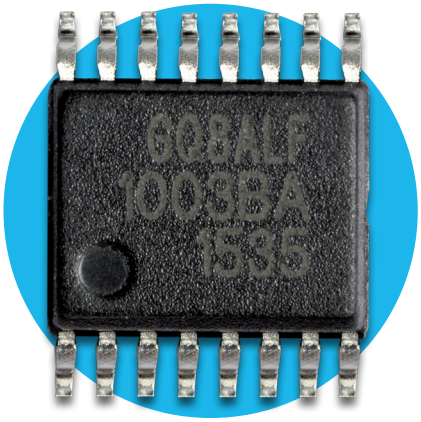
QSOP Thin Film on Ceramic Resistor Networks



QSOP-C Series

- Reliable, no internal cavity
- High resistor density - .025” lead spacing
- Standard JEDEC 16, 20, and 24 pin packages
- Ultra-stable TaN resistors on ceramic substrate
- Lower crosstalk than silicon substrate types

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

QSOP-C resistor networks are high density, low crosstalk networks which combine high precision with the stability and reliability associated with the self-passivating tantalum nitride film system.

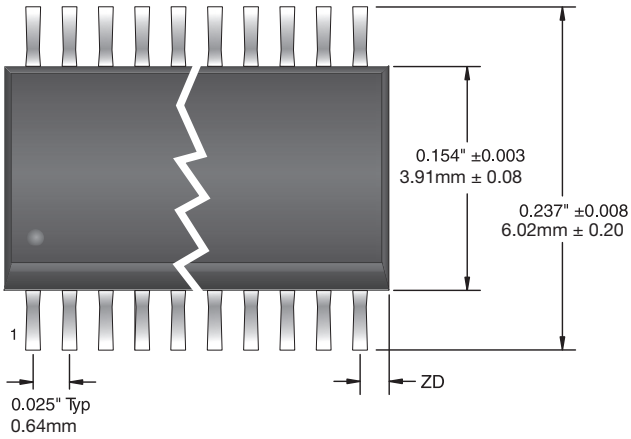
Electrical Data

Resistance Range	100R – 150K
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** **Bussed Schematic**	 100mW 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	<-25dB

Environmental Data

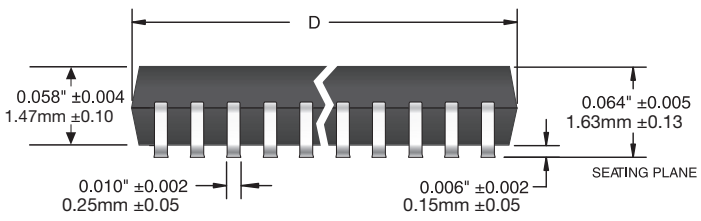
Test Per MIL-PRF-83401	Typical Delta R	Max Delta R
Thermal Shock	±0.02%	±0.1%
Power Conditioning	±0.03%	±0.1%
High Temperature Exposure	±0.03%	±0.05%
Short-time Overload	±0.02%	±0.05%
Low Temperature Storage	±0.03%	±0.05%
Life	±0.05%	±0.1%

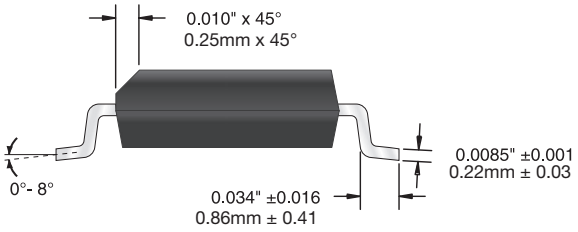
Physical Data



# OF PINS	DIMENSION "D"	ZD REF
16	0.193" ±0.004 4.90mm ± 0.10	0.009" 0.23mm
20	0.341" ±0.004 8.66mm ± 0.10	0.058" 1.47mm
24	0.341" ±0.004 8.66mm ± 0.10	0.033" 0.84mm

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

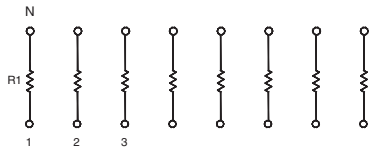




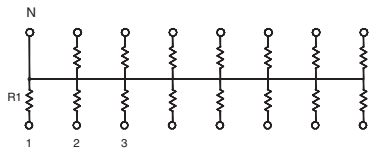
Note: All dimesions exclude mold flash and end flash which shall not exceed 0.006" 0.15mm per side. Drawing proportions not to scale.

Note: Lead Coplanarity 0.004" 0.10mm Max.
Note: MSL = 1

Schematic Data



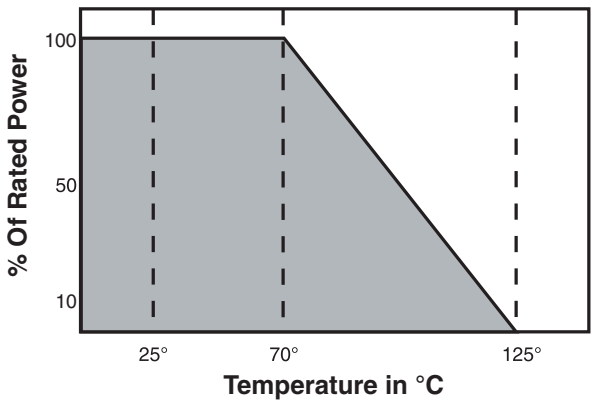
Schematic A
Isolated



Schematic B
Bussed

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

Power Derating Curve



Ordering Procedure

Example: GQ8ALF021002BATHR (16 pin QSOP, isolated elements, 50ppm/°C, 10 kilohms, absolute tolerance ±0.1%, ratio tolerance ±0.05%, tube packed, variant HR, Pb-free)

G	Q	8	A	L	F	0	2	1	0	0	2	B	A	T	H	R	
1		2	3	4		5			6			7	8	9	10		

1 Type	2 Size	3 Schematic	4 Termination	5 TCR	6 Value	7 Absolute Tolerance	8 Ratio Tolerance	9 Packing	10 Variant
GQ = Gullwing QSOP	8=16 pin	A=Isolated	LF=Pb-free	01=±100ppm/°C	3 digits + multiplier	B=±0.1%	A=±0.05%	T=Tube	Optional code - see below
	0=20 pin	B=Bussed		02=±50ppm/°C		C=±0.25	B=±0.1%	R=Reel	
	C=24 pin			03=±25ppm/°C	R = ohms for values < 100 ohms	D=±0.5%	C=±0.25%		
						F=±1%	D=±0.5%		
						G=±2%	F=±1%		
						J=±5%	G=±2%		

Variant codes	
Blank	Standard
HR	High reliability screened (50 cycles, thermal shock)