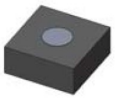
MTV4090-x Series

Silicon Abrupt Tuning Varactor Diodes

Rev. V1

Features

- Low Series Resistance
- High Q
- Extensive Selection of Capacitance Values
- RoHS* Compliant



CS11

H20

CS37

CS75

CS85

Description

The MTV4090 Series tuning varactors are silicon abrupt junction devices. They offer the highest Q and lowest resistance available in 90 volt tuning devices.

A unique silicon passivation process assures greater stability, reliability, and low leakage currents at higher temperatures.

The MTV4090 Series tuning varactors are used for both narrow and wide band tuning through X-band. These devices are used in circuits requiring a high Q voltage variable capacitance such as tunable filters and amplifiers, voltage controlled oscillators, frequency synthesizers, and continuous phase shifters. They are also useful as frequency and phase modulators in communications applications.

Electrical Specifications: T_C = +25°C

Part Number	Reverse Voltage V_B I_R = 10 µA	Junction Capacitance[1] C_J V_R = 4 V, 1 MHz	Capacitance Ratio C_R C_T0 / C_T90	Quality Factor Q V_R = 4 V, 50 MHz
	Minimum	Typical	Minimum	Minimum
MTV4090-01	90	0.8	8	1000
MTV4090-02	90	1.0	8	1000
MTV4090-03	90	1.2	8	900
MTV4090-04	90	1.4	8	900
MTV4090-05	90	1.6	8	850
MTV4090-06	90	1.8	8	850
MTV4090-07	90	2.2	8	850
MTV4090-08	90	2.7	8	850
MTV4090-09	90	3.3	8	800
MTV4090-10	90	3.6	8	800

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* Restrictions on Hazardous Substances, European Union Directive 2011/65/EU.

Electrical Specifications: T_C = +25°C

Part Number	Reverse Voltage V_B I_R = 10 µA	Junction Capacitance[1] C_J V_R = 4 V, 1 MHz	Capacitance Ratio C_R C_T0 / C_T90	Quality Factor Q V_R = 4 V, 50 MHz
	Minimum	Typical	Minimum	Minimum
MTV4090-11	90	3.9	8	800
MTV4090-12	90	4.7	8	800
MTV4090-13	90	5.6	8	800
MTV4090-14	90	6.8	8	750
MTV4090-15	90	8.2	8	750
MTV4090-16	90	10.0	8	750

1. Total Capacitance (C_T) values will vary depending upon the desired packaging type (C_J + package = C_T).

Absolute Maximum Ratings

Parameter	Absolute Maximum
Device Dissipation	250 mW
Operating Temperature	-55°C to +150°C
Storage Temperature	-65°C to +100°C

Package Style	Package Capacitance (pF)	Series Inductance (nH)
	Typical	Typical
CS11	0	0.12
H20	0.20	0.12
CS37	0.19	0.40
CS75	0.25	1.20
CS85	0.30	1.50

Handling Procedures

Please observe the following precautions to avoid damage:

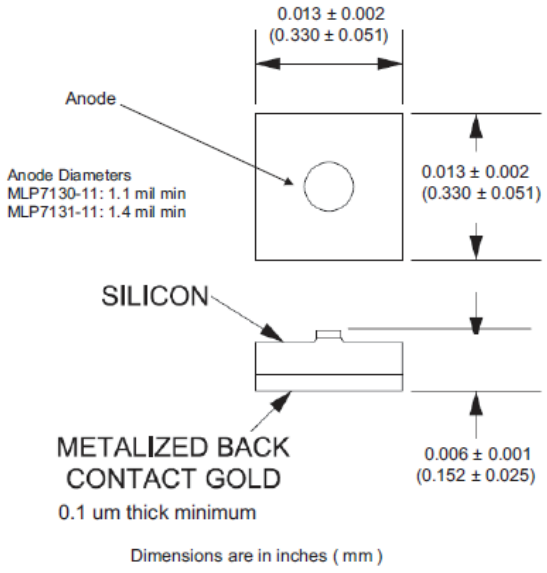
Static Sensitivity

These electronic devices are sensitive to electrostatic discharge (ESD) and can be damaged by static electricity. Proper ESD control techniques should be used when handling these HBM Class 0 devices.

Moisture Sensitivity

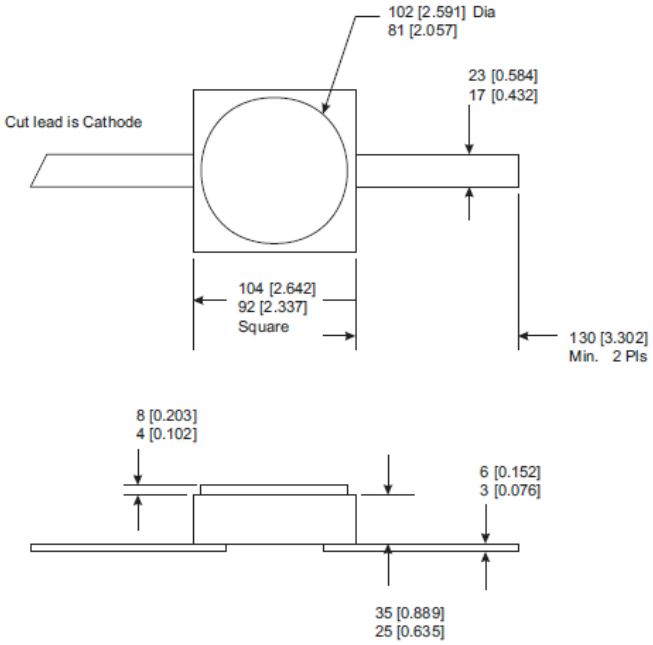
These electronic devices are rated MSL 1.

Outline Drawing - CS11



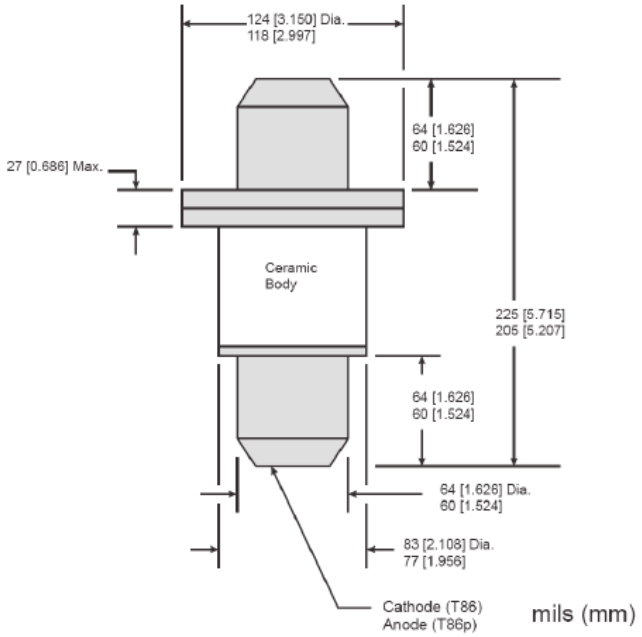
Dimensions are in inches (mm)

Outline Drawing - CS20 (H20)



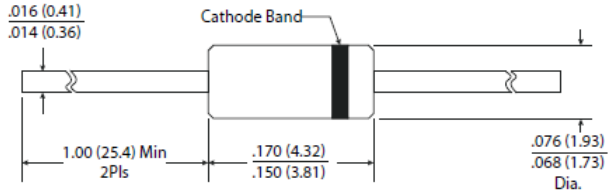
Package Capacitance (C_{PKG}) = 0.2 pF

Outline Drawing - CS37 (T86)

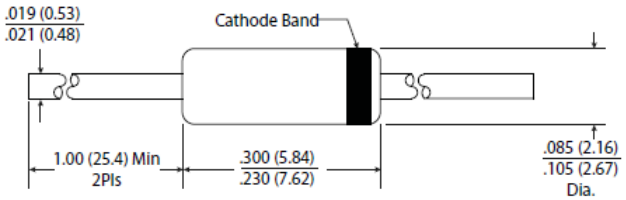


Package Capacitance (C_{PKG}) = 0.17 pF

Outline Drawing - CS75 (A15)



Outline Drawing - CS85



Note: Dimensions are in inches (mm)

Ordering Information

Example Part: MTV4090-01-XX, replace –XX with desired case style suffix	
-11	CS11 (C11), Silicon Die
-20	H20, Surface Mount, Ceramic Package
-37	CS37 (T86), Pill Package, Ceramic Body
-75	CS75 (A15), Glass Axial Leaded (Hermetic)
-85	CS85, Glass Axial Leaded