

Features

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

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: $T_C = +25^\circ\text{C}$

| Part Number | Reverse Voltage V_B $I_R = 10 \mu\text{A}$ | Junction Capacitance ¹ C_J $V_R = 4 \text{ V}, 1 \text{ MHz}$ | Capacitance Ratio C_R C_{T0} / C_{T90} | Quality Factor Q $V_R = 4 \text{ V}, 50 \text{ MHz}$ |
|-------------|--|--|--|--|
| | 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.

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|-------------|--|--|--|--|
| | 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 ($C_J + \text{package} = C_T$).

Absolute Maximum Ratings

| Parameter | Absolute Maximum |
|-----------------------|---|
| Device Dissipation | 250 mW |
| Operating Temperature | -55°C to $+150^\circ\text{C}$ |
| Storage Temperature | -65°C to $+100^\circ\text{C}$ |

Handling Procedures

Please observe the following precautions to avoid damage:

Static Sensitivity

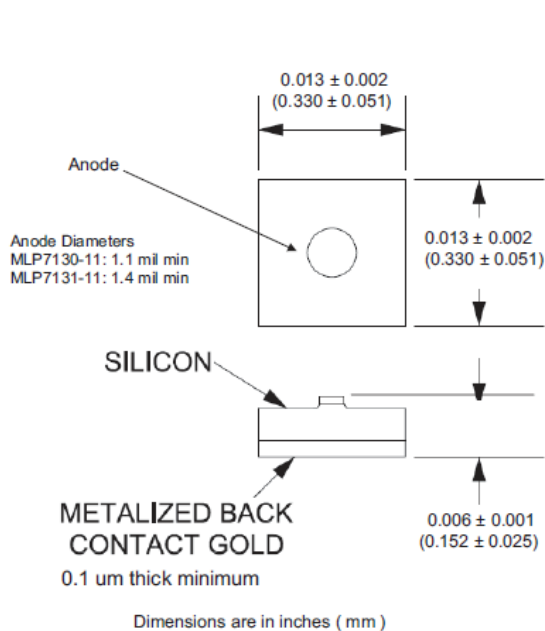
These electronic devices are sensitive to electrostatic discharge (ESD) and can be damaged by static electricity. Proper ESD control techniques should be used when handling these HBM Class 0 devices.

Moisture Sensitivity

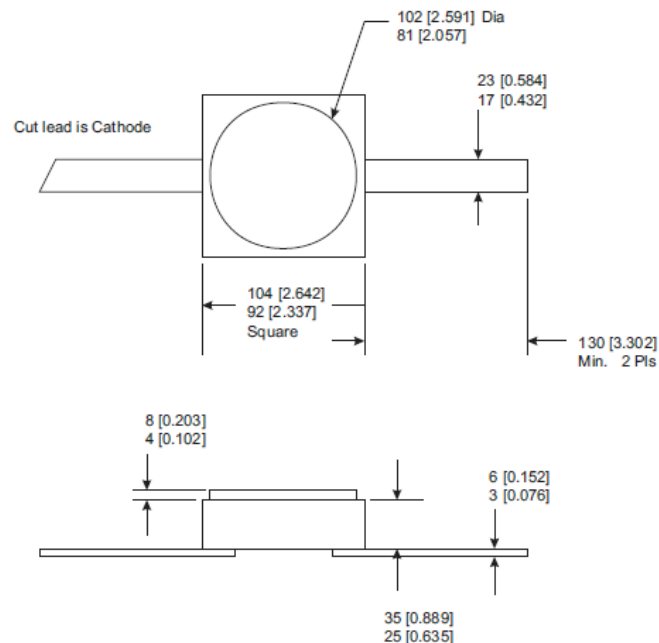
These electronic devices are rated MSL 1.

| 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 |

Outline Drawing - CS11

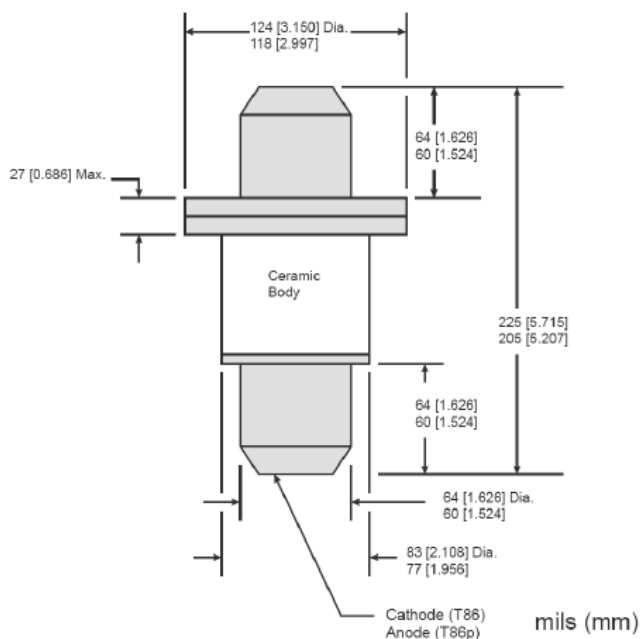


Outline Drawing - CS20 (H20)



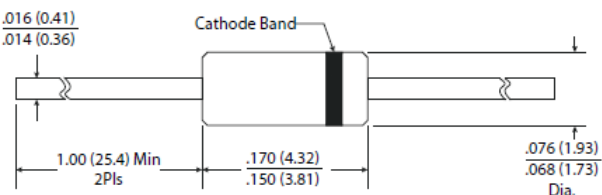
Package Capacitance (C_{PKG}) = 0.2 pF

Outline Drawing - CS37 (T86)

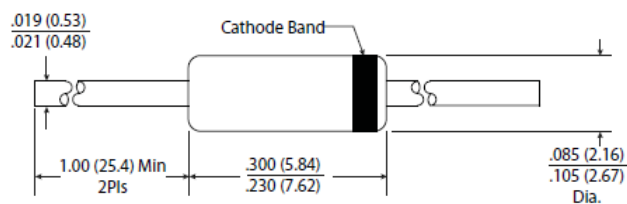


Package Capacitance (C_{PKG}) = 0.17 pF

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 |

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- Техническую поддержку проекта.
- Защиту от снятия компонента с производства.
- Оценку стоимости проекта по компонентам.
- Изготовление тестовой платы монтаж и пусконаладочные работы.



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