

Features

- Lead free versions available (see How to Order "Termination" option)
- RoHS compliant (lead free version)*
- 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

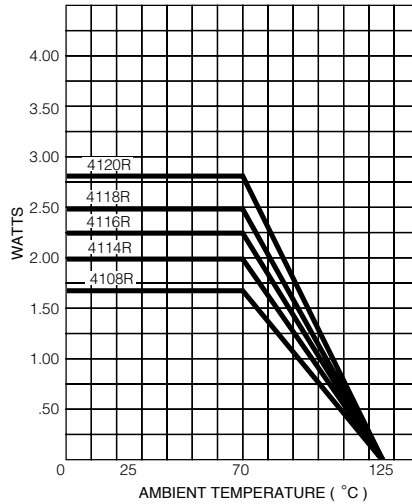
How To Order

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 (lead free)
 • Blank = Tin/Lead-plated

Consult factory for other available options.

Package Power Temp. Derating Curve

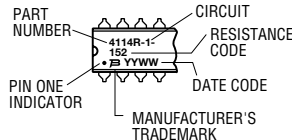


Package Power Rating at 70 $^{\circ}$ C

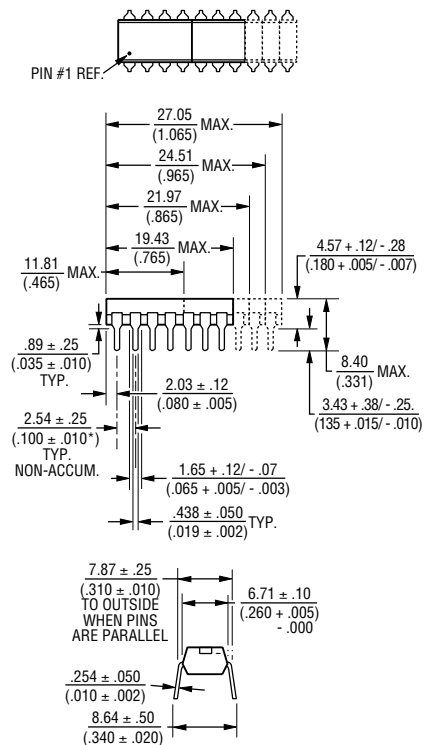
| | |
|-------|------------|
| 4108R | 1.69 watts |
| 4114R | 2.00 watts |
| 4116R | 2.25 watts |
| 4118R | 2.50 watts |
| 4120R | 2.80 watts |

Typical Part Marking

Represents total content. Layout may vary.



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.

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

Specifications are subject to change without notice.

Customers should verify actual device performance in their specific applications.

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

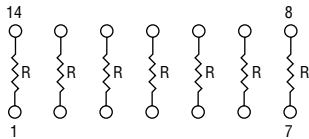
- [DRAM Applications](#)
- [Dual Terminator Resistor Networks](#)
- [R/2R Ladder Networks](#)
- [SCSI Applications](#)

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)



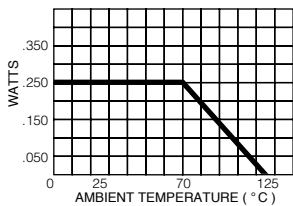
Resistance Tolerance

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

Power Rating per Resistor

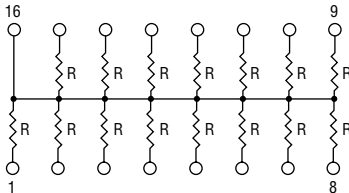
At 70 °C0.250 watt

Power Temperature Derating Curve



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)



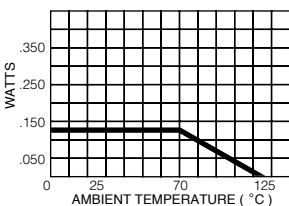
Resistance Tolerance

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

Power Rating per Resistor

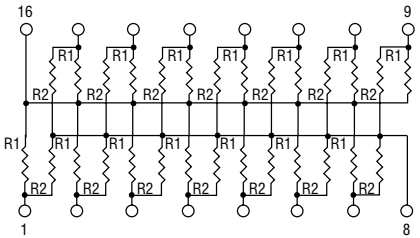
At 70 °C0.125 watt

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



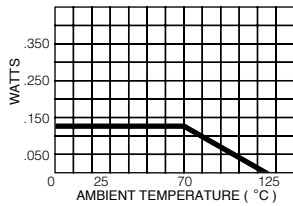
Resistance Tolerance

- 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 (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.

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 |