**KOA**
**KOA SPEER ELECTRONICS, INC.**

current sense

EU RoHS COMPLIANT

## features

- Wide-side termination (reverse-geometry) type flat chip resistor
- High reliability and performance with T.C.R. $\pm100 \times 10^{-6}$/K, resistance tolerance ±0.5%
- 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



Solder Plating
Ni Plating
Inner Electrode
Resistive Film
Protective Coating
Ceramic Substrate
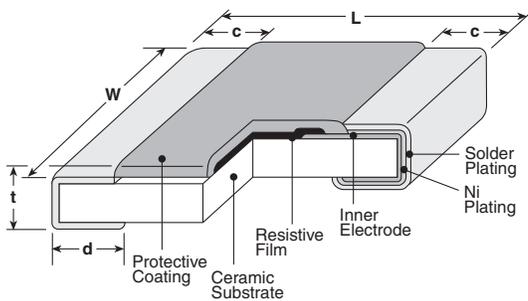
| Type (Inch Size Code) | Dimensions inches (mm) | | | | |
|---|---|---|---|---|---|
| | L | W | c | d | t |
| NEW 2A (0508) | .049±.006 (1.25±0.15) | .079±.006 (2.0±0.15) | .012±.008 (0.3±0.2) | .014±.008 (0.35±0.2) | .022±.004 (0.55±0.1) |
| 2B (0612) | .063±.006 (1.6±0.15) | .126±.008 (3.2±0.2) | .012±.008 (0.3±0.2) | .018±.006 (0.45±0.15) | .024±.004 (0.6±0.1) |
| 2H (1020) | .098±.006 (2.5±0.15) | .197±.006 (5.0±0.15) | .016±.008 (0.4±0.2) | | |
| 2J (1218) | .122±.006 (3.1±0.15) | .181±.006 (4.6±0.15) | .016±.008 (0.4±0.2) | .030±.006 (0.75±0.15) | |
| 3A (1225) | .122±.006 (3.1±0.15) | .252±.006 (6.3±0.15) | .018±.008 (0.45±0.2) | | |

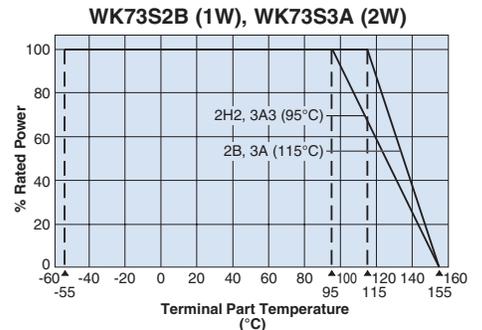## Derating Curve





### WK73S2B (1W), WK73S3A (2W)
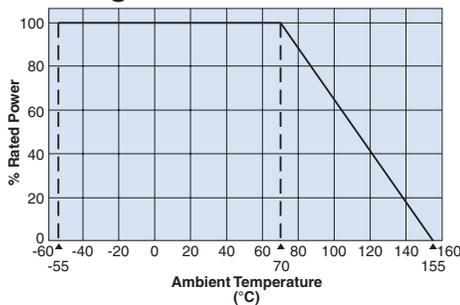


For resistors operated at an ambient temperature of 70°C or above, a power rating shall be derated in accordance with the above derating curve.
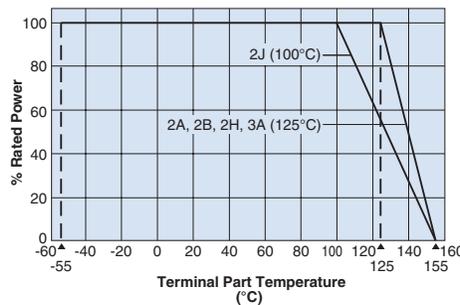
For resistors operated terminal temperature of described for each size or above, a power rating shall be derated in accordance with the derating curve above.
Please refer to "Introduction of the derating curve based on the terminal part temperature" in the beginning of our catalog before use.
If you want to use at rated power (*1), use derating curves based on the terminal part temperature on the right side graph.

## ordering information

| WK73S | 2J | T | TE | 33L0 | F |
|---|---|---|---|---|---|
| **Type** | **Size** | **Termination Material** | **Packaging** | **Nominal Resistance** | **Resistance Tolerance** |
| WK73S | **New** 2A: 1W<br>2B: 0.75W, 1W<br>2H: 1W<br>2J: 1W<br>3A: 1.5W, 2W | T: Sn | TD: 0508, 0612: 7" 4mm pitch punched paper<br>TE: 1020, 1218, 1225: 7" embossed plastic<br>For further information on packaging, please refer to Appendix A | ±1%: 3 significant figures + 1 multiplier "R" indicates decimal on value <100Ω<br>±5%: 2 significant figures + 1 multiplier "R" indicates decimal on values <10Ω<br>All values less than 0.1Ω (100mΩ) are expressed in mΩ with "L" as decimal.<br>Ex: 33mΩ, 1% = 33L0 | D: ±0.5%<br>F: ±1%<br>J: ±5% |

12/11/19

## applications and ratings

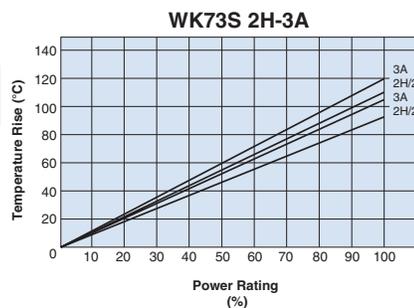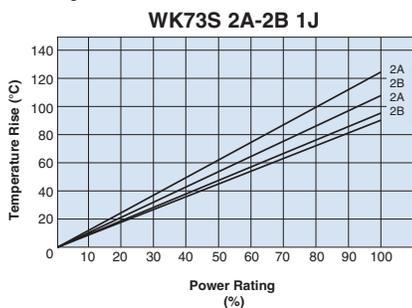| Part Designation | Power Rating | Rated Ambient Temp. | Rated Terminal Part Temp. | T.C.R. (X 10⁻⁶/K) | Resistance Range (Ω) | | | Maximum Working Voltage | Maximum Overload Voltage | Operating Temp. Range |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | D±0.5% E-24/E-96 | F±1% E-24/E-96 | J±5% E-24 | | | |
| **WK73S2A** (NEW) | 1.0W¹ | — | 125°C | ±100 | — | 1 - 9.76 | 1 - 9.1 | 200V | 400V | -55°C to +155°C |
| | | | | 0~+200 | — | 30m - 976m | 30m - 910m | | | |
| | | | | 0~+300 | — | 20m - 29.4m | 20m - 27m | | | |
| **WK73S2B** | 0.75W | 70°C | 125°C | ±800 | — | — | 10m - 27m | 200V | 400V | |
| | | | | ±200 | — | 30m - 422m | 30m - 390m | | | |
| | | | | ±100 | 430m - 9.76 | 430m - 9.76 | 430m - 9.1 | | | |
| | 1.0W¹ | — | 115°C | ±800 | — | — | 10m - 27m | | | |
| | | | | ±200 | — | 30m - 422m | 30m - 390m | | | |
| | | | | ±100 | 430m - 9.76 | 430m - 9.76 | 430m - 9.1 | | | |
| **WK73S2H** | 1.0W | 70°C | 125°C | ±800 | — | — | 10m - 24m | 200V | 400V | |
| | | | | ±200 | — | 27m - 215m | 27m - 200m | | | |
| | | | | ±100 | — | 220m - 9.76 | 220m - 9.1 | | | |
| **WK73S2J** | 1.0W | 70°C | 100°C | ±800 | — | — | 10m - 30m | 200V | 400V | |
| | | | | ±200 | — | 33m - 237m | 33m - 220m | | | |
| | | | | ±100 | — | 240m - 9.76 | 240m - 9.1 | | | |
| **WK73S3A** | 1.5W | 70°C | 125°C | ±800 | — | — | 10m - 20m | 200V | 400V | |
| | | | | ±300 | — | 22m - 32.4m | 22m - 30m | | | |
| | | | | ±200 | — | 33m - 357m | 33m - 330m | | | |
| | | | | ±100 | — | 360m - 9.76 | 360m - 9.1 | | | |
| | 2.0W¹ | — | 115°C | ±800 | — | — | 10m - 20m | | | |
| | | | | ±300 | — | 22m - 32.4m | 22m - 30m | | | |
| | | | | ±200 | — | 33m - 357m | 33m - 330m | | | |
| | | | | ±100 | — | 360m - 9.76 | 360m - 9.1 | | | |

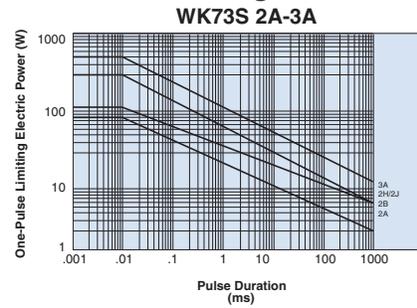Rated voltage = $\sqrt{\text{Power rating x resistance value}}$ or max. working voltage, whichever is lower

¹ If you want to use at rated power use derating curves based on the terminal part temperature on the right side graph located on previous page.

 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." For more details refer to the "Introduction of the derating curves based on the terminal part temperature" in the beginning of the catalog
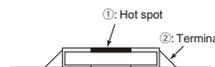
## Temperature Rise

### WK73S 2A-2B 1J



### WK73S 2H-3A



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

①: Hot spot
②: Terminal

## One-Pulse Limiting Electric Power

### WK73S 2A-3A



The maximum applicable voltage is equal to the max. overload voltage. Please contact factory for resistance characteristics of continuous applied pulse.

## environmental applications
### Performance Characteristics

| Parameter | Requirement Δ R ±(%+0.005Ω) | | 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% | ±0.2% | WK73S2A (1W), WK73S2B (1W), WK73S3A (2W): Rated voltage x2.0 for 5 seconds. WK7S2B, S2H, S2J, S3A: Rated voltage x2.5 for 3 seconds |
| Resistance to Solder Heat | ±1% | ±0.2% | 260°C ± 5°C, 10 seconds ± 1 second |
| Bending Test | ±1% | ±0.1% | Holding point 90mm, Bending 1 time, Bending 5mm |
| Rapid Change of Temperature | ±0.5% | ±0.3% | -55°C (30 minutes), +155°C (30 minutes), 5 cycles |
| Moisture Resistance | ±2% | ±0.2% | 40°C ± 2°C, 90%-95% RH, 1000 hours, 1.5 hr ON, 0.5 hr OFF cycle |
| Endurance at 70°C | ±2% | ±0.2% | 70°C ± 2°C, 1000 hours, 1.5 hr ON, 0.5 hr OFF cycle |
| High Temperature Exposure | ±2%: WK73S (±5%) ±1%: all others | ±0.5%: WK73S (±5%) ±0.2%: all others | +155°C, 1000 hours |

Additional environmental applications can also be found at www.koaspeer.com

**Specifications given herein may be changed at any time without prior notice. Please confirm technical specifications before you order and/or use.**     11/25/19

# Mouser Electronics

Authorized Distributor


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  WK73S2JTTER560F  WK73S2JTTER390F  WK73S3ATTER150F  WK73S2BTTD10LJ  WK73S2BTTD11LJ
WK73S2BTTD12LJ  WK73S2BTTD13LJ  WK73S2BTTD15LJ  WK73S2BTTD16LJ  WK73S2BTTD18LJ
WK73S2BTTD1R00F  WK73S2BTTD1R0J  WK73S2BTTD1R10F  WK73S2BTTD1R1J  WK73S2BTTD1R20F
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