

TUNING DIODES
Frequency Linear Tuning Varactors

RoHS Compliant





DESCRIPTION

A Frequency Linear Tuning Varactor (FLTVAR $^{\text{TM}}$) is a silicon epitaxial mesa device, designed to provide wideband Linear Tuning in VCO and filter applications.

These diodes feature superior passivation for high reliability, low leakage current, and low surface noise. They offer Q values well above ion-implanted hyperabrupt diodes.

The specifications below apply to chips, or to chips mounted on carriers. Although these chips can be provided in any of our standard packages, this is not recommended for the lower capacitance diodes, because the parallel parasitic capacitance of the package degrades linearity at high bias voltages.

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

- Wideband Linear Tuning
- Very Low Phase Noise
- Exceptional Q.
- Computer Controlled Grown Junction Epitaxy
- Functional through Ku Band
- Octave Tuning
- RoHS Compliant¹

APPLICATIONS

The GC15000 series of frequency-linear tuning varactors are used in VCO's, filters, amplifiers and modulators for wide band tuning through Ku band. The frequency linear characteristics allow over one octave linear tuning in suitable circuits, with no need for external linearization. The combination of high Q and low surface noise results in low FM noise in VCO applications. They are particularly useful in modulated VCO's because of their constant sensitivity, and high modulation rate capability.

APPLICATIONS/BENEFITS

- VCOs
- Filters
- Modulators
- Amplifiers

ABSOLUTE MAXIMUM RATINGS AT 25° C (UNLESS OTHERWISE SPECIFIED)								
Rating	Symbol	Value	Unit					
Maximum Leakage Current @ 20 Volts	I _R	50	nA					
Storage Temperature	T _{STG}	-65 to +150	°C					
Operating Temperature	T _{OP}	-55 to +125	°C					

IMPORTANT:

For the most current data, consult our web site: 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.

¹ Most products are supplied with a Gold finish and are suitable for RoHS complaint assembly. Consult factory for details.



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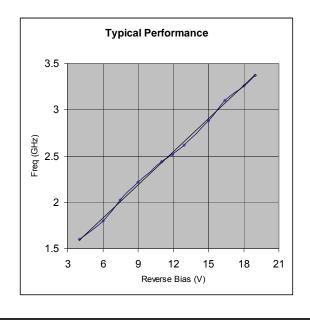




CHIP ELECTRICAL PARAMETERS @ 25°C (unless otherwise specified)									
Model Number	V _b (V) I _R =10μΑ (Min)	C _j (pF) ¹ @-4V (+/-10%)	C _j (pF) @-20V (Typ)	Sensitivity ² (Typ)	Tuning Ratio CJO/CJ15 (Typ)	Tuning Ratio CJO/CJ20 (Typ)	Q ³ (Typ)		
GC15001-00	22	0.7	0.2	.08	8:1		1400		
GC15002-00	22	1.0	0.3	.08	8:1		1300		
GC15003-00	22	2.0	0.55	.08	8:1		1200		
GC15004-00	22	5.0	1.3	.08	8:1		1100		
GC15005-00	22	10.0	2.4	.08	8:1		900		
GC15014-00	22	22.0	6.9	.08	8:1		600		
GC15015-00	22	33.0	9.8	.08	8:1		500		
GC15016-00	22	48.0	14.0	.08	8:1		400		
GC15006-00	22	0.7	0.14	.11		13:1	1200		
GC15007-00	22	1.0	0.2	.11		13:1	1000		
GC15008-00	22	2.0	0.4	.11		13:1	900		
GC15009-00	22	5.0	0.9	.11		13:1	800		
GC15010-00	22	10.0	2.0	.11		13:1	700		
GC15011-00	22	22.0	4.1	.11		13:1	500		
GC15012-00	22	33.0	6.8	.11		13:1	400		
GC15013-00	22	48.0	10.0	.11		13:1	200		

NOTES:

- 1. F = 1MHz. Other capacitance values are available; consult factory.
- Sensitivity series, S = .08; V = 15 volts. Sensitivity series, S = .11; V = 20 volts.
- 3. V=4 V, 50 MHz





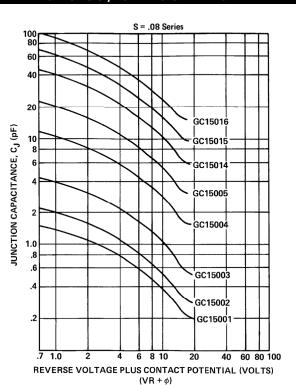
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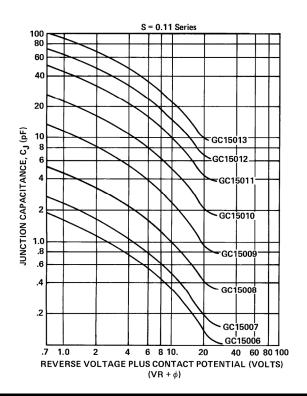




S=0.08, C-V CURVES

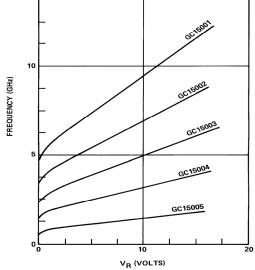


S=0.11, C-V CURVES

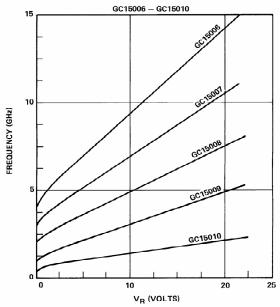


FREQUENCY RESPONSE





FREQUENCY RESPONSE





GC15001 - GC15013

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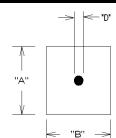
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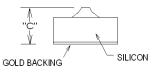




PACKAGE OPTIONS

PACKAGE STYLE 00

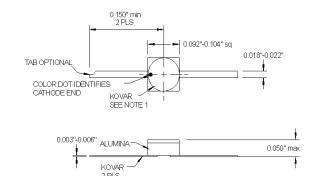




Notes:

Chip style package for hybrid circuits Dimensions vary by model number Consult factory for details Order as GC15xxxx - 00

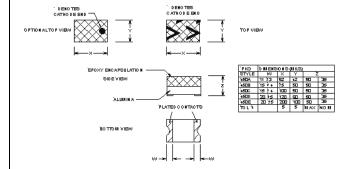
PACKAGE STYLE 17



Notes:

Hermetic - Stripline - Surface Mount Package Order as GC15xxxx - 17

PACKAGE STYLE 450A - E



Notes:

Non-Hermetic - Surface Mount Package Order as GC15xxxx - 450A or 450B

> MANY OTHER PACKAGE STYLES AVAILABLE ON REQUEST **CONSULT FACTORY**