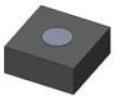
MTV4060-x Series

Silicon Abrupt Tuning Varactor Diodes

Rev. V1

Features

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



CS11

H20

CS37

CS75

CS85

Description

The MTV4060 series are available with typical capacitance at reverse voltage of 4 V from 0.8 pF up to 15 pF. These silicon varactor diodes offer very high quality factor for low series resistance, very low leakage current and wide tuning range. These diodes are passivated with a high-reliability passivation for low leakage current and high reliability. The devices are available as unpackaged chips or in several package styles.

These rugged devices are capable of reliable operation in all military, commercial and industrial applications. Ideally suited for voltage controlled oscillators and filters and analog voltage controlled phase shifters.

The MTV4060 family of silicon abrupt tuning varactors are capable of meeting the environmental requirements of MIL-STD-750 and MIL-STD-883.

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_T60	Quality Factor Q V_R = 4 V, 50 MHz
	Minimum	Typical	Minimum	Minimum
MTV4060-01	60	0.8	8	2100
MTV4060-02	60	1.0	8	2100
MTV4060-03	60	1.2	8	2100
MTV4060-04	60	1.4	8	2000
MTV4060-05	60	1.6	8	2000
MTV4060-06	60	1.8	8	2000
MTV4060-07	60	2.2	8	2000
MTV4060-08	60	2.7	8	1900
MTV4060-09	60	3.3	8	1800
MTV4060-10	60	3.6	8	1700

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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_T60	Quality Factor Q V_R = 4 V, 50 MHz
	Minimum	Typical	Minimum	Minimum
MTV4060-11	60	3.9	8	1700
MTV4060-12	60	4.7	8	1600
MTV4060-13	60	5.6	8	1500
MTV4060-14	60	6.8	8	1400
MTV4060-15	60	8.2	8	1300
MTV4060-16	60	10.0	8	1200
MTV4060-17	60	12.0	8	1100
MTV4060-18	60	15.0	8	1000

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
Reverse DC Voltage	60 V
Forward Current	50 mA
Power 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

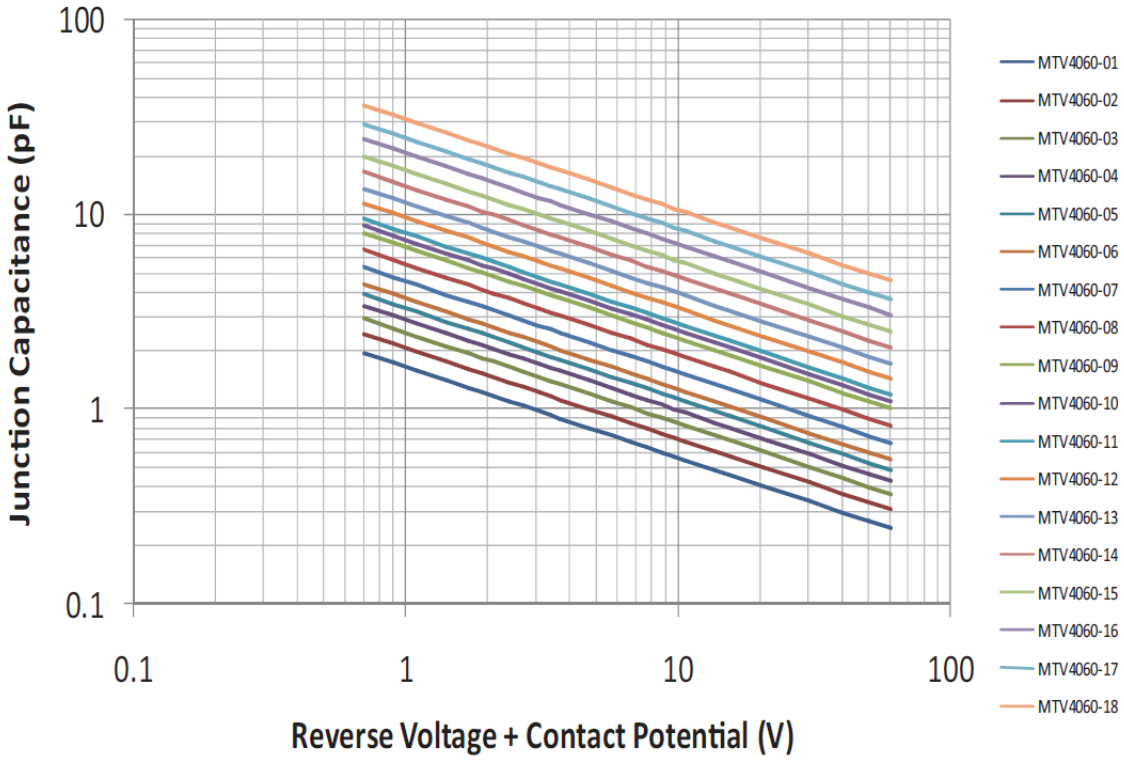
These electronic devices are sensitive to electrostatic discharge (ESD) and can be damaged by static electricity. Proper ESD control techniques should be used when handling these HBM Class 0 devices.

Moisture Sensitivity

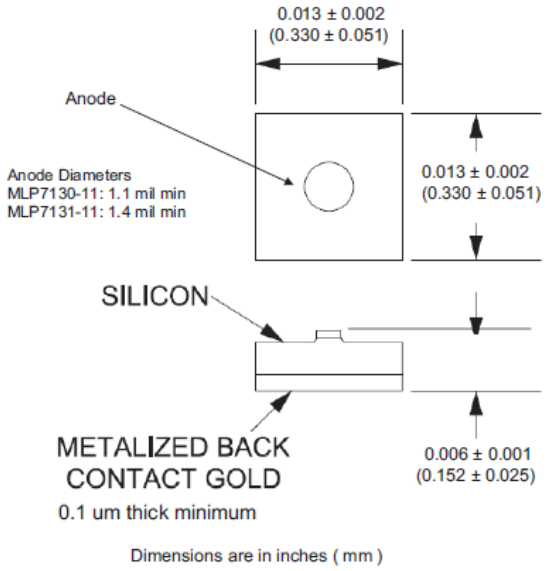
These electronic devices are rated MSL 1.

Typical Performance Curve:

Junction Capacitance vs. Reverse Voltage

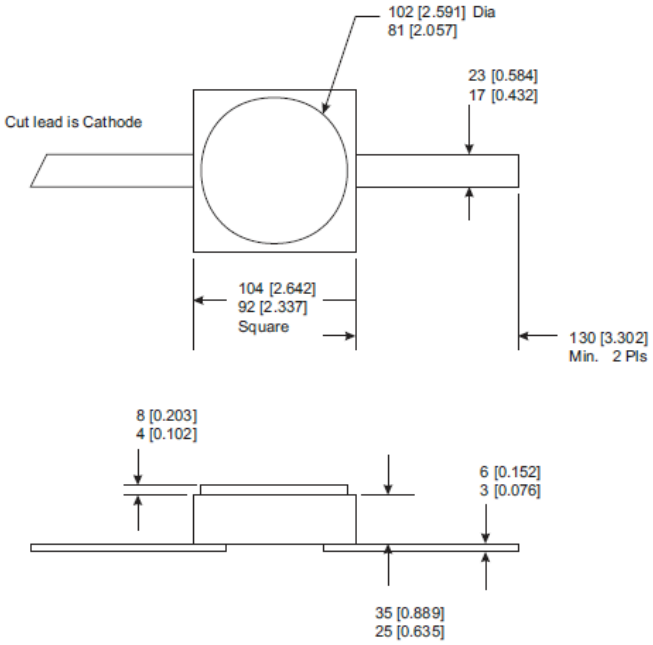


Outline Drawing - CS11



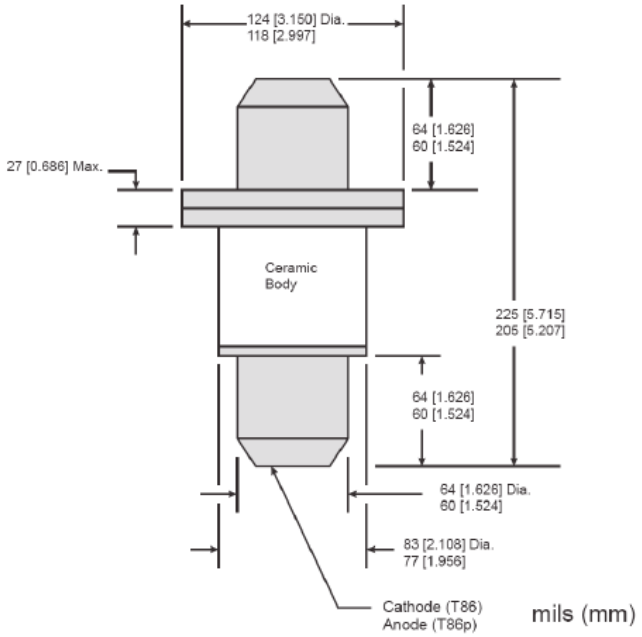
Dimensions are in inches (mm)

Outline Drawing - CS20 (H20)



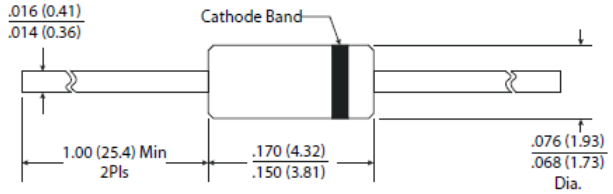
Package Capacitance (C_{PKG}) = 0.2 pF

Outline Drawing - CS37 (T86)

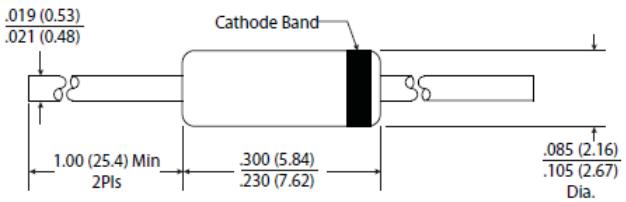


Package Capacitance (C_{PKG}) = 0.17 pF

Outline Drawing - CS75 (A15)



Outline Drawing - CS85



Note: Dimensions are in inches (mm)

Ordering Information

Example Part: MTV4060-01-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