

GC1500A - GC1513

CONTROL DEVICES
30 Volt Abrupt Junction Tuning Varactors

RoHS Compliant



DESCRIPTION

The GC1500 series varactors are silicon abrupt junction devices. They offer the highest Q and lowest series resistance available in a 30 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
- Lowest R_s
- Large selection of capacitance values to chose from
- Low phase noise
- RoHS Compliant¹

APPLICATIONS

The GC1500 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 $\pm 10\%$, 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.

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	30	V	
	Maximum Leakage Current @25 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	

IMPORTANT: For the most current data, visit <u>www.MICROSEMI.com</u> Specifications are subject to change, consult the factory for further information.

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

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



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ELECTRICAL CHARACTERISTICS @ 25° C						
Model Number	C _{T -4} + / - 10%	Quality Factor ³ (Min)	Capacitance Ratio ² (Min)			
	(1)-1-0)					
	(Note 2) @ -4V (pF)	@-4V, 50 MHz	C _{T0} / C _{T-30}			
GC1500A - 00 ⁴	0.4	5000	4.2			
GC1500B	0.6	4000	3.0			
GC1500	0.8	3900	3.3			
GC1501	1.0	3800	3.4			
GC1502	1.2	3800	3.4			
GC1503	1.5	3600	3.5			
GC1504	1.8	3500	3.5			
GC1505	2.2	3500	3.7			
GC1506	2.7	3300	3.7			
GC1507	3.3	3100	3.8			
GC1508	3.9	2700	3.9			
GC1509	4.7	2600	3.9			
GC1510	5.6	2600	4.0			
GC1511	6.8	2400	4.0			
GC1512	8.2	2200	4.0			
GC1513	10.0	2200	4.2			

Notes

- When ordering, specify the desired case style suffix to the model. (eg. GC1501 30) 1)
- 2) Capacitance values include a package capacitance of 0.18 pF. Capacitance is measures at F = 1 MHz.
- 3) Q is calculated from:
 - $Q = 1/2\pi f R s_4 C j_4$
 - Rs is measured using @ 1 GHz using transmission loss techniques.
 - Capacitances is measured at 1 MHz
- GC1500A is only available in chip form. (GC1500A 00)



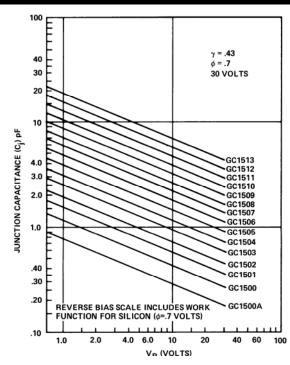
GC1500A - GC1513

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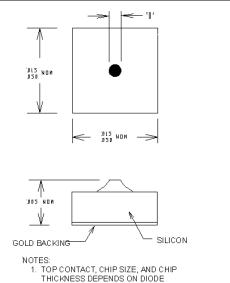
TYPICAL CJ VS REVERSE BIAS



OTHER PACKAGE STYLES AVAILABLE ON REQUEST CONSULT FACTORY FOR DETAILS

GC1500 SERIES

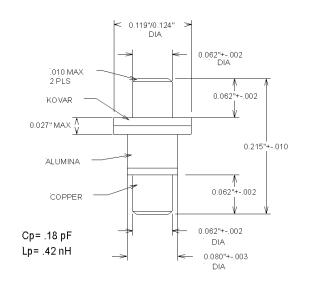
STYLE 00



PARAMETERS. CONSULT FACTORY.

2. TOP AND BOTTOM CONTACTS GOLD.

STYLE 30



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