GC1600A – GC1613

CONTROL DEVICES

45 Volt Abrupt Junction Tuning Varactors

RoHS Compliant

DESCRIPTION

The GC1600 series varactors are silicon abrupt junction devices. They offer the highest Q and lowest series resistance available in a 45 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.

KEY FEATURES

- Highest Q for 45 Volt Varactors
- Lowest R_s
- Large selection of capacitance values to chose from
- Low phase noise
- RoHS Compliant[1]

APPLICATIONS

The GC1600 series varactors are used for narrow to moderate bandwidth tuning. They are available in values appropriate for VHF through KU band frequencies. These devices are best used in low phase noise voltage controlled oscillators, low loss voltage variable filters and phase shifters.

Standard capacitance tolerance is ±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.

[1] Most or our devices are supplied with Gold plated terminations. Other terminal finishes are available on request. Consult factory for details.

APPLICATIONS/BENEFITS

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

ABSOLUTE MAXIMUM RATINGS AT 25º C (UNLESS OTHERWISE SPECIFIED)

Rating	Symbol	Value	Unit
Minimum Breakdown Voltage @10 uA	V_B	45	V
Maximum Leakage Current @35 Volts	I_R	0.02 @ 25 ºC 2.0 @125 ºC	uA
Operating Temperature	T_{OP}	-55 to +125	ºC
Storage Temperature	T_{STG}	-65 to +150	ºC
Thermal Coefficient of Capacitance @4 Volts	T_{CC}	300	ppm/ ºC

IMPORTANT: For the most current data, consult *MICROSEMI*'s website: www.microsemi.com

Specifications are subject to change, consult the factory for further information.

These devices are ESD sensitive and must be handled use using ESD precautions.

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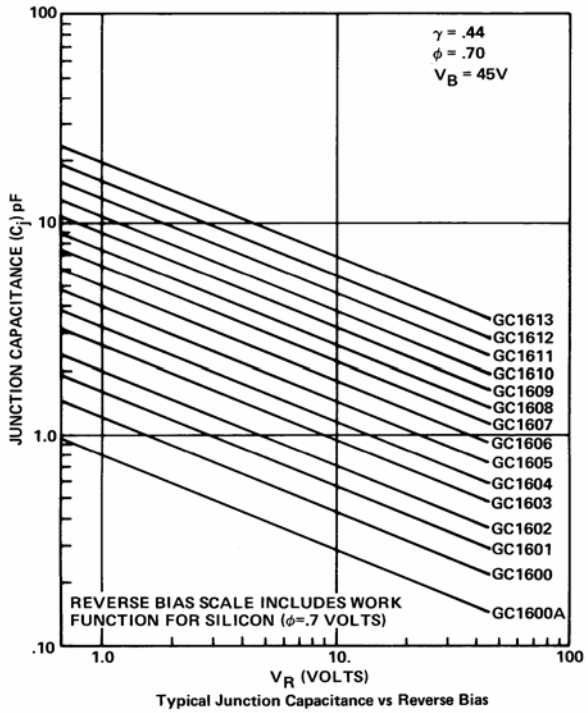
ELECTRICAL CHARACTERISTICS @ 25° C

Model Number	C_{T-4} + / - 10%	Quality Factor[3] (Min)	Capacitance Ratio[2] (Min)
	(Note 2) @ -4V (pF)	@-4V, 50 MHz	C_{T0} / C_{T-45}
GC1600A – 00	0.6	3000	4.0
GC1600 – 30	0.8	2900	4.2
GC1601 – 30	1.0	2800	4.4
GC1602 – 30	1.2	2800	4.5
GC1603 – 30	1.5	2300	4.8
GC1604 – 30	1.8	2000	4.9
GC1605 – 30	2.2	2000	5.0
GC1606 – 30	2.7	1900	5.2
GC1607 – 30	3.3	1900	5.3
GC1608 – 30	3.9	1900	5.4
GC1609 – 30	4.7	1500	5.4
GC1610 – 30	5.6	1700	5.5
GC1611 – 30	6.8	1700	5.5
GC1612 – 30	8.2	1500	5.6
GC1613 – 30	10.0	1500	5.6

Notes

1) When ordering, specify the desired case style suffix to the model. (eg. GC1601 – 30)
2) Capacitance values include a package capacitance of 0.18 pF. Capacitance is measures at F = 1 MHz.
3) Q is calculated from:
   a. $Q = 1/2\pi f R_{S4} C_{j4}$
   b. Rs is measured using @ 1 GHz using transmission loss techniques.
   c. Capacitances is measured at 1 MHz

TYPICAL CJ VS REVERSE BIAS

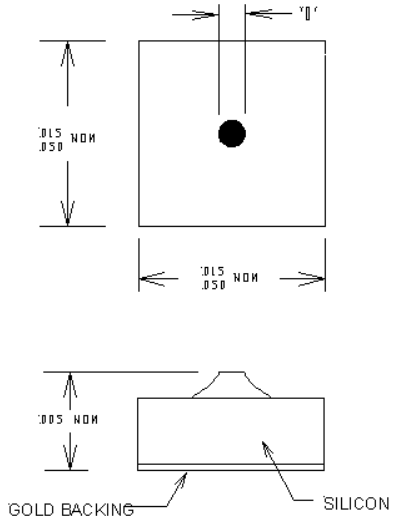


Typical Junction Capacitance vs Reverse Bias

NOTES

- CHIP DIMENSIONS VARY BY PRODUCT
- OTHER PACKAGE STYLES AVAILABLE ON REQUEST
- CONSULT FACTORY FOR DETAILS

STYLE 00



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

STYLE 30