

Si Abrupt Tuning Varactor Diode

Rev. V8

Features

- Surface Mount Plastic Package: SOT-23
- SPC Process for Superior C vs. V and Q vs. V Repeatability
- Lead free and RoHS Compliant *

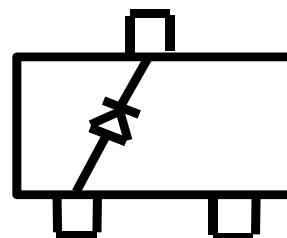
Description

The MAVR-0454xx Series is a highly repeatable, UHCVD/ion-implanted, abrupt silicon tuning varactor in a cost effective surface mount package. This series of varactors is designed for general purpose tuning in the HF to UHF frequency bands. It is efficient for wide tuning across a 0-30 V range. These diodes are offered with 100% matte Sn plating.

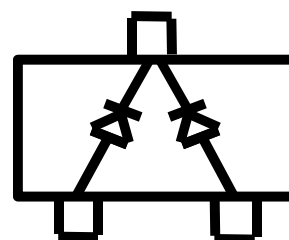
Application

The MAVR-0454xx Series tuning varactors are useful for tuning applications in the HF through UHF ranges. Applications include VCO's and voltage tuned filters in radios, cable TV tuners and test instruments where low cost and excellent lot to lot repeatability are critical.

SOT-23 Single Configuration



SOT-23 Common Cathode Configuration



Ordering Information

Part #	Configuration	Package Cp (pF)	Package Ls (nH)
MAVR-045436-0287AT	Single	0.12	1.3
MAVR-045438-0287AT	Single	0.12	1.3
MAVR-045440-0287AT	Single	0.12	1.3
MAVR-045441-0287AT	Single	0.12	1.3
MAVR-045446-0287AT	Single	0.12	1.3
MAVR-045436-0287FT	Common Cathode	0.12	1.3
MAVR-045438-0287FT	Common Cathode	0.12	1.3
MAVR-045440-0287FT	Common Cathode	0.12	1.3
MAVR-045441-0287FT	Common Cathode	0.12	1.3

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

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

Breakdown Voltage @ $I_R = 10\ \mu\text{A}$, $V_b = 30\ \text{V}$ Minimum

Reverse Leakage Current @ $V_R = 24\ \text{V}$, $I_R = 100\ \text{nA}$ Maximum

Part # ¹	C_T^2 (pF)			Capacitance Ratio	Q Minimum
	$V_R = 4\ \text{V}$			$C_{T0\ \text{V}} / C_{T30\ \text{V}}$	$V_R = 4\ \text{V}$
	Min.	Nom.	Max.	Typ.	Min.
MAVR-045436-0287AT MAVR-045436-0287FT	4.23	4.7	5.17	4.5	1800
MAVR-045438-0287AT MAVR-045438-0287FT	6.12	6.8	7.48	4.5	1600
MAVR-045440-0287AT MAVR-045440-0287FT	9	10	11	4.5	1300
MAVR-045441-0287AT MAVR-045441-0287FT	10.8	12	13.2	4.6	1200
MAVR-045446-0287AT	29.7	33	36.3	4.7	750

1. The suffix defines package style, configuration and packaging information. Contact representative for complete part identification.

2. Capacitance @ 1 MHz

Absolute Maximum Ratings^{3,4}

@ $T_A = +25^\circ\text{C}$ (Unless Otherwise Noted)

Parameter	Absolute Maximum
Reverse Voltage	30 V
Forward Current	50 mA
Operating Temperature	-55°C to $+125^\circ\text{C}$
Storage Temperature	-55°C to $+125^\circ\text{C}$

3. Operation of this device above any one of these parameters may cause permanent damage.

4. Please refer to application note M538 for surface mounting instructions.

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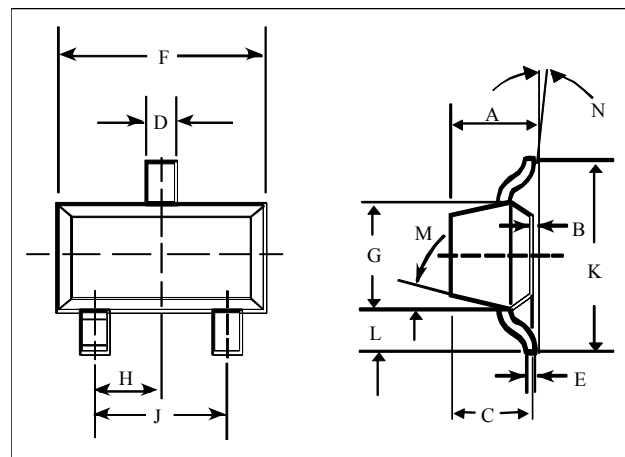
Mounting Information

The illustration indicates the recommended mounting pad configuration for the SOT-23 packages. Solder paste containing flux should be screened onto the pads to a thickness of 0.005 - 0.007 inches. The plastic package is placed in position, firmly adhering to the solder paste.

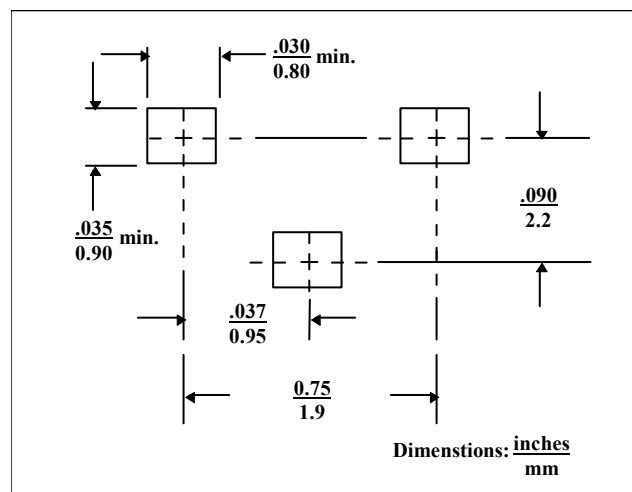
Permanent attachment is performed by a reflow soldering procedure during which the tab temperature does not exceed +275°C and the body temperature does not exceed +250°C, for standard models and +260°C for the RoHS compliant devices.

Please refer to Application Note M538 for surface mounting instructions.

SOT-23 (Case Style 287)



SOT-23



DIM.	INCHES		MILLIMETERS	
	Min.	Max.	Min.	Max.
A	3/4	0.048	3/4	1.22
B	3/4	0.008	3/4	0.20
C	3/4	0.040	3/4	1.00
D	0.013	0.020	0.35	0.50
E	0.003	0.006	0.08	0.15
F	0.110	0.119	2.80	3.00
G	0.047	0.056	1.20	1.40
H	0.037 typical		0.95 typical	
J	0.075 typical		1.90 typical	
K	3/4	0.103	3/4	2.60
L	3/4	0.024	3/4	0.60
DIM.	GRADIENT			
M	10° max.			
N	2° . . . 30°			

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