

30 VOLT ABRUPT JUNCTION VARACTOR DIODES

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.

APPLICATIONS

The GC1500 series varactors are used for narrow to moderate band width 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 .18 pF case capacitance. Consult package outline section of this catalog for other case styles available. Complete electrical and mechanical data is also provided.

RATINGS

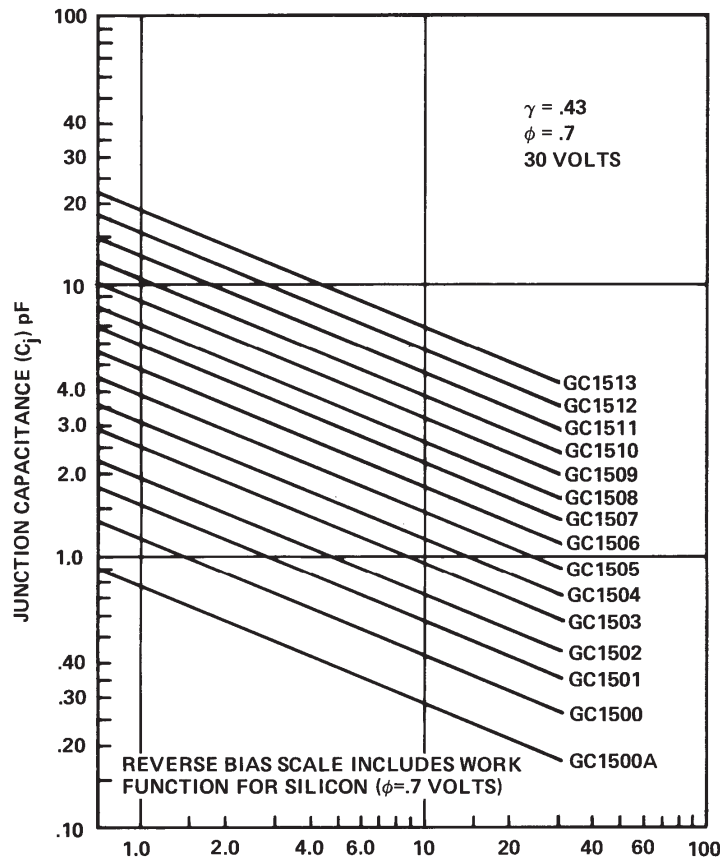
Minimum Voltage Breakdown: 30 V at $10\mu\text{A}$

Maximum Leakage Current at:
 25 V and 25°C $0.02\ \mu\text{A}$
 25 V and 125°C $2.00\ \mu\text{A}$

Capacitance-Temp. Coefficient: $300\ \text{ppm}/^\circ\text{C}$ at $V_R = -4\text{V}$

Operating Temperature: -55°C to $+150^\circ\text{C}$

Storage Temperature: -65°C to $+200^\circ\text{C}$



Typical Junction Capacitance vs Reverse Bias

Tuning Varactors

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ELECTRICAL SPECIFICATIONS: $T_A = 25^\circ\text{C}$

MODEL NUMBER ¹	TOTAL CAPACITANCE ² (AT-4V, 1 MHz) C _{t-4} (pF)	QUALITY FACTOR ³ (AT-4V, 50 MHz) Q-4 (MIN)	CAPACITANCE RATIO ² C _{T0} /C _{T30} (MIN)
GC1500A 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:

1. When ordering, specify the desired case style by adding its number as a suffix to the model number. Some limitations apply - consult factory for details.
2. These values include a package capacitance of .18 pF.
3. Q is calculated from: $Q = \frac{1}{2\pi f R_s C}$ where f=50 MHz and
 R_s = Series resistance measured at 1 GHz using transmission loss techniques. Capacitance is measured at 1 MHz.
4. GC1500A only available in Die Form.

SEMICONDUCTOR OPERATION

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