

Dual GaAs Hyperabrupt Varactor Diode

Gamma = 1.25



MA46485-1146FT

Rev. V1

Features

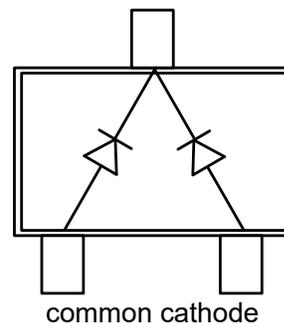
- Constant Gamma = 1.25
- More Linear Frequency Tuning
- High & Nearly Constant Modulation Sensitivity
- Lead-Free SC-70, 3-lead package
- RoHS* Compliant
- Tape & Reel Packaging

Applications

- ISM

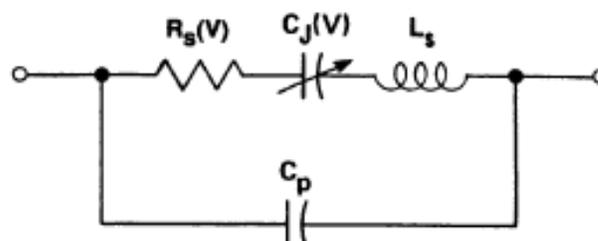
Description

This tuning varactor is a dual Gallium Arsenide hyperabrupt diode in a common cathode connection in a SC-70 plastic package. This varactor has constant gamma of 1.25. These diodes offers high Q (over 1500) permitting excellent tuning performance from VHF through Ka band. The standard capacitance tolerance is $\pm 10\%$, with tighter tolerances available. Constant gamma tuning varactors permit more linear VCO frequency tuning than do conventional hyperabrupt tuning varactors. These varactors are particularly well suited for use in voltage tuned filters, analog phase shifters, and modulator circuits.



Top View

Packaged Tuning Varactor Equivalent Circuit



Electrical Specifications: $T_A = +25^\circ\text{C}$

Gamma = 1.13 - 1.38, $V_R = 2 - 20$ Volts,
 Breakdown Voltage @ $I_R = 10 \mu\text{A}$, $V_B = 22$ V min.,
 Reverse Leakage Current @ $V_R = 18$ V, $I_R = 100$ nA max.

Total Capacitance +/-10% (pF)	Capacitance (ratio)	Q (minimum)
$V_R = 4$ V; $f = 1$ MHz	$V_R = 2$ V / 20 V	$V_R = 4$ V; $f = 50$ MHz
10	8 - 12	1500

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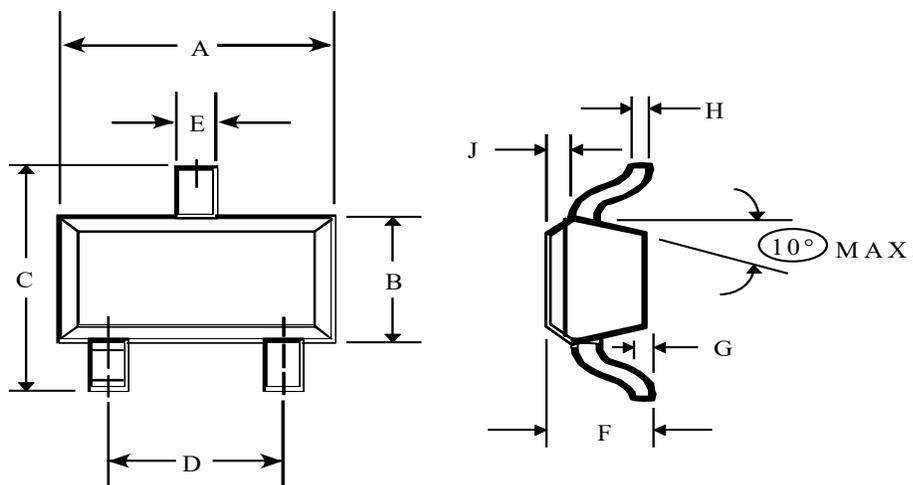
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Absolute Maximum Ratings^{1,2} @ T_A = +25°C

Parameter	Absolute Maximum
Reverse Voltage	22 V
Forward Current	50 mA
Operating Temperature	-55°C to +125°C
Storage Temperature	-55°C to +125°C

1. Exceeding any one or combination of these limits may cause permanent damage to this device.
2. MACOM does not recommend sustained operation near these survivability limits.
3. Please refer to application note M538 for surface mounting instructions.

SC-70, 3 lead (Case Style 1146)



Dim.	Inches		Millimeters	
	Min.	Max.	Min.	Max.
A	0.071	0.087	1.80	2.21
B	0.045	0.053	1.14	1.35
C	0.071	0.094	1.80	2.39
D	0.047	0.057	1.19	1.45
E	0.010	0.016	0.25	0.41
F	0.031	0.039	0.79	1.00
G	0.000	0.004	0.00	0.10
H	0.004	0.007	0.10	0.18
J	0.004	0.010	0.10	0.25

2

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