

Features

- RoHS compliant*
- Values from 0.1 to 0.91 ohms
- Tolerance of 1 % or 5 %
- Five package sizes available
- Tape and reel packaging

CRL Series - Low Value Chip Resistors

Electrical Characteristics

Characteristic	Model CRL0603	Model CRL0805	Model CRL1206	Model CRL2010	Model CRL2512
Power Rating @ 70 °C (W)	0.125	0.25	0.50	0.75	1.00
Operating Temperature Range	-55 to +155 °C				
Derated to Zero Load at	+155 °C				
Maximum Working Voltage	(PR) ^{1/2}				
Resistance Range <u>1 %</u> E24 Series	0.10 to 0.91 Ω				
Resistance Range <u>5 %</u> * E24 Series	0.10 to 0.91 Ω				
Temperature Coefficient	±200 PPM/°C				

* For resistance values ≥ 1 ohm, please see Bourns® [Model CR Series](#).

Additional Information

Click these links for more information:



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: $\Delta R \leq \pm(1 \% + 0.001 \Omega)$

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WARNING Cancer and Reproductive Harm
www.P65Warnings.ca.gov

*RoHS Directive 2015/863, Mar 31, 2015 and Annex.

Specifications are subject to change without notice.

Users should verify actual device performance in their specific applications.

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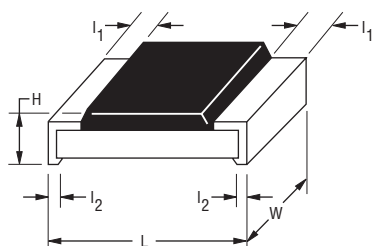
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Chip Dimensions

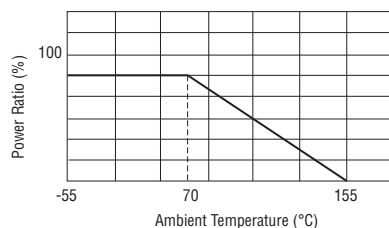
Dimension	Model CRL0603	Model CRL0805	Model CRL1206	Model CRL2010	Model CRL2512
L	$\frac{1.60 \pm 0.10}{(0.063 \pm 0.004)}$	$\frac{2.00 \pm 0.15}{(0.079 \pm 0.006)}$	$\frac{3.20 \pm 0.15}{(0.126 \pm 0.006)}$	$\frac{5.00 \pm 0.20}{(0.197 \pm 0.008)}$	$\frac{6.30 \pm 0.20}{(0.248 \pm 0.008)}$
W	$\frac{0.80 \pm 0.10}{(0.031 \pm 0.004)}$	$\frac{1.25 \pm 0.10}{(0.049 \pm 0.004)}$	$\frac{1.60 \pm 0.15}{(0.063 \pm 0.006)}$	$\frac{2.50 \pm 0.20}{(0.098 \pm 0.008)}$	$\frac{3.10 \pm 0.20}{(0.122 \pm 0.008)}$
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 - R100 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 ($0.1 \Omega \leq R \leq 0.91 \Omega$)

Resistance Value (1 % or 5 %) _____

• R stands for decimal point. Three significant digits: (R100 = 0.1Ω ; 0R91 = 0.91Ω)

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)

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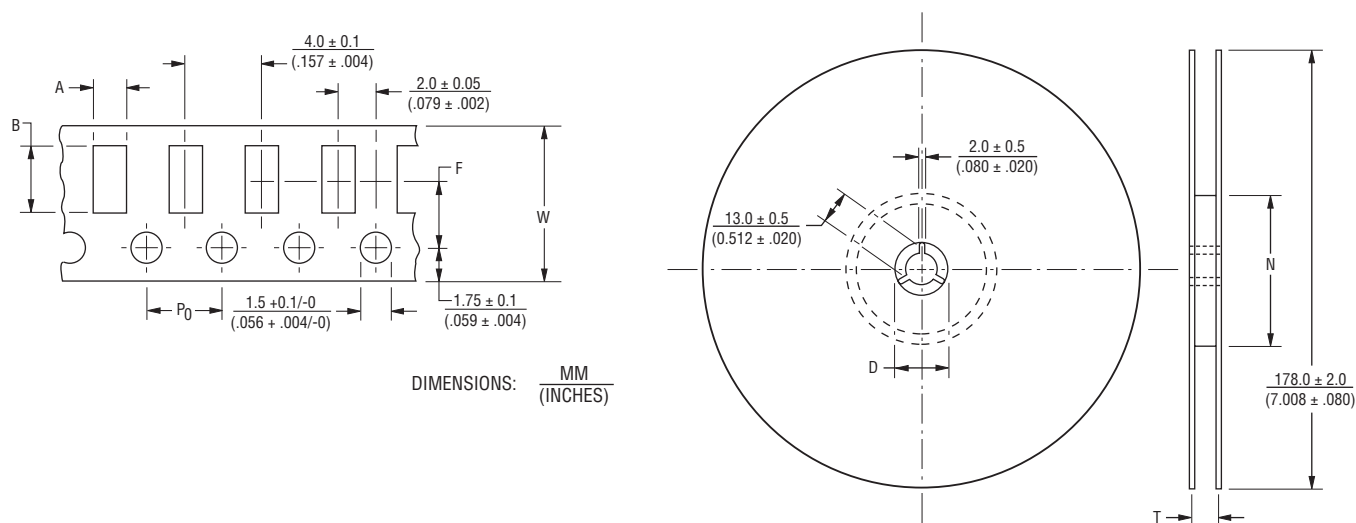
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Packaging Dimensions - Tape

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