



GC1800A – GC1816

90 Volt Abrupt Junction Tuning Varactors

RoHS Compliant

GENERAL DESCRIPTION

The GC1800 series varactors are silicon abrupt junction devices. They offer the highest Q and lowest series resistance available in a 90 Volt silicon varactor.

This series of diodes meets RoHS requirements per EU Directive 2002/95/EC. The standard terminal finish is gold unless otherwise specified. Consult the factory if you have special requirements.

APPLICATIONS

The GC1800 series varactors are used for moderate bandwidth tuning. They are available in values appropriate for VHF through KU band frequencies. These devices are best used in higher power voltage controlled oscillators, or voltage variable filters and phase shifters. The 90 Volt rating allows for the lowest IMD generation even at moderately high power levels.

Standard capacitance tolerance is $\pm 10\%$. Other capacitance values and custom mechanical configurations are also available. All specifications shown are based on style 30 package and include 0.18 pF case capacitance. Consult package outline section of this catalog for other case styles available. Complete electrical and mechanical data is also provided.

KEY FEATURES

- Highest Q for 90 Volt Varactors
- Lowest R_s
- Large Selection of Capacitance Values to Choose From
- Low Phase Noise
- RoHS Compliant¹

APPLICATION/BENEFITS

- VHF to Ku Band Tuning
- VVF (Voltages Variable Filters)
- Phase Shifters

ABSOLUTE MAXIMUM RATINGS @ 25°C

Rating	Symbol	Value	Unit
Minimum Breakdown Voltage @10 uA	V_B	90	V
Maximum Leakage Current @80 Volts	I_R	0.02 @ 25 °C 2.0 @ 125 °C	uA
Operating Temperature	T op	-55 to +125	°C
Storage Temperature	T stg	-65 to +150	°C
Thermal Coefficient of Capacitance @ 4 Volts	T_{CC}	300	ppm/ °C

For the most current data, consult MICROSEMI's website: www.MICROSEMI.com
Specifications are subject to change, consult the RFIS factory at (978) 442-5600 for the latest information.



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DEVICE ELECTRICAL PARAMETERS AT 25°C

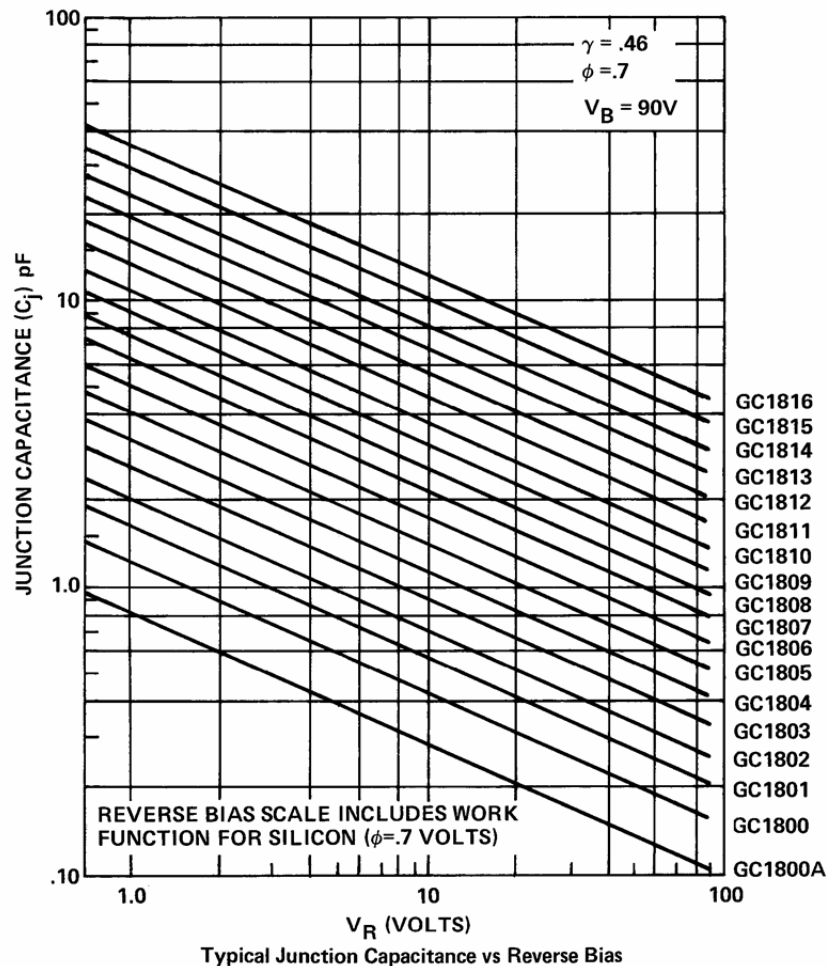
Model Number	C_{T-4} + / - 10% (Note 2) @ -4V (pF)	Quality Factor ³ (Min) @-4V, 50 MHz	Capacitance Ratio ² (Min) C_{T0} / C_{T-90}
GC1800A-00	0.6	1100	5.5
GC1800-30	0.8	1000	5.5
GC1801-30	1.0	1000	6.0
GC1802-30	1.2	900	6.0
GC1803-30	1.5	900	7.0
GC1804-30	1.8	850	7.0
GC1805-30	2.2	850	8.0
GC1806-30	2.7	800	8.0
GC1807-30	3.3	800	8.0
GC1808-30	3.9	700	8.0
GC1809-30	4.7	700	8.0
GC1810-30	5.6	650	8.5
GC1811-30	6.8	650	8.5
GC1812-30	8.2	600	8.5
GC1813-30	10.0	600	9.0
GC1814-30	12.0	550	9.0
GC1815-30	15.0	550	9.0
GC1816-30	18.0	550	9.5

Notes:

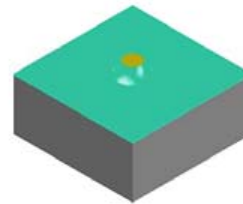
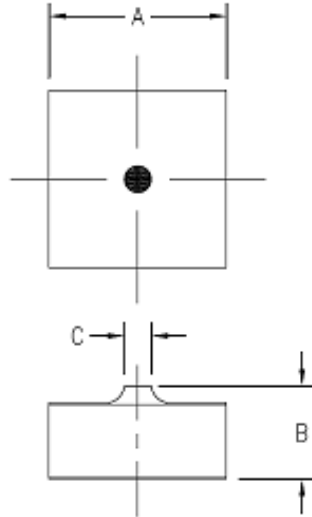
- 1) When ordering, specify the desired case style suffix to the model. (eg. GC1801 – 30)
- 2) Capacitance values include a package capacitance of 0.18 pF. Capacitance is measured at F = 1 MHz.
- 3) Q is calculated from:
 - a. $Q = 1 / 2\pi f R_s C_j^4$
 - b. R_s is measured using @ 1 GHz using transmission loss techniques.
 - c. Capacitance is measured at 1 MHz.

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TYPICAL CJ VS REVERSE BIAS



PACKAGE STYLE 00



DIM	INCHES		MM	
	MIN	MAX	MIN	MAX
A	0.015	0.050	0.381	1.270
B	–	0.005 TYP	–	0.127 TYP
C	SEE NOTES		–	–

NOTES

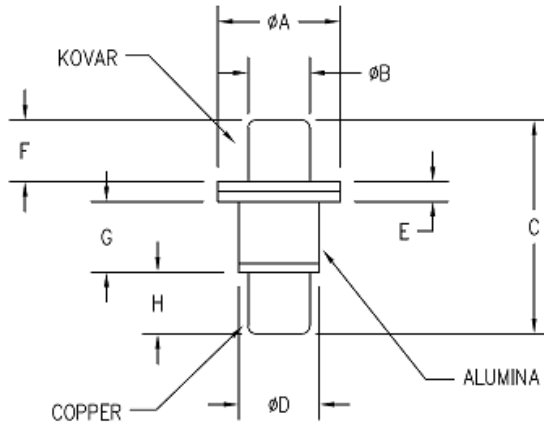
1. TOP CONTACT, CHIP SIZE AND CHIP THICKNESS DEPENDS ON DIODE PARAMETERS. CONSULT FACTORY.
2. TOP AND BOTTOM CONTACTS GOLD.



Microsemi

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PACKAGE STYLE 30



DIM	INCHES		MM	
	MIN	MAX	MIN	MAX
A	0.015	0.050	0.381	1.270
B	–	0.005 TYP	–	0.127 TYP
C	SEE NOTES		–	–

NOTES

1. TOP CONTACT, CHIP SIZE AND CHIP THICKNESS DEPENDS ON DIODE PARAMETERS. CONSULT FACTORY.
2. TOP AND BOTTOM CONTACTS GOLD.

Other package styles available on request, consult factory.