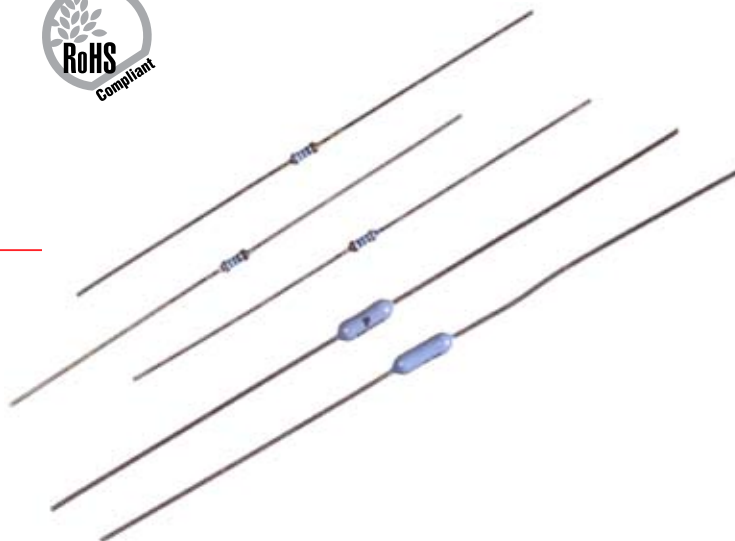


# Metal Devil®

**Metal Film Resistors, 1% Tolerance**  
**Available in E96 Ohmic values**  
**Industrial grades; RoHS Compliant**



## FEATURES

- Small in size
- Low in noise
- High Stability, Reliability
- EIA Standard Color Coded
- Standard, AMMO pack, Tape & Reel available
- 96 Values per decade

## SERIES SPECIFICATIONS

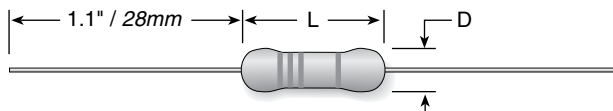
| Series | Wattage | Ohms  | Voltage | Max. overload<br>voltage |
|--------|---------|-------|---------|--------------------------|
| MJ     | 0.125   | 10-1M | 200     | 400                      |
| MK     | 0.25    | 10-1M | 250     | 500                      |
| ML     | 0.50    | 10-1M | 350     | 700                      |
| MM     | 1.00    | 10-1M | 500     | 1000                     |

## CHARACTERISTICS

|                         |                                           |
|-------------------------|-------------------------------------------|
| Coating                 | Epoxy                                     |
| Core                    | High grade ceramic                        |
| Terminals               | Solder-coated copper lead                 |
| Derating                | Linearly from 100% @ +70°C to 0% @ +155°C |
| Temperature coefficient | ±50 ppm/°C                                |

## DIMENSIONS

(in./mm)



| Series | Wattage | Max. Length | Max. Diam.  | Lead ga. | Qty. per reel |
|--------|---------|-------------|-------------|----------|---------------|
| MJ     | 0.125   | 0.138 / 3.5 | 0.073/1.85  | 24       | 5000          |
| MK     | 0.25    | 0.268 / 6.8 | 0.099 / 2.5 | 22       | 5000          |
| ML     | 0.50    | 0.355 / 9.0 | 0.118 / 3.0 | 22       | 4000          |
| MM     | 1.00    | 0.473/12.0  | 0.199 / 5.0 | 20       | 2500          |

(continued)

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## ORDERING INFORMATION

| RoHS Compliant          |                |           |                                     |
|-------------------------|----------------|-----------|-------------------------------------|
| M K 1 0 0 1 F E - R 5 2 |                |           |                                     |
| Series                  | Ohms           | Tolerance | Packaging Code                      |
| MJ                      | 10R0 = 10      | F = 1%    | R52 = tape & reel 52mm              |
| MK                      | 1001 = 1,000   |           | (except MM: R58 = Tape & Reel 58mm) |
| ML                      | 1002 = 10,000  |           | A52(26) = ammo pac 52mm (26mm)      |
| MM                      | 1003 = 100,000 |           |                                     |

| Ohmic value | Part No.<br>Prefix<br>Suffix | Wattage |      |      |     | Ohmic value | Part No.<br>Prefix<br>Suffix | Wattage |      |      |     | Ohmic value | Part No.<br>Prefix<br>Suffix | Wattage |      |      |     | Ohmic value | Part No.<br>Prefix<br>Suffix | Wattage |      |      |     |
|-------------|------------------------------|---------|------|------|-----|-------------|------------------------------|---------|------|------|-----|-------------|------------------------------|---------|------|------|-----|-------------|------------------------------|---------|------|------|-----|
|             |                              | 0.125   | 0.25 | 0.50 | 1.0 |             |                              | 0.125   | 0.25 | 0.50 | 1.0 |             |                              | 0.125   | 0.25 | 0.50 | 1.0 |             |                              | 0.125   | 0.25 | 0.50 | 1.0 |
| 10.0        | 10R0F                        | ✓       | ✓    | ✓    | ✓   | 499.0       | 4990F                        | ✓       | ✓    | ✓    | ✓   | 5230        | 5321F                        | ✓       | ✓    | ✓    | ✓   | 40,200      | 4022F                        | ✓       | ✓    | ✓    | ✓   |
| 12.1        | 12R1F                        | ✓       | ✓    | ✓    | ✓   | 511.0       | 5110F                        | ✓       | ✓    | ✓    | ✓   | 5620        | 5621F                        | ✓       | ✓    | ✓    | ✓   | 46,400      | 4642F                        | ✓       | ✓    | ✓    | ✓   |
| 15.0        | 15R0F                        | ✓       | ✓    | ✓    | ✓   | 604.0       | 6040F                        | ✓       | ✓    | ✓    | ✓   | 6040        | 6041F                        | ✓       | ✓    | ✓    | ✓   | 49,900      | 4992F                        | ✓       | ✓    | ✓    | ✓   |
| 16.2        | 16R2F                        | ✓       | ✓    | ✓    | ✓   | 634.0       | 6340F                        | ✓       | ✓    | ✓    | ✓   | 6190        | 6191F                        | ✓       | ✓    | ✓    | ✓   | 51,100      | 5112F                        | ✓       | ✓    | ✓    | ✓   |
| 20.0        | 20R0F                        | ✓       | ✓    | ✓    | ✓   | 681.0       | 6810F                        | ✓       | ✓    | ✓    | ✓   | 6490        | 6491F                        | ✓       | ✓    | ✓    | ✓   | 56,200      | 5622F                        | ✓       | ✓    | ✓    | ✓   |
| 20.5        | 20R5F                        | ✓       | ✓    | ✓    | ✓   | 698.0       | 6980F                        | ✓       | ✓    | ✓    | ✓   | 6810        | 6811F                        | ✓       | ✓    | ✓    | ✓   | 57,600      | 5762F                        | ✓       | ✓    | ✓    | ✓   |
| 22.1        | 22R1F                        | ✓       | ✓    | ✓    | ✓   | 750.0       | 7500F                        | ✓       | ✓    | ✓    | ✓   | 6980        | 6981F                        | ✓       | ✓    | ✓    | ✓   | 61,900      | 6192F                        | ✓       | ✓    | ✓    | ✓   |
| 24.9        | 24R9F                        | ✓       | ✓    | ✓    | ✓   | 825.0       | 8250F                        | ✓       | ✓    | ✓    | ✓   | 7500        | 7501F                        | ✓       | ✓    | ✓    | ✓   | 68,100      | 6812F                        | ✓       | ✓    | ✓    | ✓   |
| 30.1        | 30R1F                        | ✓       | ✓    | ✓    | ✓   | 909.0       | 9090F                        | ✓       | ✓    | ✓    | ✓   | 8060        | 8061F                        | ✓       | ✓    | ✓    | ✓   | 69,800      | 6982F                        | ✓       | ✓    | ✓    | ✓   |
| 39.2        | 39R2F                        | ✓       | ✓    | ✓    | ✓   | 1000        | 1001F                        | ✓       | ✓    | ✓    | ✓   | 8660        | 8661F                        | ✓       | ✓    | ✓    | ✓   | 75,000      | 7502F                        | ✓       | ✓    | ✓    | ✓   |
| 49.9        | 49R9F                        | ✓       | ✓    | ✓    | ✓   | 1100        | 1101F                        | ✓       | ✓    | ✓    | ✓   | 9090        | 9091F                        | ✓       | ✓    | ✓    | ✓   | 80,600      | 8062F                        | ✓       | ✓    | ✓    | ✓   |
| 51.1        | 51R1F                        | ✓       | ✓    | ✓    | ✓   | 1210        | 1211F                        | ✓       | ✓    | ✓    | ✓   | 10,000      | 1002F                        | ✓       | ✓    | ✓    | ✓   | 82,500      | 8252F                        | ✓       | ✓    | ✓    | ✓   |
| 60.4        | 60R4F                        | ✓       | ✓    | ✓    | ✓   | 1400        | 1401F                        | ✓       | ✓    | ✓    | ✓   | 11,000      | 1102F                        | ✓       | ✓    | ✓    | ✓   | 90,900      | 9092F                        | ✓       | ✓    | ✓    | ✓   |
| 75.0        | 75R0F                        | ✓       | ✓    | ✓    | ✓   | 2000        | 2001F                        | ✓       | ✓    | ✓    | ✓   | 11,500      | 1152F                        | ✓       | ✓    | ✓    | ✓   | 100,000     | 1003F                        | ✓       | ✓    | ✓    | ✓   |
| 82.5        | 82R5F                        | ✓       | ✓    | ✓    | ✓   | 2100        | 2101F                        | ✓       | ✓    | ✓    | ✓   | 12,100      | 1212F                        | ✓       | ✓    | ✓    | ✓   | 110,000     | 1103F                        | ✓       | ✓    | ✓    | ✓   |
| 90.9        | 90R9F                        | ✓       | ✓    | ✓    | ✓   | 2430        | 2431F                        | ✓       | ✓    | ✓    | ✓   | 13,000      | 1302F                        | ✓       | ✓    | ✓    | ✓   | 121,000     | 1213F                        | ✓       | ✓    | ✓    | ✓   |
| 100.0       | 1000F                        | ✓       | ✓    | ✓    | ✓   | 2490        | 2491F                        | ✓       | ✓    | ✓    | ✓   | 14,000      | 1402F                        | ✓       | ✓    | ✓    | ✓   | 130,000     | 1303F                        | ✓       | ✓    | ✓    | ✓   |
| 133.0       | 1330F                        | ✓       | ✓    | ✓    | ✓   | 2740        | 2741F                        | ✓       | ✓    | ✓    | ✓   | 15,000      | 1502F                        | ✓       | ✓    | ✓    | ✓   | 140,000     | 1403F                        | ✓       | ✓    | ✓    | ✓   |
| 143.0       | 1430F                        | ✓       | ✓    | ✓    | ✓   | 2800        | 2801F                        | ✓       | ✓    | ✓    | ✓   | 15,800      | 1582F                        | ✓       | ✓    | ✓    | ✓   | 150,000     | 1503F                        | ✓       | ✓    | ✓    | ✓   |
| 150.0       | 1500F                        | ✓       | ✓    | ✓    | ✓   | 3010        | 3011F                        | ✓       | ✓    | ✓    | ✓   | 16,200      | 1622F                        | ✓       | ✓    | ✓    | ✓   | 158,000     | 1583F                        | ✓       | ✓    | ✓    | ✓   |
| 182.0       | 1820F                        | ✓       | ✓    | ✓    | ✓   | 3240        | 3241F                        | ✓       | ✓    | ✓    | ✓   | 18,200      | 1822F                        | ✓       | ✓    | ✓    | ✓   | 178,000     | 1783F                        | ✓       | ✓    | ✓    | ✓   |
| 200.0       | 2000F                        | ✓       | ✓    | ✓    | ✓   | 3320        | 3321F                        | ✓       | ✓    | ✓    | ✓   | 20,000      | 2002F                        | ✓       | ✓    | ✓    | ✓   | 200,000     | 2003F                        | ✓       | ✓    | ✓    | ✓   |
| 221.0       | 2210F                        | ✓       | ✓    | ✓    | ✓   | 3830        | 3831F                        | ✓       | ✓    | ✓    | ✓   | 21,000      | 2102F                        | ✓       | ✓    | ✓    | ✓   | 210,000     | 2103F                        | ✓       | ✓    | ✓    | ✓   |
| 249.0       | 2490F                        | ✓       | ✓    | ✓    | ✓   | 3920        | 3921F                        | ✓       | ✓    | ✓    | ✓   | 22,100      | 2212F                        | ✓       | ✓    | ✓    | ✓   | 221,000     | 2213F                        | ✓       | ✓    | ✓    | ✓   |
| 301.0       | 3010F                        | ✓       | ✓    | ✓    | ✓   | 4220        | 4221F                        | ✓       | ✓    | ✓    | ✓   | 24,300      | 2432F                        | ✓       | ✓    | ✓    | ✓   | 232,000     | 2323F                        | ✓       | ✓    | ✓    | ✓   |
| 332.0       | 3320F                        | ✓       | ✓    | ✓    | ✓   | 4320        | 4321F                        | ✓       | ✓    | ✓    | ✓   | 24,900      | 2492F                        | ✓       | ✓    | ✓    | ✓   | 267,000     | 2673F                        | ✓       | ✓    | ✓    | ✓   |
| 342.0       | 3420F                        | ✓       | ✓    | ✓    | ✓   | 4530        | 4531F                        | ✓       | ✓    | ✓    | ✓   | 28,000      | 2802F                        | ✓       | ✓    | ✓    | ✓   | 301,000     | 3013F                        | ✓       | ✓    | ✓    | ✓   |
| 402.0       | 4020F                        | ✓       | ✓    | ✓    | ✓   | 4640        | 4641F                        | ✓       | ✓    | ✓    | ✓   | 30,100      | 3012F                        | ✓       | ✓    | ✓    | ✓   | 511,000     | 5113F                        | ✓       | ✓    | ✓    | ✓   |
| 422.0       | 4220F                        | ✓       | ✓    | ✓    | ✓   | 4750        | 4751F                        | ✓       | ✓    | ✓    | ✓   | 35,700      | 3572F                        | ✓       | ✓    | ✓    | ✓   | 750,000     | 7503F                        | ✓       | ✓    | ✓    | ✓   |
| 432.0       | 4320F                        | ✓       | ✓    | ✓    | ✓   | 4990        | 4991F                        | ✓       | ✓    | ✓    | ✓   | 36,500      | 3652F                        | ✓       | ✓    | ✓    | ✓   | 1,000,000   | 1004F                        | ✓       | ✓    | ✓    | ✓   |
| 475.0       | 4750F                        | ✓       | ✓    | ✓    | ✓   | 5110        | 5111F                        | ✓       | ✓    | ✓    | ✓   | 39,200      | 3922F                        | ✓       | ✓    | ✓    | ✓   |             |                              |         |      |      |     |