

Features

- RoHS compliant* versions available (see How to Order "Termination" option)
- Compatible with automatic insertion equipment
- Superior package integrity
- Marking on contrasting background for permanent identification

- Now available with improved tolerance to $\pm 0.5\%$

4100R Series - Thick Film Molded DIPs

Product Characteristics

Resistance Range10 ohms to 10 megohms
 Maximum Operating Voltage.....100 V
 Temperature Coefficient of Resistance
 50 Ω to 2.2 M Ω ± 100 ppm/ $^{\circ}$ C
 below 50 Ω ± 250 ppm/ $^{\circ}$ C
 above 2.2 M Ω ± 250 ppm/ $^{\circ}$ C
 TCR Tracking50 ppm/ $^{\circ}$ C
 maximum; equal values
 Resistor ToleranceSee circuits
 Operating Temperature
-55 $^{\circ}$ C to +125 $^{\circ}$ C
 Insulation Resistance
10,000 megohms minimum
 Dielectric Withstanding Voltage
200 VRMS
 Lead Solderability
Meet requirements of MIL-STD-202
 Method 208

Environmental Characteristics

TESTS PER MIL-STD-202..... Δ R MAX.
 Short Time Overload..... $\pm 0.25\%$
 Load Life $\pm 1.00\%$
 Moisture Resistance $\pm 0.50\%$
 Resistance to Soldering Heat
 $\pm 0.25\%$
 Terminal Strength..... $\pm 0.25\%$
 Thermal Shock..... $\pm 0.25\%$

Physical Characteristics

FlammabilityConforms to UL94V-0
 Lead Frame Material
Copper, solder coated
 Body MaterialNovolac epoxy

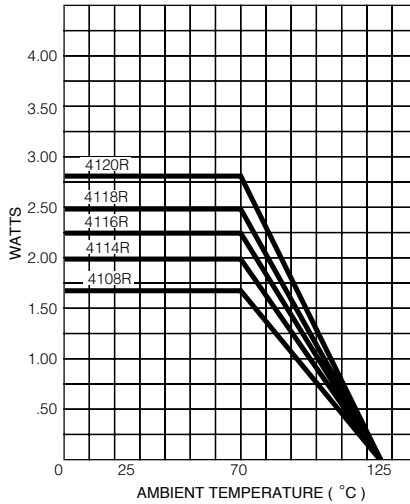
How To Order

41 14 R - 1 - 152

Model (41 = Molded DIP)
 Number of Pins
 Physical Configuration (R = Thick Film Low Profile)
 Electrical Configuration
 • 1 = Isolated
 • 2 = Bussed
 • 3 = Dual Terminator
 Resistance Code
 • First 2 digits are significant
 • Third digit represents the number of zeros to follow.
 Resistance Tolerance
 • Blank = $\pm 2\%$ (see "Resistance Tolerance" on next page for resistance range)
 • F = $\pm 1\%$ (100 Ω - 1 M Ω)
 • D = $\pm 0.5\%$ (100 Ω - 1 M Ω)
 Terminations
 • LF = Tin-plated (RoHS compliant version)
 • Blank = Tin/Lead-plated

Consult factory for other available options.

Package Power Temp. Derating Curve

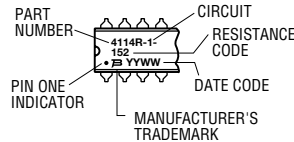


Package Power Rating at 70 °C

| | |
|-------|------------|
| 4108R | 1.69 watts |
| 4114R | 2.00 watts |
| 4116R | 2.25 watts |
| 4118R | 2.50 watts |
| 4120R | 2.80 watts |

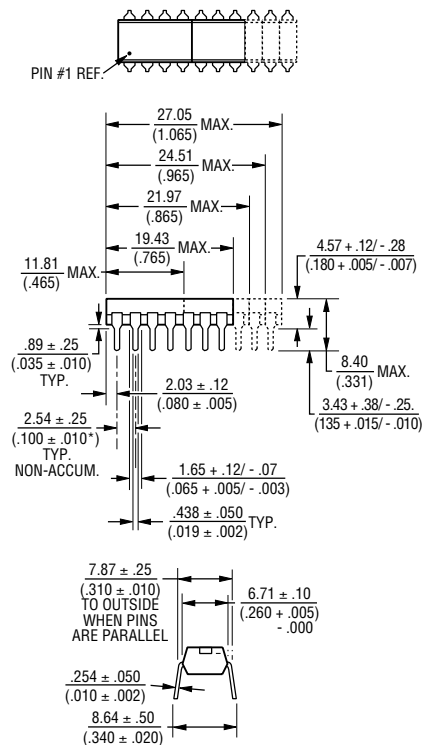
Typical Part Marking

Represents total content. Layout may vary.



For Standard Values Used in Capacitors, Inductors, and Resistors, [click here](#).

Product Dimensions



Governing dimensions are in metric. Dimensions in parentheses are inches and are approximate.

*Terminal centerline to centerline measurements made at point of emergence of the lead from the body.

For information on specific applications, download Bourns' application notes:

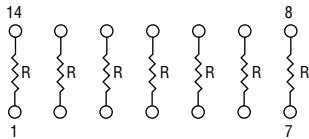
- [DRAM Applications](#)
- [Dual Terminator Resistor Networks](#)
- [R/2R Ladder Networks](#)
- [SCSI Applications](#)

4100R Series - Thick Film Molded DIPs



Isolated Resistors (1 Circuit)

- Model 4108R-1-RC (4 Isolated Resistors)
- Model 4114R-1-RC (7 Isolated Resistors)
- Model 4116R-1-RC (8 Isolated Resistors)
- Model 4118R-1-RC (9 Isolated Resistors)
- Model 4120R-1-RC (10 Isolated Resistors)



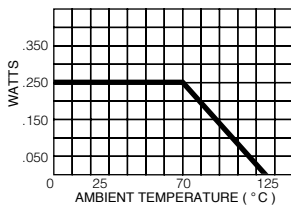
Resistance Tolerance

- 10 ohms to 49 ohms±1 ohm
- 50 ohms to 5 megohms±2 %*
- Above 5 megohms±5 %

Power Rating per Resistor

At 70 °C0.250 watt

Power Temperature Derating Curve



Popular Resistance Values (1, 2 Circuits)**

| Ohms | Code | Ohms | Code | Ohms | Code | Ohms | Code | Ohms | Code |
|------|------|-------|------|--------|------|---------|------|-----------|------|
| 10 | 100 | 180 | 181 | 1,800 | 182 | 15,000 | 153 | 120,000 | 124 |
| 22 | 220 | 220 | 221 | 2,000 | 202 | 18,000 | 183 | 150,000 | 154 |
| 27 | 270 | 270 | 271 | 2,200 | 222 | 20,000 | 203 | 180,000 | 184 |
| 33 | 330 | 330 | 331 | 2,700 | 272 | 22,000 | 223 | 220,000 | 224 |
| 39 | 390 | 390 | 391 | 3,300 | 332 | 27,000 | 273 | 270,000 | 274 |
| 47 | 470 | 470 | 471 | 3,900 | 392 | 33,000 | 333 | 330,000 | 334 |
| 56 | 560 | 560 | 561 | 4,700 | 472 | 39,000 | 393 | 390,000 | 394 |
| 68 | 680 | 680 | 681 | 5,600 | 562 | 47,000 | 473 | 470,000 | 474 |
| 82 | 820 | 820 | 821 | 6,800 | 682 | 56,000 | 563 | 560,000 | 564 |
| 100 | 101 | 1,000 | 102 | 8,200 | 822 | 68,000 | 683 | 680,000 | 684 |
| 120 | 121 | 1,200 | 122 | 10,000 | 103 | 82,000 | 823 | 820,000 | 824 |
| 150 | 151 | 1,500 | 152 | 12,000 | 123 | 100,000 | 104 | 1,000,000 | 105 |

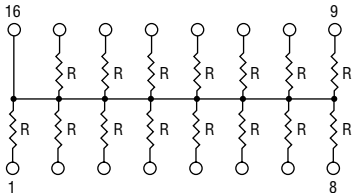
* ADD "F" AFTER RESISTANCE CODE FOR ±1 % TOLERANCE AVAILABLE FROM 100 Ω THROUGH 1 MΩ, OR ADD "D" AFTER RESISTANCE CODE FOR ±0.5 % TOLERANCE AVAILABLE FROM 100 Ω THROUGH 1 MΩ.

PART NUMBER SUFFIX EXAMPLES: -103 = 10 KΩ, ±2 % -103F = 10 KΩ, ±1 % -103D = 10 KΩ, ±0.5 %

** NON-STANDARD VALUES AVAILABLE, WITHIN RESISTANCE RANGE.

Bussed Resistors (2 Circuit)

- Model 4108R-2-RC (7 Resistors, Pin 8 Common)
- Model 4114R-2-RC (13 Resistors, Pin 14 Common)
- Model 4116R-2-RC (15 Resistors, Pin 16 Common)
- Model 4118R-2-RC (17 Resistors, Pin 18 Common)
- Model 4120R-2-RC (19 Resistors, Pin 20 Common)



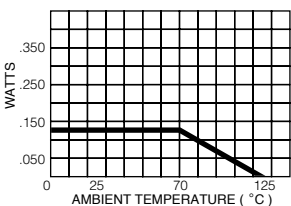
Resistance Tolerance

- 10 ohms to 49 ohms±1 ohm
- 50 ohms to 5 megohms±2 %*
- Above 5 megohms±5 %

Power Rating per Resistor

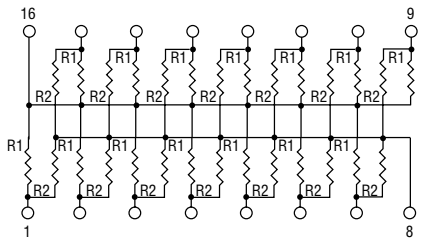
At 70 °C0.125 watt

Power Temperature Derating Curve



Dual Terminator (3 Circuit)

- Model 4108R-3-R1/R2
- Model 4114R-3-R1/R2
- Model 4116R-3-R1/R2 (shown)
- Model 4118R-3-R1/R2
- Model 4120R-3-R1/R2



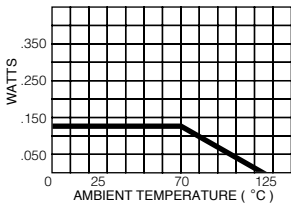
Resistance Tolerance

- Below 100 ohms±2 ohms
- 100 ohms to 5 megohms±2 %*
- Above 5 megohms±5 %

Power Rating per Resistor

At 70 °C0.125 watt

Power Temperature Derating Curve



Popular Resistance Values (3 Circuit)**

| Resistance | | | |
|----------------|----------------|----------------|----------------|
| (Ohms) | | Code | |
| R ₁ | R ₂ | R ₁ | R ₂ |
| 160 | 240 | 161 | 241 |
| 180 | 390 | 181 | 391 |
| 220 | 270 | 221 | 271 |
| 220 | 330 | 221 | 331 |
| 330 | 390 | 331 | 391 |
| 330 | 470 | 331 | 471 |
| 3,000 | 6,200 | 302 | 622 |