

Features

- RoHS compliant* (see How to Order "Termination" option)
- Medium 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 $\pm 0.5\%$

4300M 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 ± 100 ppm/ $^{\circ}$ C
 below 50 ohms ± 250 ppm/ $^{\circ}$ C
 above 2.2 megohms ± 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 ΔR 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

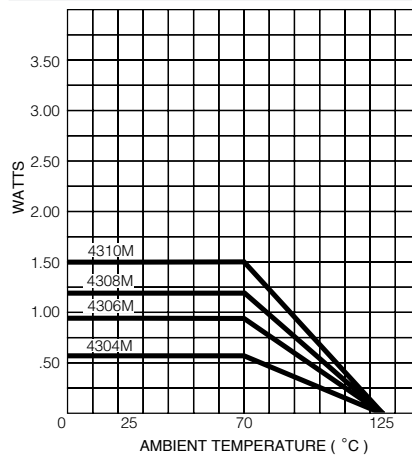
Flammability Conforms to UL94V-0
 Lead Frame Material
 Copper, solder coated
 Body Material Novolac epoxy

How To Order

43 06 M - 101 - 222

Model _____
 (43 = Molded SIP)
 Number of Pins _____
 Physical Config. _____
 (M = Thick Film Medium 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 (RoHS compliant version)
 • ONLY electrical configuration 104:
 L = Tin-plated (RoHS compliant version)
 • Blank = Tin/Lead-plated
 Consult factory for other available options.

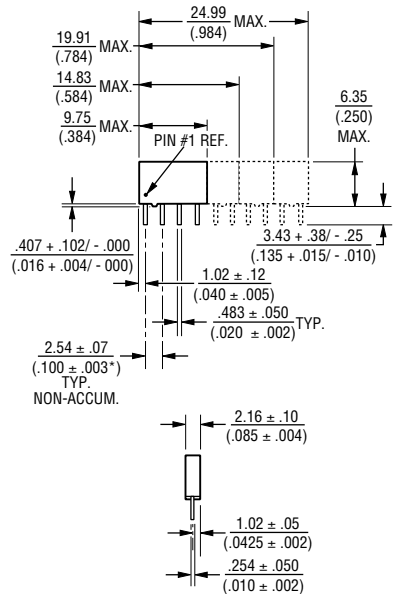
Package Power Temp. Derating Curve



Package Power Rating at 70 °C

4304M 0.60 watts
 4306M 0.90 watts
 4308M 1.20 watts
 4310M 1.50 watts

Product Dimensions

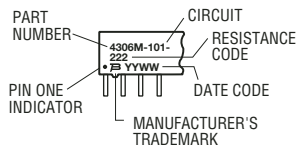


Governing dimensions are in metric. Dimensions in parentheses are inches and are approximate.

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

Typical Part Marking

Represents total content. Layout may vary.



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

*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:

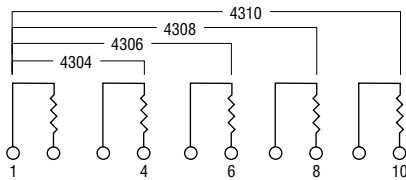
- [DRAM Applications](#)
- [Dual Terminator Resistor Networks](#)
- [R/2R Ladder Networks](#)
- [SCSI Applications](#)

4300M Series - Thick Film Molded SIPs

BOURNS®

Isolated Resistors (102 Circuit)

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



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

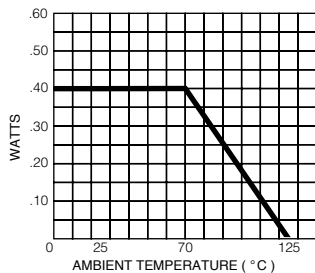
Resistance Tolerance

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

Power Rating per Resistor

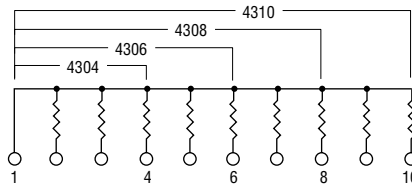
At 70 °C0.40 watt

Power Temperature Derating Curve



Bussed Resistors (101 Circuit)

Model 4304M-101-RC (4 Pin)
 Model 4306M-101-RC (6 Pin)
 Model 4308M-101-RC (8 Pin)
 Model 4310M-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.

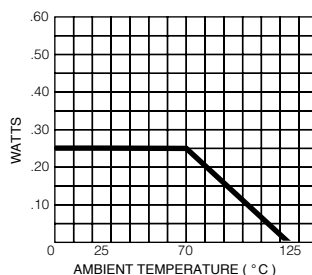
Resistance Tolerance

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

Power Rating per Resistor

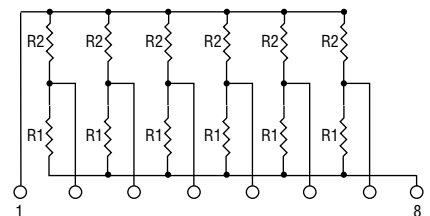
At 70 °C0.25 watt

Power Temperature Derating Curve



Dual Terminator (104 Circuit)

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



4308M-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).

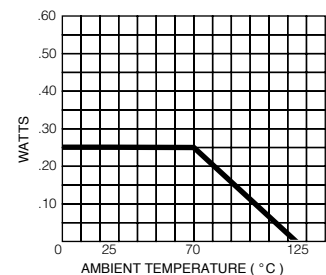
Resistance Tolerance

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

Power Rating per Resistor

At 70 °C0.25 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.

Popular Resistance Values (104 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 |

REV. 09/07

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