



## Features

- Lead free versions available (see How to Order "Termination" option)
- RoHS compliant (lead free version)\*
- High profile offers increased power handling
- Compatible with automatic insertion equipment
- Superior package integrity
- Marking on contrasting background for permanent identification
- Now available with improved tolerance to  $\pm 0.5\%$

## 4300H Series - Thick Film Molded SIPs

### Product Characteristics

Resistance Range .....10 ohms to 10 megohms  
 Maximum Operating Voltage.....100 V  
 Temperature Coefficient of Resistance  
 50 ohms to 2.2 megohms  $\pm 100$  ppm/ $^{\circ}$ C  
 below 50 ohms  $\pm 250$  ppm/ $^{\circ}$ C  
 above 2.2 megohms  $\pm 250$  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

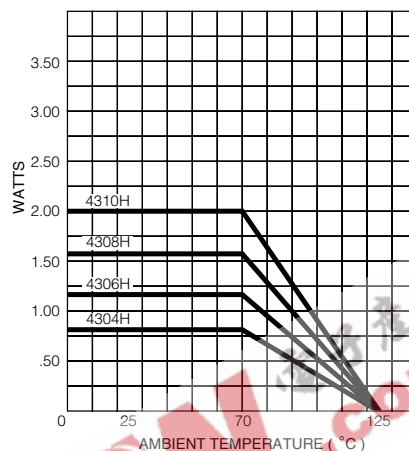
Flammability .....Conforms to UL94V-0  
 Lead Frame Material  
 .....Copper, solder coated  
 Body Material .....Novolac epoxy

### How To Order

**43 06 H - 101 - 222**

Model (43 = Molded SIP)  
 Number of Pins  
 Physical Config. (H = Thick Film High Profile)  
 Electrical Configuration  
 • 101 = Bussed  
 • 102 = Isolated  
 • 104 = 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 ohms - 1 megohm)  
 • D =  $\pm 0.5\%$  (100 ohms - 1 megohm)  
 Terminations  
 • All electrical configurations EXCEPT 104:  
 LF = Tin-plated (lead free)  
 • ONLY electrical configuration 104:  
 L = Tin-plated (lead free)  
 • Blank = Tin/Lead-plated  
 Consult factory for other available options.

### Package Power Temp. Derating Curve

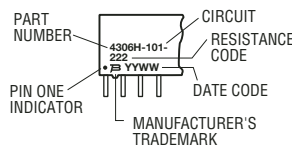


### Package Power Rating at 70 °C

|       |            |
|-------|------------|
| 4304H | 0.80 watts |
| 4306H | 1.20 watts |
| 4308H | 1.60 watts |
| 4310H | 2.00 watts |

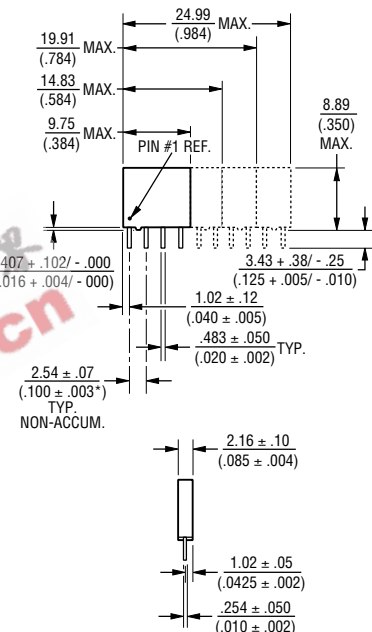
### Typical Part Marking

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.

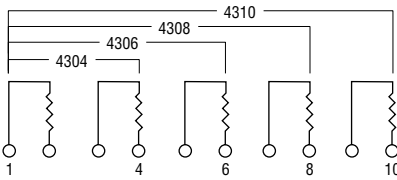
For information on specific applications, download Bourns' application notes:

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

# 4300H Series - Thick Film Molded SIPs **BOURNS®**

### Isolated Resistors (102 Circuit)

- Model 4304H-102-RC (4 Pin)
- Model 4306H-102-RC (6 Pin)
- Model 4308H-102-RC (8 Pin)
- Model 4310H-102-RC (10 Pin)



These models incorporate 2, 3, 4, or 5 isolated thick-film resistors of equal value, each connected between two pins.

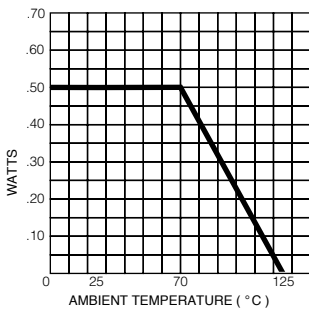
#### Resistance Tolerance

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

#### Power Rating Per Resistor

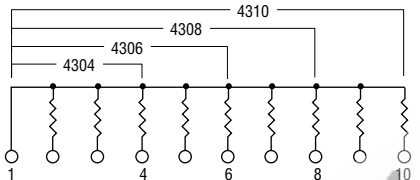
At 70 °C .....0.50 watt

#### Power Temperature Derating Curve



### Bussed Resistors (101 Circuit)

- Model 4304H-101-RC (4 Pin)
- Model 4306H-101-RC (6 Pin)
- Model 4308H-101-RC (8 Pin)
- Model 4310H-101-RC (10 Pin)



These models incorporate 3, 5, 7, or 9 thick-film resistors of equal value, each connected between a common bus (pin 1) and a separate pin.

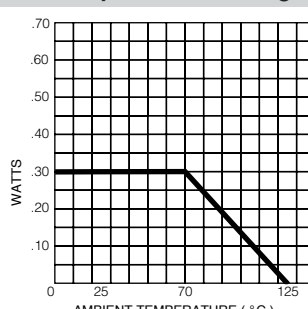
#### Resistance Tolerance

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

#### Power Rating Per Resistor

At 70 °C .....0.30 watt

#### Power Temperature Derating Curve



#### Popular Resistance Values (101, 102 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 OHMS THROUGH 1 MEGOHM, OR ADD "D" AFTER RESISTANCE CODE FOR ±0.5 % TOLERANCE AVAILABLE FROM 100 OHMS THROUGH 1 MEGOHM.

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

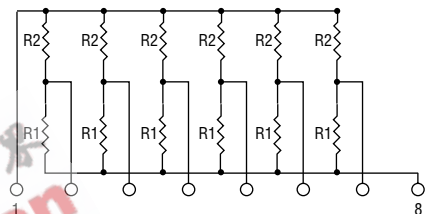
\*\* NON-STANDARD VALUES AVAILABLE, WITHIN RESISTANCE RANGE.

REV. 04/06

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

### Dual Terminator (104 Circuit)

- Model 4304H-104-R1/R2
- Model 4306H-104-R1/R2
- Model 4308H-104-R1/R2 (shown)
- Model 4310H-104-R1/R2



4308H-104 (shown above) is an 8-pin configuration and terminates 6 lines. Pins 1 and 8 are common for ground and power, respectively. Twelve thick-film resistors are paired in series between the common lines (pins 1 and 8).

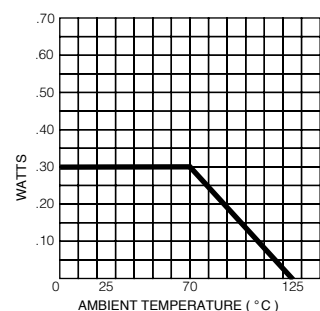
#### Resistance Tolerance

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

#### Power Rating Per Resistor

At 70 °C .....0.30 watt

#### Power Temperature Derating Curve



#### Popular Resistance Values (104 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            |