

MTV4030-x Series

Rev. V4

Features

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

Applications

• ISM

Description

The MTV4030 Series tuning varactors are silicon abrupt junction devices. They offer the highest Q and lowest resistance available in 30 volt tuning devices.

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

The MTV4030 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.



Typical Package Characteristics

Package Style	Capacitance (pF)	Series Inductance (nH)
CS11	0	0.12
H20	0.20	0.12
CS37	0.19	0.40
CS75	0.25	1.20
CS85	0.30	1.50
ODS-1056	0.15	0.45

Ordering Information

Example Part: MTV4030-01-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			

* Restrictions on Hazardous Substances, compliant to current RoHS EU directive.

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Silicon Abrupt Tuning Varactor Diodes



Electrical Specifications: T_c = +25°C, Reverse Voltage = 30 V min. @ I_R = 10 µA max., Capacitance Ratio $(C_T 0 / C_T 30) = 5$ min.

Part Number	Junction Capacitance ¹ (C _J) $V_R = 4 V, 1 MHz$	Quality Factor (Q) $V_R = 4 V$, 50 MHz
	Typical	Minimum
MTV4030-01	0.4	5000
MTV4030-02	0.6	5000
MAVR-403002-1056B0 ²	0.7	5000
MTV4030-03	0.8	4800
MTV4030-04	1.0	4800
MAVR-403004-1056B0 ³	1.0	4800
MTV4030-05	1.2	4600
MTV4030-06	1.4	4400
MTV4030-07	1.6	4400
MTV4030-08	1.8	4200
MTV4030-09	2.2	4000
MTV4030-10	2.7	3800
MTV4030-11	3.3	3600
MTV4030-12	3.6	3400
MTV4030-13	3.9	3400
MTV4030-14	4.7	3200
MTV4030-15	5.6	3000
MTV4030-16	6.8	2800
MTV4030-17	8.2	2600
MTV4030-18	10.0	2400
MTV4030-19	12.0	2200
MTV4030-20	15.0	2000
MTV4030-21	18.0	1800
MTV4030-22	22.0	1600
MTV4030-23	27.0	1400
MTV4030-24	33.0	1400
MTV4030-25	39.0	1200
MTV4030-26	47.0	1000

1. Total Capacitance (C_T) values will vary depending upon the desired packaging type (C_J + package = C_T). 2. Total Capacitance (C_T) @ 4 V = 0.95 pF max., Capacitance Ratio (C_T0 / C_T30 = 4.0 min.). 3. Total Capacitance (C_T) @ 4 V = 1.3 pF max., Capacitance Ratio (C_T0 / C_T30 = 4.5 min.).

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Absolute Maximum Ratings^{4,5}

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

4. Exceeding any one or combination of these limits may cause permanent damage to this device.

 MACOM does not recommend sustained operation near these survivability limits.

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 1C devices.

Moisture Sensitivity

These electronic devices are rated MSL 1.

Outline Drawings

Dimensions are in inches (mm)









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Outline Drawings

Dimensions are in inches (mm)





DIM.	INCHES		MILLIMETERS	
	MIN.	MAX.	MIN.	MAX.
А	0.065	0.075	1.65	1.91
В	0.034	0.041	0.86	1.04
С	0.030	0.036	0.76	0.91
D	0.009	0.021	0.23	053
Е	0.010	0.014	0.25	0.36
F	0.043	0.053	1.09	1.35

Package Capacitance: 0.15 pF Typical Package Inductance: 0.45 nH Typical

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