GC1700A – GC1720

CONTROL DEVICES

60 Volt Abrupt Junction Tuning Varactors

RoHS Compliant

DESCRIPTION

The GC1700 series varactors are silicon abrupt junction devices. They offer the highest Q and lowest series resistance available in a 60 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 60 Volt Varactors
- Lowest R_s
- Large selection of capacitance values to chose from
- Low phase noise
- RoHS Compliant[1]

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

APPLICATIONS

The GC1700 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 low phase noise voltage controlled oscillators, low loss voltage variable filters and phase shifters. Additionally, due to their higher V_B, they offer superior, low IMD performance over lower voltage types.

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 are also provided.

APPLICATIONS/BENEFITS

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

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

Rating	Symbol	Value	Unit
Minimum Breakdown Voltage @10 uA	V_B	60	V
Maximum Leakage Current @55 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-60}
GC1700A – 00	0.6	2200	4.5
GC1700	0.8	2100	4.6
GC1701	1.0	2000	4.8
GC1702	1.2	1800	5.0
GC1703	1.5	1800	5.3
GC1704	1.8	1700	5.5
GC1705	2.2	1700	5.8
GC1706	2.7	1600	5.9
GC1707	3.3	1600	6.0
GC1708	3.9	1400	6.0
GC1709	4.7	1400	6.5
GC1710	5.6	1400	6.5
GC1711	6.8	1300	6.5
GC1712	8.2	1300	7.0
GC1713	10.0	1200	7.0
GC1714	12.0	1200	7.0
GC1715	15.0	1100	7.0
GC1716	18.0	1000	7.0
GC1717	22.0	1000	7.0
GC1718	27.0	900	7.0
GC1719	33.0	800	7.0
GC1720	39.0	800	7.0

Notes

1) When ordering, specify the desired case style suffix to the model. (eg. GC1701 – 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. $Q = 1/2\pi f Rs_4 Cj_4$
   b. Rs is measured using @ 1 GHz using transmission loss techniques.
   c. Capacitances is measured at 1 MHz.

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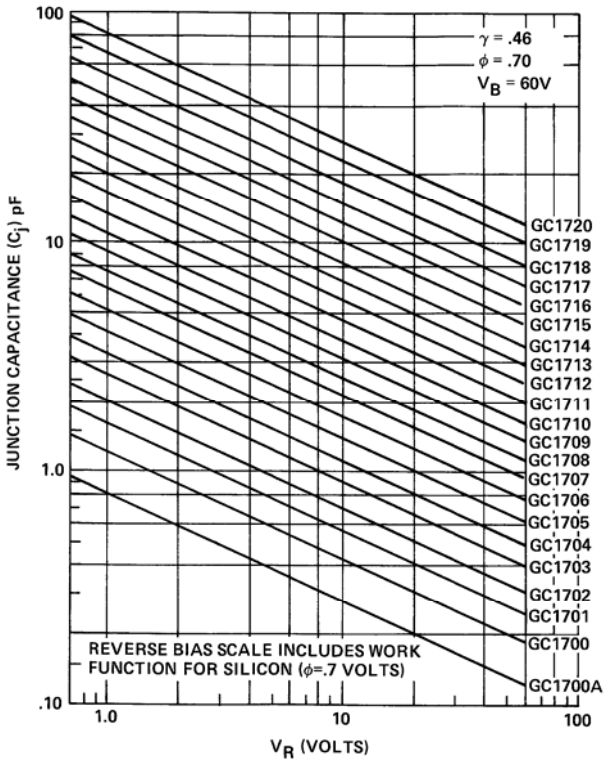
TYPICAL CJ VS REVERSE BIAS

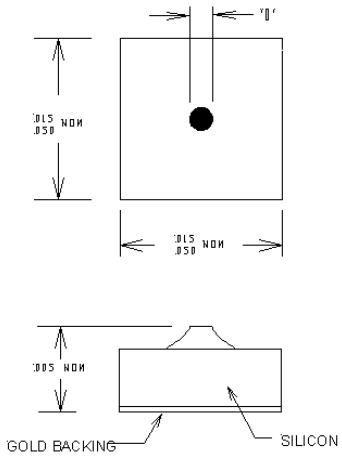


Typical Junction Capacitance vs Reverse Bias

NOTES

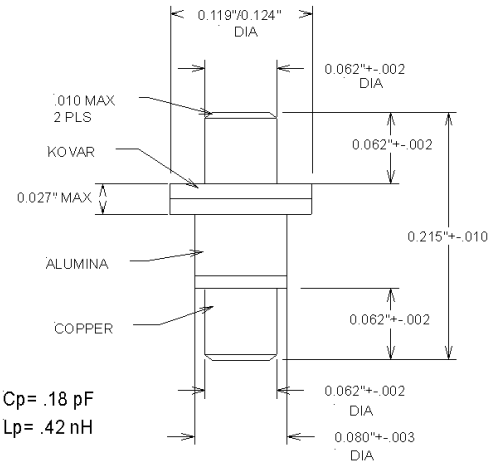
- CHIP DIMENSIONS VARY BY PRODUCT
- OTHER PACKAGE STYLES AVAILABLE ON REQUEST
- CONSULT FACTORY FOR DETAILS

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



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