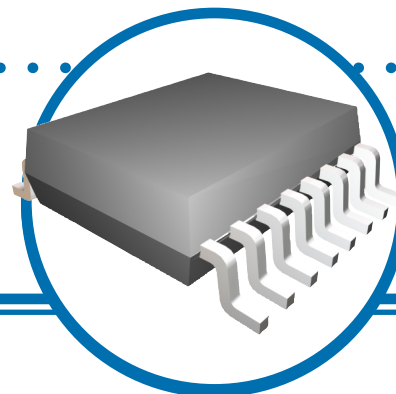


# Surface Mount QSOP Resistor Networks

## QSOP Series

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



IRC's TaNSiI<sup>®</sup> 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 TaNSiI<sup>®</sup> 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

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

## Environmental Data

<b>Test Per MIL-PRF-83401</b>	<b>Typical Delta R</b>	<b>Max Delta R</b>
<b>Thermal Shock</b>	$\pm 0.02\%$	$\pm 0.1\%$
<b>Power Conditioning</b>	$\pm 0.03\%$	$\pm 0.1\%$
<b>High Temperature Exposure</b>	$\pm 0.03\%$	$\pm 0.05\%$
<b>Short-time Overload</b>	$\pm 0.02\%$	$\pm 0.05\%$
<b>Low Temperature Storage</b>	$\pm 0.03\%$	$\pm 0.05\%$
<b>Life</b>	$\pm 0.05\%$	$\pm 2.0\%$

### General Note

IRC reserves the right to make changes in product specification without notice or liability. All information is subject to IRC's own data and is considered accurate at time of going to print.

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## 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

# Surface Mount QSOP Resistor Networks

## 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.

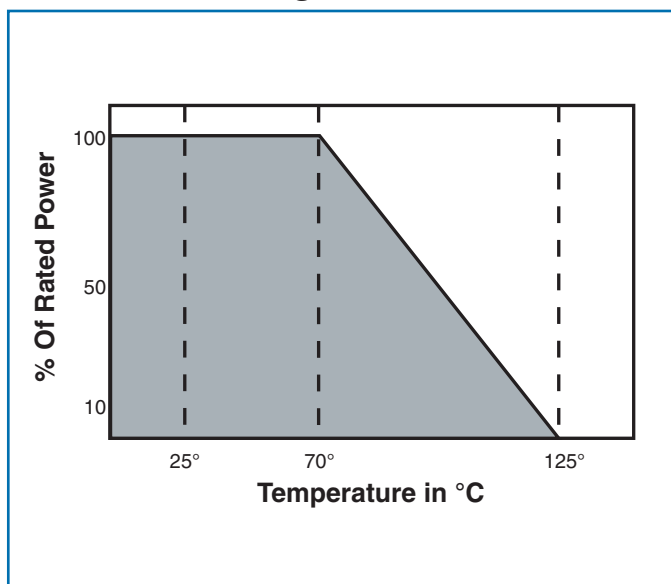
## Schematic Data

Schematic A  
Isolated

Schematic B  
Bussed

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

## Power Derating Curve



# Surface Mount QSOP Resistor Networks



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

### Resistance Code

4-Digit Resistance Code  
Ex: 1002 = 10K $\Omega$ , 50R1 = 50.1 $\Omega$

### 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.