

Features

- Lead free version available (see How to Order "Termination" options)
- Lead free versions are RoHS compliant*
- Values from 0.01 to 9.10 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	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 (See Value Table):	0.100 to 9.10 Ω	0.050 to 9.10 Ω	0.010 to 9.10 Ω	0.010 to 9.10 Ω	0.010 to 9.10 Ω
Temperature Coefficient 0.050 Ω to 9.10 Ω 0.030 Ω to 0.040 Ω 0.010 Ω to 0.020 Ω	±200 PPM/°C ±400 PPM/°C ±600 PPM/°C				

Environmental Characteristics

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

How To Order

CRL 0603 - F W - R120 E __

Model
(CRL = Chip Resistor Low Value)

Size
- 0603
- 0805
- 1206
- 2010
- 2512

Resistance Tolerance
F = ±1%
J = ±5%

TCR (PPM/°C)
W = ±200 (0.050 to 9.10 Ω)
V = ±400 (0.030 to 0.040 Ω)
U = ±600 (0.010 to 0.020 Ω)

Resistance Value (1 % or 5 %)
- R stands for decimal point. Three significant digits: (R120 = 0.12 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 (lead free)
Blank = Solder-plated

For Standard Values Used in Capacitors, Inductors, and Resistors, click here.

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Reliable Electronic Solutions

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*RoHS Directive 2002/95/EC Jan 27 2003 including Annex
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Value Table

Value (ohms)	CRL0603 1 %	CRL0603 5 %	CRL0805 1 %	CRL0805 5 %	CRL1206 1 %	CRL1206 5 %	CRL2010 1 %	CRL2010 5 %	CRL2512 1 %	CRL2512 5 %
0.01	Not Available	Not Available	Not Available	Not Available	A	A	P	P	P	P
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
0.10	P	P	P	P	P	P	P	P	P	P
0.12	A	A	A	A	A	A	A	A	A	A
0.15	A	A	A	A	A	A	P	P	P	P
0.16	A	A	A	A	A	A	A	A	A	A
0.18	A	A	A	A	A	A	A	A	A	A
0.20	P	P	P	P	P	P	A	A	A	A
0.22	P	P	P	P	P	P	P	P	P	P
0.24	A	A	A	A	A	A	A	A	A	A
0.27	A	A	A	A	A	A	A	A	A	A
0.30	A	A	A	A	A	A	A	A	A	A
0.33	A	A	A	A	A	A	P	P	P	P
0.39	A	A	A	A	A	A	P	P	P	P
0.43	A	A	A	A	A	A	A	A	A	A
0.47	P	P	P	P	P	P	P	P	P	P
0.51	A	A	A	A	A	A	A	A	A	A
0.56	A	A	A	A	A	A	P	P	P	P
0.68	A	A	A	A	A	A	P	P	P	P
0.75	A	A	A	A	A	A	P	P	P	P
0.82	A	A	A	A	A	A	P	P	P	P
0.91	A	A	A	A	A	A	A	A	A	A
1.00	P	Use CR0603, 5%	P	Use CR0805, 5%	P	Use CR1206, 5%	A	Use CR2010, 5%	A	Use CR2512, 5%
1.10	A	Use CR0603, 5%	A	Use CR0805, 5%	A	Use CR1206, 5%	A	Use CR2010, 5%	A	Use CR2512, 5%
1.20	P	Use CR0603, 5%	P	Use CR0805, 5%	P	Use CR1206, 5%	A	Use CR2010, 5%	A	Use CR2512, 5%
1.30	A	Use CR0603, 5%	A	Use CR0805, 5%	A	Use CR1206, 5%	A	Use CR2010, 5%	A	Use CR2512, 5%
1.50	A	Use CR0603, 5%	A	Use CR0805, 5%	A	Use CR1206, 5%	A	Use CR2010, 5%	A	Use CR2512, 5%
1.60	A	Use CR0603, 5%	A	Use CR0805, 5%	A	Use CR1206, 5%	A	Use CR2010, 5%	A	Use CR2512, 5%
1.80	A	Use CR0603, 5%	A	Use CR0805, 5%	A	Use CR1206, 5%	A	Use CR2010, 5%	A	Use CR2512, 5%
2.00	A	Use CR0603, 5%	A	Use CR0805, 5%	A	Use CR1206, 5%	A	Use CR2010, 5%	A	Use CR2512, 5%
2.20	A	Use CR0603, 5%	A	Use CR0805, 5%	A	Use CR1206, 5%	A	Use CR2010, 5%	A	Use CR2512, 5%
2.40	A	Use CR0603, 5%	A	Use CR0805, 5%	A	Use CR1206, 5%	A	Use CR2010, 5%	A	Use CR2512, 5%
2.70	A	Use CR0603, 5%	A	Use CR0805, 5%	A	Use CR1206, 5%	A	Use CR2010, 5%	A	Use CR2512, 5%
3.00	A	Use CR0603, 5%	A	Use CR0805, 5%	A	Use CR1206, 5%	A	Use CR2010, 5%	A	Use CR2512, 5%
3.30	A	Use CR0603, 5%	A	Use CR0805, 5%	A	Use CR1206, 5%	A	Use CR2010, 5%	A	Use CR2512, 5%
3.60	A	Use CR0603, 5%	A	Use CR0805, 5%	A	Use CR1206, 5%	A	Use CR2010, 5%	A	Use CR2512, 5%
3.90	A	Use CR0603, 5%	A	Use CR0805, 5%	A	Use CR1206, 5%	A	Use CR2010, 5%	A	Use CR2512, 5%
4.30	A	Use CR0603, 5%	A	Use CR0805, 5%	A	Use CR1206, 5%	A	Use CR2010, 5%	A	Use CR2512, 5%
4.70	A	Use CR0603, 5%	A	Use CR0805, 5%	A	Use CR1206, 5%	A	Use CR2010, 5%	A	Use CR2512, 5%
5.10	A	Use CR0603, 5%	A	Use CR0805, 5%	A	Use CR1206, 5%	A	Use CR2010, 5%	A	Use CR2512, 5%
5.60	A	Use CR0603, 5%	A	Use CR0805, 5%	A	Use CR1206, 5%	A	Use CR2010, 5%	A	Use CR2512, 5%
6.20	A	Use CR0603, 5%	A	Use CR0805, 5%	A	Use CR1206, 5%	A	Use CR2010, 5%	A	Use CR2512, 5%
6.80	A	Use CR0603, 5%	A	Use CR0805, 5%	A	Use CR1206, 5%	A	Use CR2010, 5%	A	Use CR2512, 5%
7.50	A	Use CR0603, 5%	A	Use CR0805, 5%	A	Use CR1206, 5%	A	Use CR2010, 5%	A	Use CR2512, 5%
8.20	A	Use CR0603, 5%	A	Use CR0805, 5%	A	Use CR1206, 5%	A	Use CR2010, 5%	A	Use CR2512, 5%
9.10	A	Use CR0603, 5%	A	Use CR0805, 5%	A	Use CR1206, 5%	A	Use CR2010, 5%	A	Use CR2512, 5%

P = Popular Value

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

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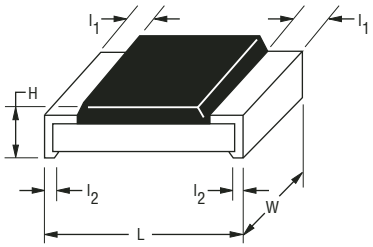
CRL Series - Low Value Chip Resistors

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Chip Dimensions

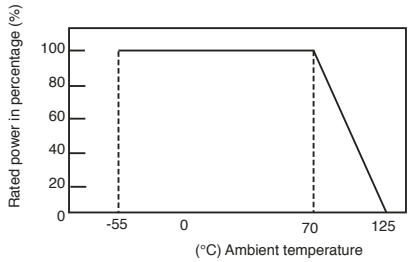
Dimension	Model CRL0603	Model CRL0805	Model CRL1206	Model CRL2010	Model CRL2512
L	1.60 ± 0.10 (0.063 ± 0.004)	2.00 ± 0.15 (0.079 ± 0.006)	3.20 ± 0.15 (0.126 ± 0.006)	5.00 ± 0.20 (0.197 ± 0.008)	6.30 ± 0.20 (0.248 ± 0.008)
W	0.80 ± 0.10 (0.031 ± 0.004)	1.25 ± 0.10 (0.049 ± 0.004)	1.60 ± 0.15 (0.063 ± 0.006)	2.50 ± 0.20 (0.098 ± 0.008)	3.10 ± 0.20 (0.122 ± 0.008)
H	0.45 ± 0.10 (0.018 ± 0.004)	0.50 ± 0.10 (0.020 ± 0.004)	0.60 ± 0.10 (0.024 ± 0.004)	0.60 ± 0.10 (0.024 ± 0.004)	0.60 ± 0.10 (0.024 ± 0.004)
I_1	0.30 ± 0.20 (0.012 ± 0.008)	0.40 ± 0.20 (0.016 ± 0.008)	0.50 ± 0.25 (0.020 ± 0.010)	0.60 ± 0.25 (0.024 ± 0.010)	0.60 ± 0.25 (0.024 ± 0.010)
I_2	0.30 ± 0.20 (0.012 ± 0.008)	0.40 ± 0.20 (0.016 ± 0.008)	0.50 ± 0.25 (0.020 ± 0.010)	0.60 ± 0.25 (0.024 ± 0.010)	0.60 ± 0.20 (0.024 ± 0.008)

Dimensional Drawing



DIMENSIONS ARE: MM / (INCHES)

Derating Curve



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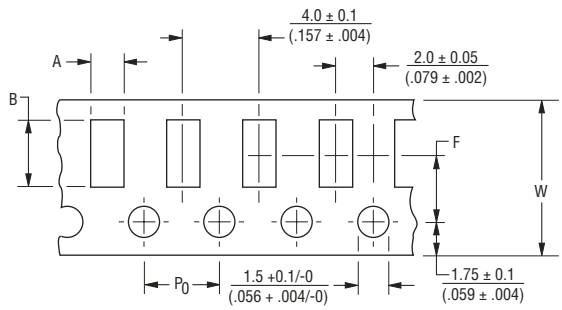
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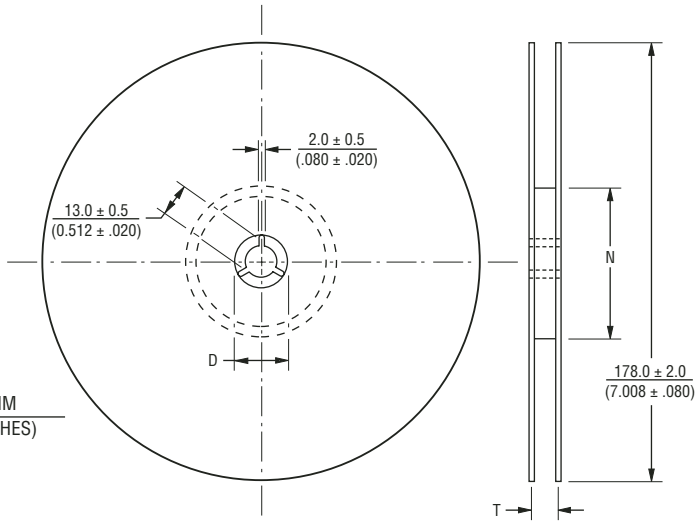
Packaging Dimensions - Tape

Dimension	Model CRL0603	Model CRL0805	Model CRL1206	Model CRL2010	Model CRL2512
A	1.10 ± 0.10 (0.043 ± 0.004)	1.65 +0.20 / -0.10 (0.065 +0.008 / -.004)	1.95 +0.10 / -0.05 (0.077 +0.004 / -.002)	2.80 ± 0.20 (0.110 ± 0.008)	3.50 ± 0.20 (0.138 ± 0.008)
B	1.90 ± 0.10 (0.075 ± 0.004)	2.40 +0.20 / -0.10 (0.094 +0.008 / -.004)	3.50 ± 0.10 (0.138 ± 0.004)	5.50 ± 0.20 (0.217 ± 0.008)	6.70 ± 0.20 (0.264 ± 0.008)
W	8.00 ± 0.20 (0.315 ± 0.008)	8.00 ± 0.20 (0.315 ± 0.008)	8.00 ± 0.20 (0.315 ± 0.008)	12.0 ± 0.30 (0.472 ± 0.012)	12.00 ± 0.30 (0.472 ± 0.012)
F	3.50 ± 0.05 (0.138 ± 0.002)	3.50 ± 0.05 (0.138 ± 0.002)	3.50 ± 0.05 (0.138 ± 0.002)	5.50 ± 0.05 (0.217 ± 0.002)	5.50 ± 0.05 (0.217 ± 0.002)
P_0	4.00 ± 0.10 (0.157 ± 0.004)	4.00 ± 0.10 (0.157 ± 0.004)	4.00 ± 0.10 (0.157 ± 0.004)	4.00 ± 0.10 (0.157 ± 0.004)	4.00 ± 0.10 (0.157 ± 0.004)

Packaging Dimensions - Reel

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





DIMENSIONS ARE: MM / (INCHES)

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