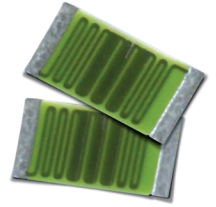


Advantages

Our patented Micropen® precision printing technology provides ultra precision, thick-film high voltage, military grade, surface mount resistors. Our military SMT chips have extended TCR temperature range and are stringently inspected. Ohmcraft's Micropenned serpentine patterned resistors produce superior electrical characteristics:

- **Voltage Ratings to 5,000 Volts**
- **Ultra High Stability**
- **TCR to 25 ppm/°C**
- **Resistance Values to 50 Gigohms**
- **Very Low Noise**
- **VCR to 1 ppm/V**
- **Extended TCR Range**
- **Tolerances to 0.1%**
- **Custom Configurations**



Electrical Specifications

Case Size	TCR (±ppm/°C)	Tolerance							
		0.10%	0.25%	0.50%	1%	2%	5%	10%	20%
0402	50				10K-100M	10K-100M	10K-100M	10K-100M	10K-100M
40mW	100				10K-500M	10K-500M	10K-500M	10K-500M	10K-500M
150V	200				10K-500M	10K-1G	10K-1G	10K-1G	10K-1G
0603	50			10K-10M	10K-100M	10K-500M	10K-500M	10K-500M	10K-500M
60mW	100			10K-10M	10K-500M	10K-1G	10K-1G	10K-1G	10K-1G
400V	200			10K-10M	10K-500M	10K-1G	10K-1G	10K-10G	10K-50G
0805	50			10K-10M	10K-500M	10K-500M	10K-500M	10K-500M	10K-500M
200mW	100			10K-10M	10K-1G	10K-1G	10K-1G	10K-1G	10K-1G
600V	200			10K-10M	10K-1G	10K-1G	10K-10G	10K-10G	10K-50G
1206	25	1M-10M	1M-100M	1M-100M	1M-100M	1M-100M	1M-100M	1M-100M	1M-100M
330mW	50	100K-10M	100K-100M	100K-500M	100K-500M	100K-500M	100K-500M	100K-500M	100K-500M
1500V	100	10K-10M	10K-100M	10K-500M	10K-500M	10K-1G	10K-1G	10K-1G	10K-1G
	200	10K-10M	10K-100M	10K-500M	10K-1G	10K-10G	10K-10G	10K-10G	10K-50G
2010	25	1M-10M	1M-100M	1M-100M	1M-100M	1M-100M	1M-100M	1M-100M	1M-100M
1W	50	100K-10M	100K-100M	100K-500M	100K-500M	100K-500M	100K-500M	100K-500M	100K-500M
2000V	100	10K-10M	10K-100M	10K-500M	10K-500M	10K-1G	10K-1G	10K-1G	10K-1G
	200	10K-10M	10K-100M	10K-500M	10K-1G	10K-10G	10K-10G	10K-10G	10K-50G
2512	25	1M-100M	1M-500M	1M-500M	1M-500M	1M-500M	1M-500M	1M-500M	1M-500M
2W	50	100K-100M	100K-500M	100K-1G	100K-1G	100K-1G	100K-1G	100K-1G	100K-1G
3000V	100	10K-100M	10K-500M	10K-1G	10K-1G	10K-10G	10K-10G	100K-10G	100K-10G
	200	10K-100M	10K-500M	10K-1G	10K-10G	10K-10G	10K-10G	100K-50G	100K-50G
3512	25	1M-100M	1M-500M	1M-500M	1M-500M	1M-500M	1M-500M	1M-500M	1M-500M
2W	50	100K-100M	100K-500M	100K-1G	100K-1G	100K-1G	100K-1G	100K-1G	100K-1G
3500V	100	10K-100M	10K-500M	10K-1G	10K-10G	10K-10G	10K-10G	100K-10G	100K-10G
	200	10K-100M	10K-500M	10K-1G	10K-10G	10K-10G	10K-10G	100K-50G	100K-50G
4020	25	1M-100M	1M-500M	1M-500M	1M-500M	1M-500M	1M-500M	1M-500M	1M-500M
2W	50	100K-100M	100K-500M	100K-1G	100K-1G	100K-1G	100K-1G	100K-1G	100K-1G
4000V	100	10K-100M	10K-500M	10K-1G	10K-10G	10K-10G	10K-10G	100K-10G	100K-10G
	200	10K-100M	10K-500M	10K-1G	10K-10G	10K-10G	10K-10G	100K-50G	100K-50G
5020	25	1M-100M	1M-500M	1M-500M	1M-500M	1M-500M	1M-500M	1M-500M	1M-500M
2W	50	100K-100M	100K-500M	100K-1G	100K-1G	100K-1G	100K-1G	100K-1G	100K-1G
5000V	100	10K-100M	10K-500M	10K-1G	10K-10G	10K-10G	10K-10G	100K-10G	100K-10G
	200	10K-100M	10K-500M	10K-1G	10K-10G	10K-10G	10K-10G	100K-50G	100K-50G

The continuous maximum applied voltage cannot exceed the maximum power rating and is ohmic value dependent.
 Standard case sizes: 0402, 0403, 0502, 0504, 0603, 0805, 1004, 1005, 1206, 1210, 1505, 2010, 2208, 2510, 2512, 3512, 4020, 5020.
 Military case sizes: RM0402, RM0603, RM0705, RM1206, RM2010, RM2512.
 For custom sizes and configurations, contact ohmcraftsales@exxelia.com.

How to Order

MCH	+		+		+		+		+	
Type		Case Size		TCR		Value		Tolerance		Termination
Military Grade High Voltage Chips		See dimension table. Custom case sizes are available. Please consult factory.		E ±25ppm/°C H ±50ppm/°C K ±100ppm/°C L ±200ppm/°C		Resistance value expressed as a four digit number, where the first three numbers are the significant value, and the fourth number is the number of zeroes.		B ±0.1% C ±0.25% D ±0.5% F ±1.0% G ±2.0% J ±5.0% K ±10% L ±20%		T Solderable wraparound matte tin Sn99.9 on Ni barrier, RoHS B Solderable wraparound Sn63Pb37 solder over Ni barrier Z Solderable single surface matte tin Sn99.9 on Ni barrier, flip-chip, RoHS S Solderable single surface Sn63Pb37, flip-chip U Epoxy bondable gold wraparound over Ni

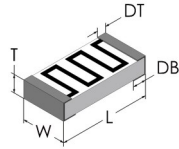
Packaging options: Bulk, Tape & Reel or Flat Pack



Chip Dimensions

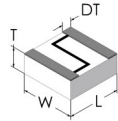
Wrap-around

B and T Terminations



Bondable

G, Z, and S Terminations



Case Size	Length	Width	Thickness (Max.)	DT	DB	Units
0402	0.040 ±0.005	0.020 ±0.003	0.020	0.008 ±0.004	0.010 +0.002/-0.004	inches
	1.02 ±0.13	0.51 ±0.08	0.51	0.20 ±0.10	0.25 +0.05/-0.10	mm
0603	0.063 +0.01/-0.005	0.031 ±0.005	0.020	0.010 ±0.005	0.012 ±0.008	inches
	1.60 +0.25/-0.13	0.79 ±0.13	0.51	0.25 ±0.13	0.30 ±0.20	mm
0805	0.079 +0.01/-0.005	0.050 ±0.005	0.025	0.010 ±0.005	0.013 ±0.008	inches
	2.01 +0.25/-0.13	1.27 ±0.13	0.64	0.25 ±0.13	0.33 ±0.20	mm
1206	0.126 +0.01/-0.005	0.063 ±0.005	0.030	0.010 ±0.005	0.020 ±0.010	inches
	3.20 +0.25/-0.13	1.60 ±0.13	0.76	0.25 ±0.13	0.51 ±0.25	mm
2010	0.200 +0.01/-0.005	0.100 ±0.005	0.030	0.018 ±0.010	0.020 ±0.010	inches
	5.08 +0.25/-0.13	2.54 ±0.13	0.76	0.46 ±0.25	0.51 ±0.25	mm
2512	0.250 +0.01/-0.005	0.125 ±0.005	0.030	0.020 ±0.010	0.024 ±0.010	inches
	6.35 +0.25/-0.13	3.18 ±0.13	0.76	0.51 ±0.25	0.61 ±0.25	mm
3512	0.350 +0.01/-0.005	0.125 ±0.005	0.030	0.020 ±0.010	0.024 ±0.010	inches
	8.89 +0.25/-0.13	3.18 ±0.13	0.76	0.51 ±0.25	0.61 ±0.25	mm
4020	0.400 +0.01/-0.005	0.200 ±0.005	0.030	0.025 ±0.010	0.030 ±0.010	inches
	10.16 +0.25/-0.13	5.08 ±0.13	0.76	0.64 ±0.25	0.76 ±0.25	mm
5020	0.500 +0.01/-0.005	0.200 ±0.005	0.030	0.025 ±0.010	0.030 ±0.010	inches
	12.70 +0.25/-0.13	5.08 ±0.13	0.76	0.76 ±0.25	0.76 ±0.25	mm

Other available case sizes: 0403, 0502, 0504, 1004, 1005, 1210, 1505, 2208, 2510, and custom.

For custom sizes and configurations, contact ohmcraftsales@exxelia.com.

Typical Performance Characteristics

Test	Maximum ΔR
Short Time Overload	0.1%
Load Life	0.1%
Thermal Shock	0.1%
Resistance to Soldering Heat	0.05%

Parameter	Typical
Operating Temperature	-55°C to 150°C
TCR	Measured from 25°C to 75°C
Pulse Capability	10X rated wattage for custom pulse applications consult factory
Resistance Value	Values > 10M are measured at 100 VDC for custom test voltages consult factory

Material Construction

Resistive Element	Thick Film
Substrate	96% Alumina
Encapsulation	Epoxy
Termination	Tin over nickel barrier, lead solder over nickel barrier, or gold

Tape and Reel Specifications

Parts are packaged in accordance with EIA-481 tape and reel specifications.

Custom Configurations Available Upon Request

Please consult with our knowledgeable sales staff for help specifying custom parts to meet your needs:

E: ohmcraftsales@exxelia.com

P: 585.624.2610

www.ohmcraft.com

93 Paper Mill St.

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Power Derating Curve

