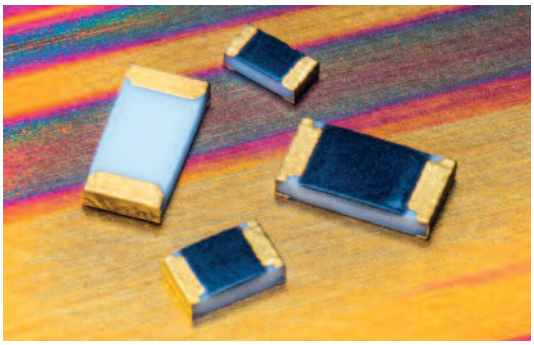
KOA SPEER ELECTRONICS, INC.

# HRK73

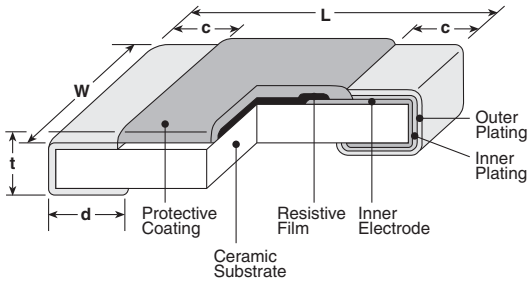
## high temperature flat chip resistors



## features

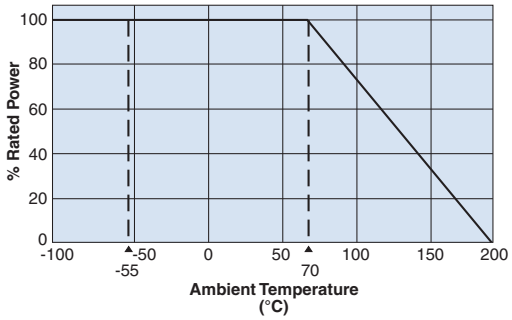
- Maximum operating temperature is 200°C. Suitable for soldering mounting (Sn plating products) or conductive glue mounting (Au plating products).
- Excellent heat resistance and weather reistance are ensured by the use of metal glaze thick film
- High stability and high reliability with the triple-layer structure of electrode
- Applicable to various kinds of automatic mounters for taping, etc
- 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

## dimensions and construction



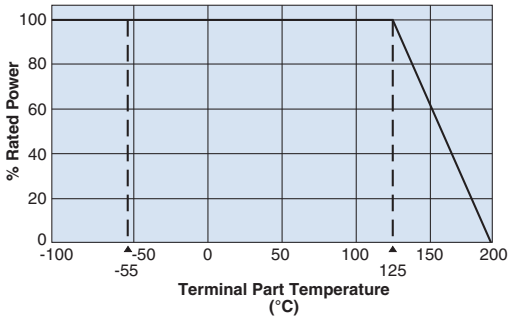

| | Type (Inch Size Code) | Dimensions inches (mm) L | W | c | d | t |
|---|---|---|---|---|---|---|
| NEW | 1E (0402) | .039 +.003 -.002 (1.0 +0.1 -0.05) | .020±.002 (0.5±0.05) | .008±.006 (0.2±0.15) | .010 +.002 -.004 (0.25 +0.05 -0.1) | .014±.002 (0.35±0.05) |
| | 1J (0603) | .063±.008 (1.6±0.2) | .031±.004 (0.8±0.1) | .014±.006 (0.35±0.15) | .012±.004 (0.3±0.1) | .018±.004 (0.45±0.1) |
| | 2A (0805) | .079±.008 (2.0±0.2) | .049±.004 (1.25±0.1) | .018±.010 (0.45±0.25) | .012 +.008 -.004 (0.3 +0.2 -0.1) | .02±.004 (0.5±0.1) |
| | 2B (1206) | .126±.008 (3.2±0.2) | .063±.008 (1.6±0.2) | .022±.014 (0.55±0.35) | .016 +.008 -.004 (0.4 +0.2 -0.1) | .024±.004 (0.6±0.1) |

### Derating Curve




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

**Applied to Sn Plating Products**




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.

## ordering information

| HRK73B | 2B | G | TD | 103 | J |
|---|---|---|---|---|---|
| **Type** | **Power Rating** | **Termination Material** | **Packaging** | **Nominal Resistance** | **Tolerance** |
| HRK73B<br>HRK73H | **NEW** 1E: 0.1W<br>1J: 0.1W<br>2A: 0.125W<br>2B: 0.25W | T: SN*<br>G: Au | TD: 4mm pitch punched paper<br>For further information on packaging, please refer to Appendix A | F: 4 digits<br>J: 3 digits | F: ±1%<br>J: ±5% |

* Under Development

**Specifications given herein may be changed at any time without prior notice. Please confirm technical specifications before you order and/or use.** 5/21/20

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# HRK73

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## applications and ratings

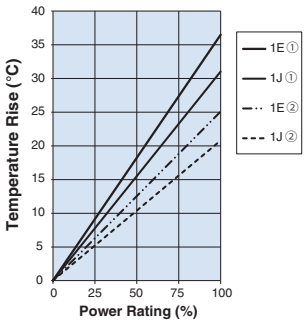
| | Part Designation | Power Rating | Rated Ambient Temp. | Rated Ambient Temp. | T.C.R. (x10⁻⁶/K) Max. | Resistance Range HRK73H F: ±1% E24* | Resistance Range HRK73B J: ±5% E24 | Absolute Maximum Working Voltage | Absolute Maximum Overload Voltage | Operating Temp. Range |
|---|---|---|---|---|---|---|---|---|---|---|
| NEW | HRK731E (0402) | 0.1W | 70°C | 125°C | ±200 | 10Ω~1MΩ | 1Ω~10MΩ | 75V | 100V | -55°C to +200°C |
| | HRK731J (0603) | 0.1W | 70°C | 125°C | ±200 | 10Ω~1MΩ | 1Ω~1MΩ | 50V | 100V | |
| | | | | | ±400 | — | 1.1MΩ~10MΩ | | | |
| | HRK732A (0805) | 0.125W | 70°C | 125°C | ±200 | 10Ω~1MΩ | 1Ω~1MΩ | 150V | 200V | |
| | | | | | ±400 | — | 1.1MΩ~10MΩ | | | |
| | HRK732B (1206) | 0.25W | 70°C | 125°C | ±200 | 10Ω~1MΩ | 1Ω~1MΩ | 200V | 400V | |
| | | | | | ±400 | — | 1.1MΩ~10MΩ | | | |

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

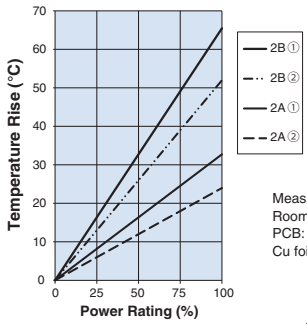
## environmental applications

### Temperature Rise

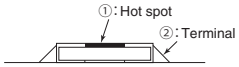
HRK73 1E-1J




HRK73 2A-2B



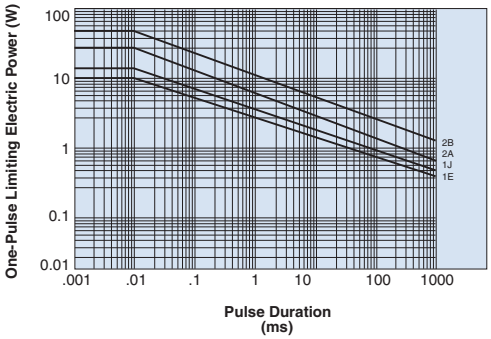

Measurement condition
Room temperature: 25°C
PCB: FR-4 t = 1.6mm
Cu foil thickness: 35μm




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.

### One-Pulse Limiting Electric Power

HRK73 1E-2B




The maximum applicable voltage is equal to the max. overload voltage. Please ask us about the resistance characteristic of continuous applied pulse.

### Performance Characteristics

| Parameter | Requirement Δ R ±(%+0.1Ω) Limit | Typical | Test Method |
|---|---|---|---|
| Resistance | Within specified tolerance | — | 25°C |
| Overload (Short time) | ±2% | ±0.5% | Rated Voltage x 2.5 for 5 seconds (2B: Rated Voltage x 2 for 5 seconds) |
| Moisture Resistance | ±2%: 1J, 2A, 2B<br>±3%: 1E | ±0.75%: 1J, 2A, 2B<br>±1%: 1E | 40°C ± 2°C, 90%-95% RH, 1000 hours, 1.5 hr ON, 0.5 hr OFF cycle |
| Endurance at 70°C or Rated Terminal Part Temperature | ±2%: 1J, 2A, 2B<br>±3%: 1E | ±0.75%: 1J, 2A, 2B<br>±1%: 1E | 70°C ± 2°C or rated terminal part temperature ±2%, 1000 hours, 1.5 hr ON, 0.5 hr OFF cycle |
| High Temperature Exposure | ±2% | ±0.5% | +200°C, 1000 hours |

For Surface Temperature Rise Graph see Environmental Applications. Additional environmental applications can also be found at www.koaspeer.com



5/21/20