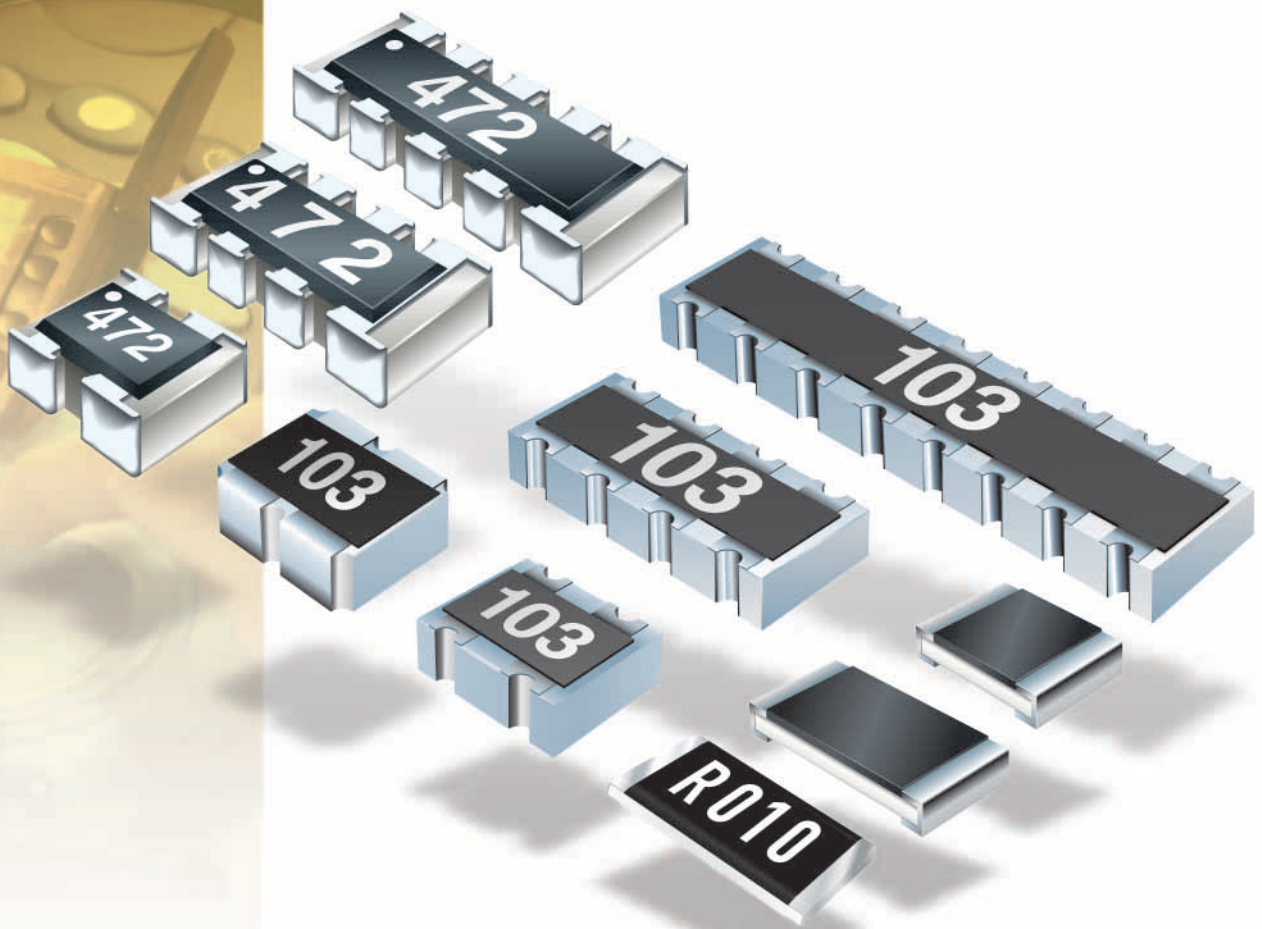


Bourns® Chip Resistors & Arrays

Short Form Catalog



Chip Resistors

There are four series of Chip Resistors:

- CR Model offers 1 % and 5 % tolerance for values from 1 ohm to 10M ohms
- CRH Model offers 1 % tolerance for values from 1.02M ohms to 10M ohms
- CRL Model offers 1 % and 5 % tolerance for values from .010 ohms to 9.1 ohms
- CRP Model offers 0.1 % tolerance for values from 100 ohms to 360K ohms



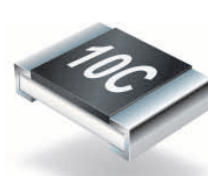
CRL2512



CRH1206



CR0805



CR0603

CR

Bourns, Inc. offers a broad range of chip resistor packages at competitive prices:

- CR0201 J and F
- CR0402 J and F
- CR0603 J and F
- CR0805 J and F
- CR1206 J and F
- CR2010 J and F
- CR2512 J and F

Standard packaging is 5K/reel (0603-1206 sizes), but 10K/reel is available as an option with 'G' suffix. Available in RoHS compliant versions.

CRL: Low Value (5 % or 1 %, < 1 W)

- CRL0603 J & F
- CRL0805 J & F
- CRL1206 J & F
- CRL2010 J & F
- CRL2512 J & F

CRH: High Value (1 %, < 1 W)

- CRH0603 F
- CRH0805 F
- CRH1206 F

CRP: Precision Value (0.1 %, < 0.25 W)

- CRP0603 B
- CRP0805 B
- CRP1206 B

Chip Resistors Summary

Available Types:

- *Thick-Film Chip Resistors CR*
- *CRL (Low value)*
- *CRH (High value)*
- *CRP (Precision value)*

Available Ranges:

- *5 % in E24 series*
- *1 % in E96 + E24 series*

Chip Resistors:

$\pm 1\%$, ± 100 PPM/ $^{\circ}$ C	$\pm 5\%$, ± 200 PPM/ $^{\circ}$ C
CR0201-FX	CR0201-JW
CR0402-FX	CR0402-JW
CR0603-FX	CR0603-JW
CR0805-FX	CR0805-JW
CR1206-FX	CR1206-JW
CR2010-FX	CR2010-JW
CR2512-FX	CR2512-JW

Chip Resistor Lab Kits are available.

Packaging:

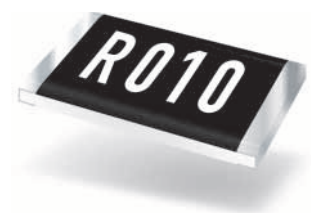
Tape and reel

Applications:

Bourns offers seven sizes of Chip Resistors for most market requirements.

How to Order

	CR	0201	-	F	W	-	8252	E	LF
Chip Resistor	_____↑								
Size	_____↑								
<ul style="list-style-type: none"> • 0201 / 0402 / 0603 / 0805 / 1206 / 2010 / 2512 • H0603 / H0805 / H1206 (H = High value) • L0603 / L0805 / L1206 / L2010 / L2512 (L = Low value) • P0603 / P0805 / P1206 (P = Precision value) 									
Resistance Tolerance	_____↑								
<ul style="list-style-type: none"> • B = ±0.1 % (for Precision series) • J = ±5 % • G = ±2 % (for Ultra-low series) • F = ±1 % 									
TCR (PPM/°C)	_____↑								
<ul style="list-style-type: none"> • X = ±100 with F tolerance only 10 to 1M ohms • I = -250 to +500 with zero-ohm Jumpers <i>only</i> • W = ±250 with F and J • W = ±200 (0.05 to 9.1 ohms) for CRL • V = ±400 (0.03 to 0.04 ohm) for CRL • U = ±600 (0.01 to 0.02 ohm) for CRL • Z = ±50 (for Precision series) 									
Resistance Value	_____↑								
<ul style="list-style-type: none"> • F = ±1 % <p>Three significant digits; 4th digit is number of zeroes following.</p> <p>< 100 ohms, 24R3 = 24.3 ohms</p> <p>> 100 ohms, 8252 = 82.5K ohms • J = ±5 % <p>Two significant digits; 3rd digit is number of zeroes following.</p> <p>< 100 Ohms, 24R3 = 24.3 ohms</p> <p>> 100 Ohms, 474 = 470K ohms</p> </p>									
Packaging	_____↑								
<ul style="list-style-type: none"> • E = Paper Tape (5,000 Pieces) on 7 " Plastic Reels • E = Embossed Plastic Tape (4,000 Pieces) on 7 " Plastic Reels for 2010 and 2512 									
Terminations	_____↑								
<ul style="list-style-type: none"> • LF = Tin-Plated (Lead Free) 									



CRL2512

Chip Arrays Summary

Available Types:

- Thick-Film Chip Resistor Arrays

Available Ranges:

- 5 % in E24 series
- 1 % in E96 + E24 series

Chip Arrays:

CAT10, CAT16, CAT25	CAY10, CAY16, CAY17
5 % and 1 %	5 % and 1 %

Chip Arrays Lab Kits for CAT16 and CAY16 are available.

Chip Arrays

- CAY Termination (Convex)
 - CAY10, CAY16, CAY17



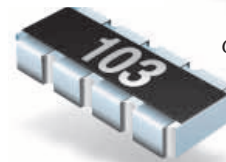
CAY10-J2



CAT10-J4



CAY10



CAY16



CAT25



CAY17

Packaging:

Tape and reel

Applications:

Bourns offers seven sizes of Chip Resistor Arrays for most market requirements with bussed and isolated circuits.

Chip Arrays Convex Terminals



CAY10-J2
(0404)



CAY16-J2
(0606)



CAY17
(1206)



CAY10-J4
(0804)



CAY16-J4, F4, J8
(1206/1506)

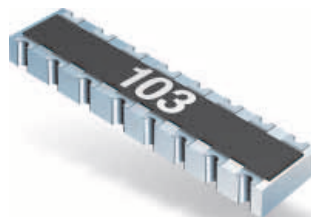
Chip Arrays Concave Terminals



CAT10-J2
(0404)



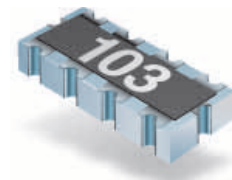
CAT16-J2, F2
(0606)



CAT17
(1206)



CAT10-J4
(0804)



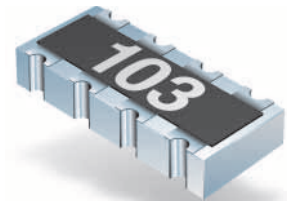
CAT16-J4, F4, J8
(1206/1506)

Chip Arrays Summary

Bourns Model	Density	Package Size (EIA)	Package Size (Metric - mm)
CAT10-J4	0402 x 4	0804	2.0 x 1.0
CAT16-J2	0603 x 2	0606	1.6 x 1.6
CAT16-J4	0603 x 4	1206	3.2 x 1.6
CAT16-J8	0603 x 8	2506	6.4 x 1.6
CAT25	0804 x 4	1608	4.0 x 2.1
CAY10-J2	0402 x 2	0404	1.0 x 1.0
CAY10-J4	0402 x 4	0804	2.0 x 1.0
CAY16-J2	0603 x 2	0606	1.6 x 1.6
CAY16-J4	0603 x 4	1206	3.2 x 1.6
CAY16-J8	0602 x 8	1506	3.8 x 1.6
CAY17	0603 x 5	1206	3.2 x 1.6

How to Order

	CA	T	10	-	103	J	4	LF
Chip Arrays	_____							
Type	_____							
• T = Concave								
• Y = Convex (CAY10/16/17)								
Model	_____							
• 10 = 0804 Package Size								
• 16 = xx06								
• 17 = 1206								
• 25 = 1608								
Resistance Code	_____							
• 103 = 10K ohms (Two significant digits; 3rd digit is number of zeroes following.)								
• 000 = Zero-ohm Jumper								
Resistance Tolerance	_____							
• J = $\pm 5\%$								
• F = $\pm 1\%$								
Resistors Quantity	_____							
• 4 = 4 Resistors								
• 2 = 2 Resistors (For CAY10 models)								
• 8 = 8 Resistors (For CAY16/CAT16 models)								
• A = 8 Resistors (For CAT25)								
• A = Common from Terminal 5 to 10 (CAY17)								
• B = Common from Terminal 1 to 6 (CAY17)								
Terminations	_____							
• LF = Tin-Plated (Lead Free)								
<i>Note: CAT16 available as J2, F4, J4, F8, J8; CAY16 available as J2, F4, J4, J8.</i>								



CAT10-103-J4

Chip Array vs DIP Package

Chip Array

- *Ceramic has protective coating on top*
- *Terminate to metallization on ceramic*
- *Low power*

DIP Package

- *Ceramic covered with molding*
- *Terminate to pins connected to ceramic*
- *Higher power rating than chip array*

Chip Resistor and Chip Array Applications

- *Test equipment*
- *Consumer electronics*
- *Appliances*
- *Telecommunications*
- *Hand-held electronics*
- *Office equipment*
- *Industrial equipment*
- *Small signal instrumentation*
- *DC/DC converters in power modules*



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Reliable Electronic Solutions

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