |

## ordering information

| New Part # | RK73B | 2B                                                               | T                                                                                                                                                             | TD                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 102                                                                         | J                |
|------------|-------|------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|------------------|
| Type       |       | Size                                                             | Termination Material                                                                                                                                          | Packaging                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Nominal Resistance                                                          | Tolerance        |
|            |       | 1F<br>1H<br>1E<br>1J<br>2A<br>2B<br>2E<br>2H<br>3A<br>W2H<br>W3A | T: Sn<br>(1F, 1H, 1E,<br>1J, 2A, 2B, 2E,<br>2H, 3A)<br>L: SnPb<br>(1E, 1J, 2A,<br>2B, 2E, 2H, 3A)<br>G: Au<br>(1E, 1J, 2A:<br>10Ω ~ 1MΩ -<br>Contact factory) | 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 punched paper<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" 2mm pitch punched paper<br>TDD: 0603, 0805, 1206 & 1210: 10" paper tape<br>TE: 0805, 1206, 1210, 2010 & 2512: 7" punched plastic<br>TED: 0805, 1206, 1210, 2010 & 2512: 10" punched plastic<br>For further information on packaging, please refer to Appendix A | 2 significant figures + 1 multiplier<br>"R" indicates decimal on value <10Ω | 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.

10/29/08

## applications and ratings

| Part Designation*     | Power Rating<br>@ 70°C | T.C.R.<br>(ppm/°C)<br>Max. | Resistance Range<br>E-24**<br>(G±2%) | Resistance Range<br>E-24**<br>(J±5%) | Absolute<br>Maximum<br>Working<br>Voltage | Absolute<br>Maximum<br>Overload<br>Voltage | Operating<br>Temperature<br>Range |
|-----------------------|------------------------|----------------------------|--------------------------------------|--------------------------------------|-------------------------------------------|--------------------------------------------|-----------------------------------|
| RK73B1F<br>(01005)    | 1/32W (.03W)           | ±250                       | 6.8KΩ - 1MΩ                          | 6.8KΩ - 1MΩ                          | 15V                                       | 30V                                        | -55°C to +125°C                   |
|                       |                        | ±300                       | 10Ω - 6.2K                           | 10Ω - 6.2K                           |                                           |                                            |                                   |
| RK73B1H<br>(0201)     | 1/20W (.05W)           | ±200                       | 10Ω - 10MΩ                           | 10Ω - 10MΩ                           | 25V                                       | 50V                                        |                                   |
|                       |                        | ±400                       | —                                    | 1Ω - 9.1Ω                            |                                           |                                            |                                   |
| RK73B1E<br>(0402)     | 1/16W (.063W)          | ±200                       | 1Ω - 1MΩ                             | 1Ω - 10MΩ                            | 50V                                       | 100V                                       |                                   |
| RK73B1J<br>(0603)     | 1/10W (.10W)           | ±200                       | 1Ω - 10MΩ                            | 1Ω - 10MΩ                            |                                           |                                            |                                   |
|                       |                        | ±400                       | —                                    | 11MΩ - 22MΩ                          |                                           |                                            |                                   |
| RK73B2A<br>(0805)     | 1/8W (.125W)           | ±200                       | 1Ω - 1MΩ                             | 1Ω - 1MΩ                             | 150V                                      | 200V                                       |                                   |
|                       |                        | ±400                       | 1.1MΩ - 10MΩ                         | 1.1MΩ - 10MΩ                         |                                           |                                            |                                   |
| RK73B2B<br>(1206)     | 1/4W (.25W)            | ±200                       | 1Ω - 5.6MΩ                           | 1Ω - 5.6MΩ                           | 200V                                      | 400V                                       |                                   |
|                       |                        | ±400                       | 6.2MΩ - 10MΩ                         | 6.2MΩ - 22MΩ                         |                                           |                                            |                                   |
| RK73B2E<br>(1210)     | 1/2W (.50W)            | ±200                       | 10Ω - 1KΩ                            | 1Ω - 1KΩ                             |                                           |                                            |                                   |
|                       | 1/3W (.33W)            |                            | 1.1KΩ - 5.6MΩ                        | 1.1KΩ - 5.6MΩ                        |                                           |                                            |                                   |
|                       | 1/3W (.33W)            | ±400                       | —                                    | 6.2MΩ - 10MΩ                         |                                           |                                            |                                   |
| RK73B2H/W2H<br>(2010) | 3/4W (.75W)            | ±200                       | 10Ω - 5.6MΩ                          | 1Ω - 5.6MΩ                           |                                           |                                            |                                   |
|                       |                        | ±400                       | —                                    | 6.2MΩ - 22MΩ                         |                                           |                                            |                                   |
| RK73B3A/W3A<br>(2512) | 1W                     | ±200                       | 10Ω - 5.6MΩ                          | 1Ω - 5.6MΩ                           | 200V<br>(500V****)                        | 400V<br>(500V****)                         |                                   |
|                       |                        | ±400                       | —                                    | 6.2MΩ - 22MΩ                         |                                           |                                            |                                   |

\* Parenthesis indicate EIA package size codes.

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

\*\* See Appendix D for available decade values.

## environmental applications

### Performance Characteristics

| Parameter                   | Requirement ΔR                  |                                                    | Test Method                                                                    |
|-----------------------------|---------------------------------|----------------------------------------------------|--------------------------------------------------------------------------------|
|                             | Limit                           | Typical                                            |                                                                                |
| Resistance                  | Within regulated 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 Solder Heat   | ±1%, ±3%*                       | ±0.75%, ±1%,<br>±0.5%**                            | 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,<br>2B; ±1.5%<br>1F, ±0.5%: 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 |

\* ±1%: 1F~W3A (10Ω≤R≤1MΩ); ±3%: 1H~W3A (R&lt;10Ω, R&gt;1MΩ)

\*\* ±0.75%: 1F, 1H (10Ω≤R≤1MΩ); ±1%: 1J~W3A (R&lt;10Ω, R&gt;1MΩ); ±0.5%: Another

For Surface Temperature Rise Graph see Terms & Definitions. Additional environmental applications can also be found at [www.koaspeer.com](http://www.koaspeer.com)

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12/09/08