



Features

- RoHS compliant*
- Values from 0.02 to 9.10 ohms
- Tolerance of 1 % or 5 %
- Five package sizes available
- Tape and reel packaging



Select models are currently available, but not recommended for new designs. See [Product Obsolescence Memo](#) for details.

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CRL Series - Low Value Chip Resistors

Electrical Characteristics

Characteristic	Model CRL0603	Model CRL0805	Model CRL1206	Model CRL2010	Model CRL2512
Power Rating @ 70 °C	0.100 watt	0.125 watt	0.250 watt	0.50 watt	1.00 watt
Operating Temperature Range	-55 to +125 °C				
Derated to Zero Load at	+125 °C				
Maximum Working Voltage	(PR) ^{1/2}	(PR) ^{1/2}	(PR) ^{1/2}	(PR) ^{1/2}	(PR) ^{1/2}
Resistance Range E24 Values: See Value Table:	0.10 to 9.10 Ω N/A	0.10 to 9.10 Ω 0.05 to 0.09 Ω	0.10 to 9.10 Ω 0.02 to 0.09 Ω	0.10 to 9.10 Ω 0.02 to 0.09 Ω	0.10 to 9.10 Ω 0.02 to 0.09 Ω
Temperature Coefficient 0.05 Ω to 9.10 Ω 0.03 Ω to 0.04 Ω 0.02 Ω	±200 PPM/°C ±400 PPM/°C ±600 PPM/°C				

Value Table

Value (Ω)	CRL0603 1 %	CRL0603 5 %	CRL0805 1 %	CRL0805 5 %	CRL1206 1 %	CRL1206 5 %	CRL2010 1 %	CRL2010 5 %	CRL2512 1 %	CRL2512 5 %
0.02	Not Available	Not Available	Not Available	Not Available	A	A	P	P	P	P
0.03	Not Available	Not Available	Not Available	Not Available	A	A	P	P	P	P
0.04	Not Available	Not Available	Not Available	Not Available	A	A	P	P	P	P
0.05	Not Available	Not Available	A	A	A	A	P	P	P	P
0.06	Not Available	Not Available	A	A	A	A	A	A	A	A
0.07	Not Available	Not Available	A	A	A	A	A	A	A	A
0.08	Not Available	Not Available	A	A	A	A	A	A	A	A
0.09	Not Available	Not Available	A	A	A	A	A	A	A	A

P = Popular Value

A = Available Value (may have greater minimum order quantity)

Environmental Characteristics

Description	Method	Limit
Short Time Overload	2.5 x (PR) ^{1/2} for 5 seconds. (IEC 115-1 4.13)	1 % Tolerance: $\Delta R \leq \pm(1 \% + 0.001 \Omega)$ 5 % Tolerance: $\Delta R \leq \pm(2 \% + 0.001 \Omega)$
Load Life	(PR) ^{1/2} for 1000 hours; 1.5 hours on; 0.5 hours off. (IEC 115-1 4.25.1)	1 % Tolerance: $\Delta R \leq \pm(1 \% + 0.001 \Omega)$ 5 % Tolerance: $\Delta R \leq \pm(2 \% + 0.001 \Omega)$
Resistance to Soldering Heat	260 °C for 10 seconds. (IEC 115-1 4.18)	1 % Tolerance: $\Delta R \leq \pm(0.5 \% + 0.001 \Omega)$ 5 % Tolerance: $\Delta R \leq \pm(1 \% + 0.001 \Omega)$
Thermal Shock	5 cycles from -55 °C to +125 °C, 30 minutes at temperature. (IEC 115-1 4.19)	1 % Tolerance: $\Delta R \leq \pm(0.5 \% + 0.001 \Omega)$ 5 % Tolerance: $\Delta R \leq \pm(1 \% + 0.001 \Omega)$

*RoHS Directive 2002/95/EC Jan. 27, 2003 including annex and RoHS Recast 2011/65/EU June 8, 2011.

Specifications are subject to change without notice.

The device characteristics and parameters in this data sheet can and do vary in different applications and actual device performance may vary over time. Users should verify actual device performance in their specific applications.

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Chip Dimensions

Dimension	Model CRL0603	Model CRL0805	Model CRL1206	Model CRL2010	Model CRL2512
L	$\frac{1.60 \pm 0.10}{(0.063 \pm 0.004)}$	$\frac{2.00 \pm 0.15}{(0.079 \pm 0.006)}$	$\frac{3.20 \pm 0.15}{(0.126 \pm 0.006)}$	$\frac{5.00 \pm 0.20}{(0.197 \pm 0.008)}$	$\frac{6.30 \pm 0.20}{(0.248 \pm 0.008)}$
W	$\frac{0.80 \pm 0.10}{(0.031 \pm 0.004)}$	$\frac{1.25 \pm 0.10}{(0.049 \pm 0.004)}$	$\frac{1.60 \pm 0.15}{(0.063 \pm 0.006)}$	$\frac{2.50 \pm 0.20}{(0.098 \pm 0.008)}$	$\frac{3.10 \pm 0.20}{(0.122 \pm 0.008)}$
H	$\frac{0.45 \pm 0.10}{(0.018 \pm 0.004)}$	$\frac{0.50 \pm 0.10}{(0.020 \pm 0.004)}$	$\frac{0.60 \pm 0.10}{(0.024 \pm 0.004)}$	$\frac{0.60 \pm 0.10}{(0.024 \pm 0.004)}$	$\frac{0.60 \pm 0.10}{(0.024 \pm 0.004)}$
l_1	$\frac{0.30 \pm 0.20}{(0.012 \pm 0.008)}$	$\frac{0.40 \pm 0.20}{(0.016 \pm 0.008)}$	$\frac{0.50 \pm 0.25}{(0.020 \pm 0.010)}$	$\frac{0.60 \pm 0.25}{(0.024 \pm 0.010)}$	$\frac{0.60 \pm 0.25}{(0.024 \pm 0.010)}$
l_2	$\frac{0.30 \pm 0.20}{(0.012 \pm 0.008)}$	$\frac{0.40 \pm 0.20}{(0.016 \pm 0.008)}$	$\frac{0.50 \pm 0.25}{(0.020 \pm 0.010)}$	$\frac{0.60 \pm 0.25}{(0.024 \pm 0.010)}$	$\frac{0.60 \pm 0.20}{(0.024 \pm 0.008)}$

Dimensional Drawing



DIMENSIONS: $\frac{\text{MM}}{(\text{INCHES})}$

Derating Curve



How to Order

CRL 0603 - F W - R090 E LF

Model _____
(CRL = Chip Resistor Low Value)

Size _____
• 0603
• 0805
• 1206
• 2010
• 2512

Resistance Tolerance _____
F = $\pm 1\%$
J = $\pm 5\%$

TCR (PPM/°C) _____
W = ± 200 (0.05 to 9.10 Ω)
V = ± 400 (0.03 to 0.04 Ω)
U = ± 600 (0.02 Ω)

Resistance Value (1 % or 5 %) _____
• R stands for decimal point. Three significant digits: (R090 = 0.09 Ω ; 9R10 = 9.10 Ω)

Packaging _____
• CRL0603, CRL0805, CRL1206: E = Paper Tape, Plastic Reel, 5,000 pcs.
• CRL2010, CRL2512: E = Embossed Plastic Tape, Plastic Reel, 4,000 pcs.

Termination _____
LF = Tin-plated (RoHS compliant)

CRL Series - Low Value Chip Resistors

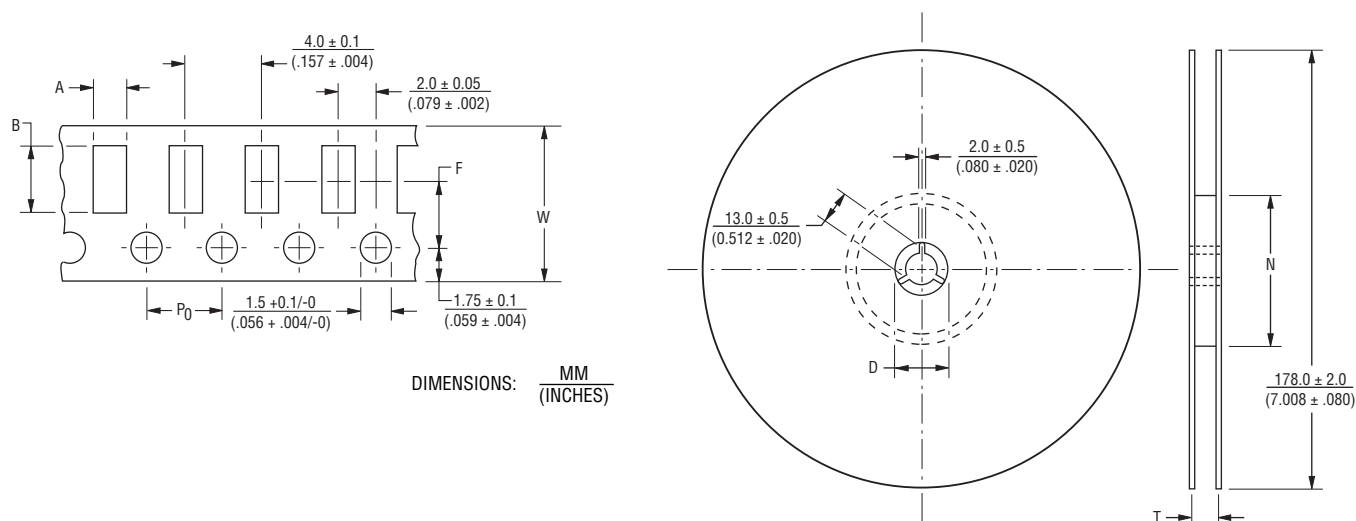
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Packaging Dimensions - Tape

Dimension	Model CRL0603	Model CRL0805	Model CRL1206	Model CRL2010	Model CRL2512
A	$\frac{1.10 \pm 0.10}{(0.043 \pm 0.004)}$	$\frac{1.65 + 0.20 / - 0.10}{(0.065 + 0.008 / -.004)}$	$\frac{1.95 + 0.10 / - 0.05}{(0.077 + 0.004 / -.002)}$	$\frac{2.80 \pm 0.20}{(0.110 \pm 0.008)}$	$\frac{3.50 \pm 0.20}{(0.138 \pm 0.008)}$
B	$\frac{1.90 \pm 0.10}{(0.075 \pm 0.004)}$	$\frac{2.40 + 0.20 / - 0.10}{(0.094 + 0.008 / -.004)}$	$\frac{3.50 \pm 0.10}{(0.138 \pm 0.004)}$	$\frac{5.50 \pm 0.20}{(0.217 \pm 0.008)}$	$\frac{6.70 \pm 0.20}{(0.264 \pm 0.008)}$
W	$\frac{8.00 \pm 0.20}{(0.315 \pm 0.008)}$	$\frac{8.00 \pm 0.20}{(0.315 \pm 0.008)}$	$\frac{8.00 \pm 0.20}{(0.315 \pm 0.008)}$	$\frac{12.0 \pm 0.30}{(0.472 \pm 0.012)}$	$\frac{12.00 \pm 0.30}{(0.472 \pm 0.012)}$
F	$\frac{3.50 \pm 0.05}{(0.138 \pm 0.002)}$	$\frac{3.50 \pm 0.05}{(0.138 \pm 0.002)}$	$\frac{3.50 \pm 0.05}{(0.138 \pm 0.002)}$	$\frac{5.50 \pm 0.05}{(0.217 \pm 0.002)}$	$\frac{5.50 \pm 0.05}{(0.217 \pm 0.002)}$
P ₀	$\frac{4.00 \pm 0.10}{(0.157 \pm 0.004)}$	$\frac{4.00 \pm 0.10}{(0.157 \pm 0.004)}$	$\frac{4.00 \pm 0.10}{(0.157 \pm 0.004)}$	$\frac{4.00 \pm 0.10}{(0.157 \pm 0.004)}$	$\frac{4.00 \pm 0.10}{(0.157 \pm 0.004)}$

Packaging Dimensions - Reel

Dimension	Model CRL0603	Model CRL0805	Model CRL1206	Model CRL2010	Model CRL2512
N	$\frac{80.00 \pm 1.00}{(3.150 \pm 0.040)}$	$\frac{80.00 \pm 1.00}{(3.150 \pm 0.040)}$	$\frac{80.00 \pm 1.00}{(3.150 \pm 0.040)}$	$\frac{80.00 \pm 0.20}{(3.150 \pm 0.008)}$	$\frac{80.00 \pm 0.20}{(3.150 \pm 0.008)}$
D	$\frac{20.50}{(0.807)}$	$\frac{20.50}{(0.807)}$	$\frac{20.50}{(0.807)}$	$\frac{20.00}{(0.787)}$ MIN.	$\frac{20.00}{(0.787)}$ MIN.
T	$\frac{10.00 \pm 1.50}{(0.394 \pm 0.059)}$	$\frac{10.00 \pm 1.50}{(0.394 \pm 0.059)}$	$\frac{10.00 \pm 1.50}{(0.394 \pm 0.059)}$	$\frac{16.70}{(0.657)}$ MAX.	$\frac{16.70}{(0.657)}$ MAX.



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Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

Bourns:

CRL2512-FU-R016E	CRL2512-JU-R016E	CRL0805-JW-R620E	CRL0805-FW-R620E	CRL2512-JU-R015E
CRL2512-FU-R015E	CRL0603-JW-R100E	CRL2512-JU-R011E	CRL2010-FW-R560E	CRL2512-JU-R018E
CRL2010-JW-R560E	CRL2512-FU-R018E	CRL2512-FU-R010E	CRL2512-JU-R013E	CRL0603-FW-R100E
CRL2512-FU-R011E	CRL2512-FU-R013E	CRL2512-JU-R010E	CRL2512-JU-R012E	CRL2512-FW-R051E
CRL2512-FU-R012E	CRL2512-JW-R056E	CRL2512-FW-R056E	CRL2512-JW-R051E	CRL0603-FW-R180E
CRL2512-FW-R091E	CRL0603-JW-R180E	CRL2512-JW-R091E	CRL0805-JW-R051E	CRL2010-FW-R220E
CRL2010-JW-R220E	CRL2010-FW-R068E	CRL0805-FW-R056E	CRL2512-JW-R560E	CRL0805-JW-R056E
CRL0805-FW-R051E	CRL2512-FW-R560E	CRL0603-JW-R560E	CRL1206-FW-R075E	CRL1206-JW-R075E
CRL0603-FW-R560E	CRL1206-FW-R051E	CRL1206-JW-R051E	CRL0603-JW-R910E	CRL0603-FW-R910E
CRL1206-FW-R220E	CRL1206-JW-R220E	CRL1206-JV-R027E	CRL2010-FU-R013E	CRL1206-FV-R024E
CRL1206-JV-R024E	CRL1206-FV-R027E	CRL2512-FW-R470E	CRL2512-JW-R470E	CRL2010-FU-R015E
CRL1206-FU-R020E	CRL1206-JU-R020E	CRL0805-JV-R047E	CRL0805-FW-R200E	CRL0805-JW-R200E
CRL1206-FV-R022E	CRL1206-JV-R022E	CRL0805-FV-R047E	CRL1206-FW-R430E	CRL2010-JW-R180E
CRL1206-JW-R430E	CRL2010-FW-R180E	CRL1206-FW-R330E	CRL2010-FW-R120E	CRL2010-JW-R120E
CRL2010-JW-R240E	CRL2010-FW-R240E	CRL1206-JW-R330E	CRL0805-FW-R390E	CRL0603-JW-R620E
CRL0603-FW-R620E	CRL0805-JW-R390E	CRL1206-FW-R200E	CRL1206-JW-R200E	CRL0805-FW-R430E
CRL0805-JW-R430E	CRL2512-FV-R024E	CRL2512-JV-R024E	CRL2512-FU-R020E	CRL2512-JU-R020E
CRL2010-FU-R016E	CRL2512-JW-R510E	CRL2512-FW-R510E	CRL0805-FW-R082E	CRL2010-FU-R011E
CRL0805-JW-R082E	CRL2010-FU-R018E	CRL2512-FW-R750E	CRL2512-JW-R750E	CRL1206-FW-R300E
CRL1206-JW-R300E	CRL2010-FU-R012E	CRL2512-FW-R082E	CRL2512-JW-R082E	CRL2512-JW-R220E