

## 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 Range .....10 ohms to 10 megohms  
 Maximum Operating Voltage.....100 V  
 Temperature Coefficient of Resistance  
 50  $\Omega$  to 2.2 M $\Omega$ ..... $\pm 100$  ppm/ $^{\circ}$ C  
 below 50  $\Omega$  ..... $\pm 250$  ppm/ $^{\circ}$ C  
 above 2.2 M $\Omega$ ..... $\pm 250$  ppm/ $^{\circ}$ C  
 TCR Tracking .....50 ppm/ $^{\circ}$ C  
 maximum; equal values  
 Resistor Tolerance .....See 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..... $\Delta R$  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

Flammability .....Conforms to UL94V-0  
 Lead Frame Material  
 .....Copper, solder coated  
 Body Material .....Novolac epoxy

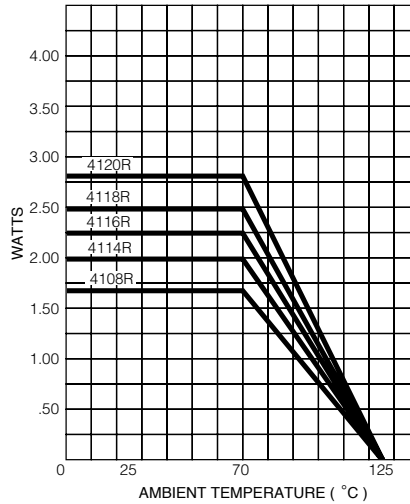
## How To Order

**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  $\Omega$  - 1 M $\Omega$ )  
 • D =  $\pm 0.5\%$  (100  $\Omega$  - 1 M $\Omega$ )  
 Terminations  
 • LF = Tin-plated (RoHS compliant version)  
 • Blank = Tin/Lead-plated

Consult factory for other available options.

## Package Power Temp. Derating Curve

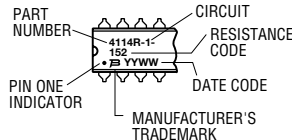


## Package Power Rating at 70 °C

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

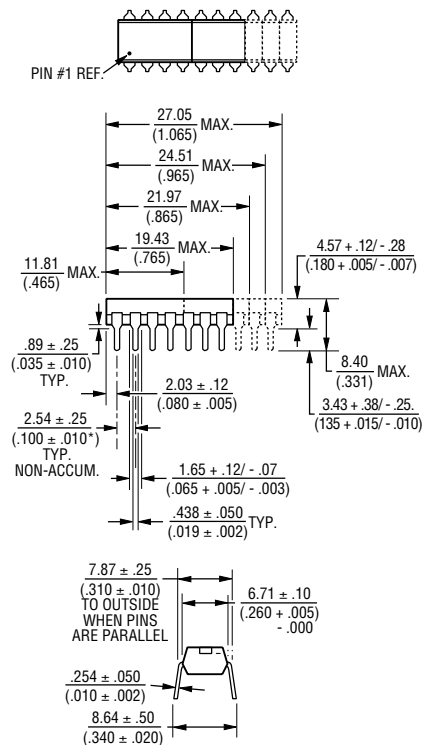
## Typical Part Marking

Represents total content. Layout may vary.



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

## Product Dimensions



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

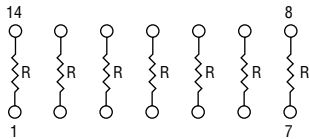
- [DRAM Applications](#)
- [Dual Terminator Resistor Networks](#)
- [R/2R Ladder Networks](#)
- [SCSI Applications](#)

# 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)



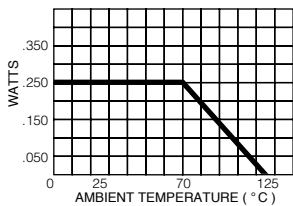
### Resistance Tolerance

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

### Power Rating per Resistor

At 70 °C .....0.250 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 %

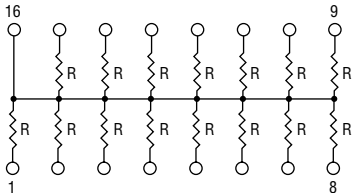
\*\* NON-STANDARD VALUES AVAILABLE, WITHIN RESISTANCE RANGE.

REV. 09/07

Specifications are subject to change without notice.  
Customers should verify actual device performance in their specific applications.

### 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)



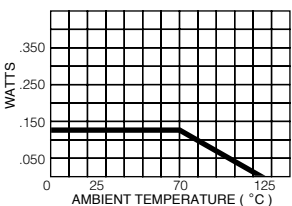
### Resistance Tolerance

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

### Power Rating per Resistor

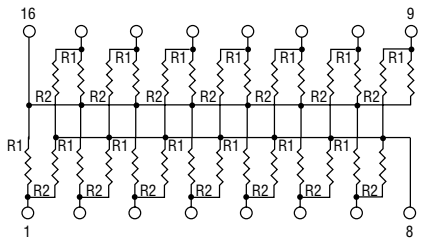
At 70 °C .....0.125 watt

### 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



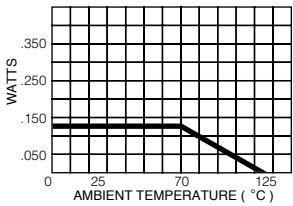
### Resistance Tolerance

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

### Power Rating per Resistor

At 70 °C .....0.125 watt

### Power Temperature Derating Curve



### Popular Resistance Values (3 Circuit)\*\*

| Resistance     |                |                |                |
|----------------|----------------|----------------|----------------|
| (Ohms)         |                | Code           |                |
| R <sub>1</sub> | R <sub>2</sub> | R <sub>1</sub> | R <sub>2</sub> |
| 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            |