4600X Series - Thick Film Conformal SIPS

Features
- RoHS compliant*
- Low profile is compatible with DIPs
- Wide assortment of pin packages enhances design flexibility
- Ammo-pack packaging available
- Recommended for rosin flux and solvent clean or no clean flux processes

Marking on contrasting background for permanent identification

4600X Series - Thick Film Conformal SIPs

Product Characteristics

Resistance Range
- 10 ohms to 10 megohms

Maximum Operating Voltage
- 100 V

Resistance Range
- ±10 ohms to 10 megohms

TCR Tracking
- ±50 ppm/°C above 2.2 megohms
- ±250 ppm/°C maximum; equal values

Diodelectric Withstanding Voltage
- 50 V

TCR Tracking
- 50 ppm/°C

Operating Temperature
- -55 °C to +125 °C

Moisture Resistance
- ±0.50 %

Load Life
- ±1.00 %

Temperature Coefficient of Resistance
- ±0.25 %

Thermal Shock
- ±0.25 %

Resistance to Soldering Heat
- ±0.25 %

Terminal Strength
- ±0.50 %

Physical Characteristics

Flammability
- Conforms to UL94V-0

Body Material
- Epoxy resin

Flammability
- Conforms to UL94V-0

Physical Configuration
- (X = Thick Film Low Profile)

Electrical Configuration
- 101 = Bussed
- 102 = Isolated
- 104 = Dual Terminator
- AP1 = Bussed Ammo**
- AP2 = Isolated Ammo**
- AP4 = Dual Ammo**

Resistance Code
- First 2 digits are significant
- Third digit represents the number of zeros to follow.

Resistance Tolerance
- ±1 % (100 ohms - 5 megohms)

Terminations
- All electrical configurations EXCEPT 104 & AP4:
- LF = Sn/Ag/Cu-plated (RoHS compliant)
- ONLY electrical configurations 104 & AP4:
- L = Sn/Ag/Cu-plated (RoHS compliant)

Consult factory for other available options.

**Available for packages with 10 pins or less.

How To Order

46 06 X - 101 - 222 □ LF

Model

46 = Conformal SIP

Number of Pins

101 = Dual Terminator

Physical Configuration

X = Thick Film Low Profile

Electrical Configuration

101 = Bussed

Resistance Code

Blank = ±2 % (see "Resistance Tolerance" on next page for resistance range)

Resistance Tolerance

F = ±1 % (100 ohms - 5 megohms)

Consult factory for other available options.

For Standard Values Used in Capacitors, Inductors, and Resistors, click here.

4600X Series - Thick Film Conformal SIPs

Package Power Temp. Derating Curve

Package Power Ratings (Watts)

Pkg.

Ambient Temp. 70 °C

Ambient Temp. 70 °C

4604X 0.50 4610X 1.25

4605X 0.63 4611X 1.38

4607X 0.88 4613X 1.63

4608X 1.00 4614X 1.75

4609X 1.13

Typical Part Marking

Represents total content. Layout may vary.

Part Number

4606X-101-RC

4608X-102-RC

4610X-104-RC/RC

RG = ohmic value, 3-digit resistance code.

Pin Ref. Code

Pin Count

A Maximum mm (inches)

5.08 (2.00)

3.3 ±0.5 x 0.3

(130 ±0.20 x 0.012)

Maximum package length is equal to 2.54mm (.100”) times the number of pins, less .005mm (.0002”).

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 Standard Values Used in Capacitors, Inductors, and Resistors, click here.

WARNING Cancer and Reproductive Harm - www.P65Warnings.ca.gov
4600X Series - Thick Film Conformal SIPs

**Isolated Resistors (102 Circuit)**
- Model 4600X-102-RC
  - 4, 6, 8, 10, 12, 14 Pin

These models incorporate 2 to 7 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 meghohms...................±2 %*
- Above 5 meghohms........................±5 %

**Power Rating per Resistor**
- At 70 °C ..................................0.30 watt

**Power Temperature Derating Curve**

**Bussed Resistors (101 Circuit)**
- Model 4600X-101-RC
  - 4 through 14 Pin

These models incorporate 3 to 13 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 meghohms...................±2 %*
- Above 5 meghohms........................±5 %

**Power Rating per Resistor**
- At 70 °C ..................................0.20 watt

**Power Temperature Derating Curve**

**Dual Terminator (104 Circuit)**
- Model 4600X-104-R1/R2
  - 4 through 14 Pin

The 4608X-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 meghohms...............±2 %*
- Above 5 meghohms........................±5 %

**Power Rating per Resistor**
- At 70 °C ..................................0.20 watt

**Power Temperature Derating Curve**

**Popular Resistance Values (101, 102 Circuits)**

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<td>101</td>
<td>180</td>
<td>181</td>
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<td>4,700</td>
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* ±1 % tolerance is available by adding suffix code "F" after the resistance code.
**Non-standard values available, within resistance range.

**Popular Resistance Values (104 Circuit)**

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<thead>
<tr>
<th>Resistance</th>
<th>Ohms</th>
<th>Code</th>
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<td>R2</td>
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<td>R1</td>
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<td>330</td>
<td>470</td>
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<tr>
<td>R2</td>
<td>3,000</td>
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</tbody>
</table>

* WATTS AMBIENT TEMPERATURE (°C)

For information on specific applications, download Bourns’ application notes:
- DRAM Applications
- Dual Terminator Resistor Networks
- R/2R Ladder Networks
- SCSI Applications
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