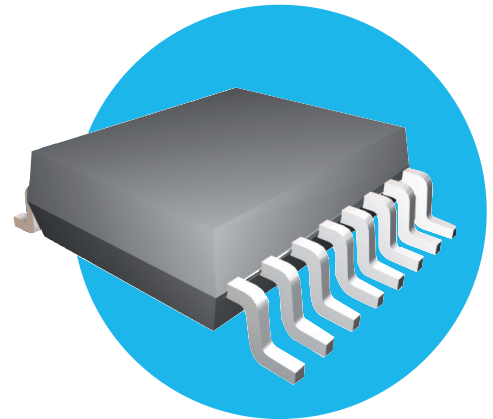


Surface Mount QSOP Resistor Networks

QSOP Series

- Reliable, no internal cavity
- High resistor density - .025" lead spacing
- Standard JEDEC 16, 20, and 24 pin packages
- Ultra-stable TaNSil® resistors on silicon substrate
- RoHS compliant and Sn/Pb terminations available



 All Pb-free parts comply with EU Directive 2011/65/EU (RoHS2)

IRC's TaNSil® QSOP resistor networks are the perfect solution for high volume applications that demand a small wiring board footprint. The 0.025" lead spacing provides higher lead density, increased component count, lower resistor cost, and high reliability.

The tantalum nitride film system on silicon provides precision tolerance, exceptional TCR tracking, low cost and miniature package. Excellent performance in harsh, humid environments is a trademark of IRC's self-passivating TaNSil® resistor film.

The QSOP series is ideally suited for the latest surface mount assembly techniques and each lead can be 100% visually inspected. The compliant gull wing leads relieve thermal expansion and contraction stresses created by soldering and temperature excursions.

For applications requiring high performance resistor networks in a low cost, surface mount package, specify IRC QSOP resistor networks.

Electrical Data

| | |
|---|--|
| Resistance Range | 10 to 250KΩ |
| Absolute Tolerance | To ±0.1% |
| Ratio Tolerance to R1 | To ±0.05% |
| Absolute TCR | To ±25ppm/°C |
| Tracking TCR | To ±5ppm/°C |
| Element Power Rating @ 70°C | |
| Isolated Schematic | 100mW |
| Bussed Schematic | 50mW |
| Package Power Rating @ 70°C | 16-Pin 750mW 20-Pin 1.0W 24-Pin 1.0W |
| Rated Operating Voltage (not to exceed $\sqrt{P \times R}$) | 100 Volts |
| Operating Temperature | -55°C to +125°C |
| Noise | <-30dB |

Environmental Data

| Test Per MIL-PRF-83401 | Typical Delta R | Max Delta R |
|----------------------------------|------------------------|--------------------|
| Thermal Shock | ±0.02% | ±0.1% |
| Power Conditioning | ±0.03% | ±0.1% |
| High Temperature Exposure | ±0.03% | ±0.05% |
| Short-time Overload | ±0.02% | ±0.05% |
| Low Temperature Storage | ±0.03% | ±0.05% |
| Life | ±0.05% | ±2.0% |

General Note

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QSOP Series

Manufacturing Capability Data

| Absolute TCR (ppm/°C) | ISOLATED SCHEMATIC A | | | | BUSSED SCHEMATIC B | | | |
|-----------------------|----------------------|----------------------|----------------------------|-------------------------|--------------------|----------------------|----------------------------|-------------------------|
| | Ohmic Range (Ω) | Available Tolerances | Available Ratio Tolerances | Best Tracking (±ppm/°C) | Ohmic Range (Ω) | Available Tolerances | Available Ratio Tolerances | Best Tracking (±ppm/°C) |
| 250 | 10-25 | F G J | F G | 100 | 10-25 | F G J | F G | 200 |
| | 26-50 | D F G J | C D F G | 50 | 26-50 | F G J | D F G | 100 |
| | 51-200 | C D F G J | C D F G | 10 | 51-100 | D F G J | C D F G | 50 |
| | 201-250K | B C D F G J | A B C D F G | 5 | 101-200 | D F G J | B C D F G | 25 |
| | | | | | 201-500 | B C D F G J | B C D F G | 20 |
| | | | | | 501-100K | B C D F G J | A B C D F G | 5 |
| 100 | 26-50 | D F G J | C D F G | 50 | 26-50 | F G J | D F G | 100 |
| | 51-200 | C D F G J | C D F G | 5 | 51-100 | D F G J | C D F G | 50 |
| | 201-250K | B C D F G J | A B F G | 5 | 101-200 | D F G J | B C D F G | 25 |
| | | | | | 201-500 | B C D F G J | B C D F G | 20 |
| | | | | | 501-100K | B C D F G J | A B C D F G | 5 |
| 50 | 26-50 | D F G J | C D F G | 50 | 51-100 | D F G J | C D F G | 50 |
| | 51-200 | C D F G J | C D F G | 10 | 101-200 | D F G J | B C D F G | 25 |
| | 201-250K | B C D F G J | A B F G | 5 | 201-500 | B C D F G J | B C D F G | 20 |
| | | | | | 501-100K | B C D F G J | A B C D F G | 5 |
| 25 | 51-200 | C D F G J | C D F G | 10 | 201-500 | B C D F G J | B C D F G | 20 |
| | 201-250K | B C D F G J | A B F G | 5 | 501-100K | B C D F G J | A B C D F G | 5 |

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QSOP Series

Physical Data

| # OF PINS | DIMENSION "D" | ZD REF |
|-----------|---------------|--------|
| 16 | 0.193" ±0.004 | 0.009" |
| 20 | 0.341" ±0.004 | 0.058" |
| 24 | 0.341" ±0.004 | 0.033" |

Note: N = number of pins (16, 20, 24)

Note: All dimensions exclude mold flash and end flash which shall not exceed 0.006" per side. Drawing proportions not to scale.

Note: Lead Coplanarity 0.004" Max.

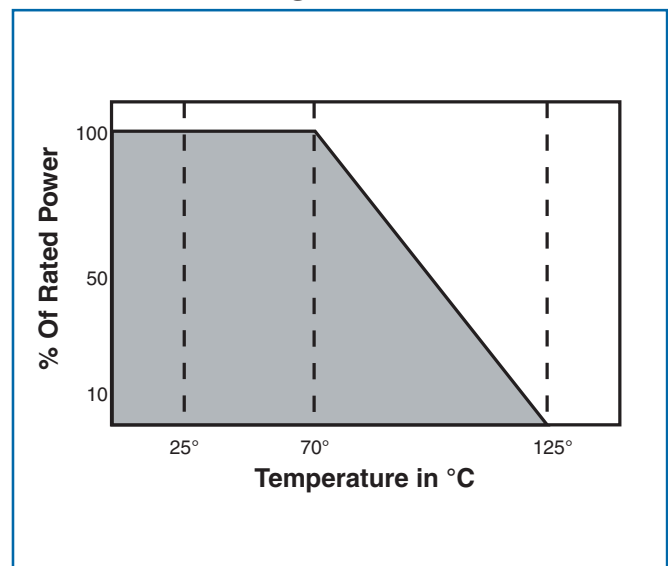
Schematic Data

Schematic A
Isolated

Schematic B
Bussed

Note: N = number of pins (16, 20, 24)

Power Derating Curve



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QSOP Series

Ordering Data

Prefix **GUS** - **QS8A** - **01** - **1002** - **F** **B**

Style, Schematic and Termination

QS8A = 16-pin, 8 Isolated Resistors, with standard Sn/Pb terminations
QS8ALF = 16-pin, 8 Isolated Resistors, with 100% matte tin, Pb-free terminations
QS8B = 16-pin, 15 Bussed Resistors, with standard Sn/Pb terminations
QS8BLF = 16-pin, 15 Bussed Resistors, with 100% matte tin, Pb-free terminations

QS0A = 20-pin, 10 Isolated Resistors, with standard Sn/Pb terminations
QS0ALF = 20-pin, 10 Isolated Resistors, with 100% matte tin, Pb-free terminations
QS0B = 20-pin, 19 Bussed Resistors, with standard Sn/Pb terminations
QS0BLF = 20-pin, 19 Bussed Resistors, with 100% matte tin, Pb-free terminations

QSCA = 24-pin, 12 Isolated Resistors, with standard Sn/Pb terminations
QSCALF = 24-pin, 12 Isolated Resistors, with 100% matte tin, Pb-free terminations
QSCB = 24-pin, 23 Bussed Resistors, with standard Sn/Pb terminations
QSCBLF = 24-pin, 23 Bussed Resistors, with 100% matte tin, Pb-free terminations

Absolute TCR Code

00 = ± 250 ppm/ $^{\circ}$ C; 01 = ± 100 ppm/ $^{\circ}$ C; 02 = ± 50 ppm/ $^{\circ}$ C; 03 = ± 25 ppm/ $^{\circ}$ C

Resistance Code

4-Digit Resistance Code
Ex: 1002 = 10K Ω , 50R1 = 50.1 Ω

Absolute Tolerance Code

J = $\pm 5\%$; G = $\pm 2\%$; F = $\pm 1\%$; D = $\pm 0.5\%$; C = $\pm 0.25\%$; B = $\pm 0.1\%$

Ratio Tolerance Code (optional)

G = $\pm 2\%$; F = $\pm 1\%$; D = $\pm 0.5\%$; C = $\pm 0.25\%$; B = $\pm 0.1\%$; A = $\pm 0.05\%$

Packaging

Specify tubes or tape & reel.

For additional information or to discuss your specific requirements,
please contact our Applications Team using the contact details below.

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