features

- Semi-precision metal film resistors
- The discharge path resistor is recognized by UL 1676 and c-UL (CAS-C22.2 No.1-M94). (File No. E159326) (RK only)
- Meets requirements of MIL-R-22684
- Suitable for automatic machine insertion
- MFS two times the power rating of the standard body type
- Marking: Blue-gray body color with color-coded bands
- Products with lead-free terminations meet EU RoHS and China RoHS requirements

dimensions and construction

Derating Curve

Surface Temperature Rise

ordering information

New Part #  MF  1/4  L  C  T52  R  R20  J
Type  Power Rating  T.C.R.  Termination Material  Taping and Forming  Packaging  Nominal Resistance  Tolerance
MF  1/4: 0.25W  1/2: 0.50W  1: 1W  C: SnCu  1/4: T26, T52, VT, VTP, VTE, MT, M, U, M10, M25  A: Ammo  +2%, 2 significant figures + 1 multiplier  B: ±0.1%
MFS  1/4: 0.25W  1/2: 0.50W  1: 1W  D: ±0.5%  1/2: T26, T52, VT, VTP, VTE, M12.5, M15  R: Reel  +0.5%, 3 significant figures + 1 multiplier  C: ±0.25%
RK  1/4: 0.25W  1/2: 0.50W  1: 1W  G: ±2%  J: ±5%

For further information on packaging, please refer to Appendix C.

applications and ratings

<table>
<thead>
<tr>
<th>Part Designation</th>
<th>Power Rating @ 70°C</th>
<th>Minimum Dielectric Withstanding Voltage</th>
<th>T.C.R. (ppm/°C)</th>
<th>Resistance Range (Ω)</th>
<th>Absolute Maximum Working Voltage</th>
<th>Absolute Maximum Overload Voltage</th>
<th>Operating Temperature Range</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(B±0.1%)</td>
<td>(C±0.25%)</td>
<td>(D±0.5%)</td>
<td>(F±1.0%)</td>
</tr>
<tr>
<td>MFS1/4C</td>
<td>0.25W</td>
<td>300V</td>
<td></td>
<td>C: ±50</td>
<td>D: ±100</td>
<td>L: ±200</td>
<td>—</td>
</tr>
</tbody>
</table>
### General Purpose Metal Film Lined Resistor

#### Performance Characteristics

**Parameter** | **Requirement ± R (% + 0.05%)** | **Test Method**
--- | --- | ---
Resistance | Within specified tolerance | — | 25°C
T.C.R. | Within specified T.C.R. | — | Room temperature, +100°C
Overload (Short Time) | RK ± 1%, RK100 ± 2%, MP ± 0.5% | Rated voltage x 2.5 or max. overload voltage for 5 seconds, whichever is less; MF1/2: Rated voltage x 2 or max. overload voltage for 5 seconds, whichever is less
Resistance to Solder Heat | RK ± 1%, RK100 ± 2%, MFS ± 0.75%, MF1/4, MF1/2, MF1/3, MF1/5, MF1/12 ± 0.5% | 260°C ± 5°C, 10 seconds ± 1 second or 350°C ± 10°C, 3.5 seconds ± 0.5 second
Dielectric Withstanding Voltage | No breakdown | — | 1 minute
Insulation Resistance | Not less than 10,000MΩ | — | 100V, 1 minute
Rapid Change of Temperature | RK1 ± 1%, RK100 ± 1%, MFS ± 0.5%, MF1/4, MF1/2, MF1/3, MF1/5, MF1/12, ± 0.5% | -55°C (30 minutes), +155°C (30 minutes), 5 cycles
Moisture Resistance | RK ± 1%, RK100 ± 1%, MFS ± 0.5%, MF1/4, MF1/2, MF1/3, MF1/5, MF1/12, ± 0.5% | 40°C ± 2°C, 90 - 95% RH, 1000 hours, 1.5 hr ON, 0.5 hr OFF cycle
Endurance at 70°C | RK ± 1%, RK100 ± 1%, MFS ± 0.5%, MF1/4, MF1/2, MF1/3, MF1/5, MF1/12, ± 0.5% | 70°C ± 2°C, 1000 hours, 1.5 hr ON, 0.5 hr OFF cycle
Resistance to Solvent | No abnormality in appearance. Marking shall be easily legible | — | The resistor shall be immersed for 5 seconds in IPA
Impulse | No such abnormalities as short-circuit, burnout, breakdown, etc. | — | Discharge from 1000pF capacitor 50 pulses. Internal 2.5 seconds.

#### Environmental Applications

**Part Designation** | **Power Rating** | **Min. Dielectric Withstanding Voltage** | **Resistance Range (Ω)** | **Absolute Maximum Working Voltage** | **Absolute Maximum Overload Voltage** | **Operating Temperature Range**
--- | --- | --- | --- | --- | --- | ---
MF1/4C | 0.25W | 500V | C: ±50 30.1 - 750K 30.1 - 1.0M | 10 - 2.21M | — | 250V 500V
MF1/4D | D: ±100 24.3 - 750K 24.3 - 1.0M | 1.0 - 3.01M | — | —
MF1/4E | E: ±25 30.1 - 750K 30.1 - 1.0M | 30.1 - 1.0M | — | —
MF1/4L | L: ±200 — — — | 1.0 - 10 0.51 - 10 0.20 - 2.2M | — | —
MFS1/2C | 0.50W | 500V | C: ±50 47.5 - 1.0M 47.5 - 1.5M | 10 - 5.09M | — | 350V 700V
MFS1/2D | D: ±100 — — — | 10 - 2.21M | — | —
MFS1/2L | L: ±200 — — — | 2.2 - 2.2M | — | —
MF1/2C | 0.50W | 700V | C: ±50 47.5 - 1.0M 47.5 - 1.5M | 10 - 4.96M | — | 350V 700V
MF1/2D | D: ±100 — — — | 10 - 5.11M | — | —
MF1/2E | E: ±25 47.5 - 1.0M 47.5 - 1.5M | 47.5 - 2.0M | — | —
MF1/2L | L: ±200 — — — | 1.0 - 10 | 0.51 - 10 0.33 - 5.8M | — | —
MF1C | 1W | 700V | C: ±50 47.5 - 1.0M 47.5 - 2.49M | 10 - 5.11M | — | 350V 700V
MF1D | D: ±100 — — — | 10 - 6.81M | — | —
MF1E | E: ±25 47.5 - 2.0M 7.5 - 2.49M 47.5 - 4.68M | 47.5 - 5.11M | — | —
RK1/4D | 0.25W | 500V | D: ±100 — — — | 3.09M - 25M | — | 500V 700V
RK1/4L | L: ±200 — — — | — | — | —
RK1/4B | B: ±350 — — — | 100K - 25M 100K - 30M 100K - 33M | — | —
RK1/2D | 0.50W | 700V | D: ±100 — — — | 5.11M - 33M | — | 700V 1000V
RK1/2L | L: ±200 — — — | 6.2M - 33M 6.2M - 33M | — | —
RK1/2B | 700V | B: ±350 — — — | 100K - 30M 100K - 33M 100K - 35M | — | —
RK1BC | 1W | 1000V | B: ±350 — — — | 100K - 51M 100K - 100M 100K - 100M | — | —
RK1/2G | 0.50W | 700V | G: ±250 — — — | 1M - 12M | — | 350V 700V

* Discharge path resistor

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