ANTREX Electronics

Electronic Components Sourcing Information

Product Reference Information

Part Number:	MAVR-000404-0287FT
Manufacturer:	MACOM Technology Solutions
Package:	Please confirm with sales
Availability:	Please confirm with sales

Product Page:

https://antrexco.com/product/details/macom-technology-solutions/mavr-000404-0287ft.html

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Contact Information

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Quality & Trust

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Supplier verification and packaging condition review

CoC / RoHS / REACH documents available on request

Secure sourcing support for OEM / EMS projects

Note:

This PDF includes an ANTREX product reference cover page.

The original manufacturer datasheet follows from the next page.

Surface Mount Hyperabrupt Varactors

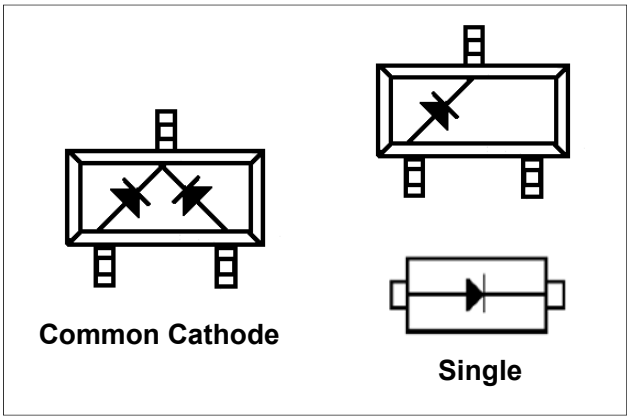
MAVR-000400 Series
Rev. V6

Features
- Surface Mount Packages
- High Quality Factor
- Capacitance Ratio to 9.5:1
- SPC Monitored Ion Implantation for Excellent
- C-V Repeatability
- Singles and Common Cathode Pairs
- Lead-Free
- Tape and Reel Packaging Available
- RoHS* Compliant

Description
The MAVR-000400 Series are ion-implanted, hyperabrupt junction, silicon tuning varactors in the SOT-23 or SC-79 surface mount package. These thermal oxide passivated diodes feature high capacitance ratio and quality factor. They are well suited for octave bandwidth tuning in the HF to UHF frequency bands. The standard capacitance tolerance is ±10%, with tighter tolerances available. Capacitance matching at one or more bias voltages is also available. These diodes are supplied with 100% matte Sn plating.

Applications
The MAVR-000400 series tuning varactors are useful for octave bandwidth tuning applications in the HF through UHF ranges. Applications include VCOs and voltage tuned filters in radios, cable TV tuners and test instruments where low cost and excellent lot-to-lot repeatability are critical. Linear tuning performance is available from 3 to 8 volts.

Configurations



RoHS Compliant Parts[1]

Part Number	Configuration
MAVR-000401-0287AT	Single
MAVR-000401-12790T	Single
MAVR-000403-0287AT	Single
MAVR-000404-0287AT	Single
MAVR-000405-0287AT	Single
MAVR-000405-12790T	Single
MAVR-000407-0287AT	Single
MAVR-000409-0287AT	Single
MAVR-000401-0287FT	Common Cathode
MAVR-000403-0287FT	Common Cathode
MAVR-000404-0287FT	Common Cathode
MAVR-000405-0287FT	Common Cathode
MAVR-000407-0287FT	Common Cathode
MAVR-000409-0287FT	Common Cathode

1. Suffix refers to package style, configuration and packaging requirements. Other packages and configurations may be available upon request.

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

Electrical Specifications @ T_A = +25°C

Part # Base[2]	Total Capacitance (C_T)[3] (pF) f = 1 MHz, V_R = 4 V			Capacitance Ratio CT2 / CT20	Q Factor f = 50 MHz V_R = 4 V	Reverse Current (I_R) nA V_R = 20 V	Reverse Current (I_R) nA VR = 30 V
	Min.	Nom.	Max.	Typ.	Min.	Max.	Max.
MAVR-000401-0287AT	9.0	10.0	11.0	6.0	250	10	15
MAVR-000401-12790T	9.0	10.0	11.0	6.0	250	10	15
MAVR-000403-0287AT	13.5	15.0	16.5	7.0	250	10	15
MAVR-000404-0287AT	16.2	18.0	19.8	7.0	175	8	10
MAVR-000405-0287AT	19.8	22.0	24.2	7.5	175	10	15
MAVR-000405-12790T	19.8	22.0	24.2	7.5	175	10	15
MAVR-000407-0287AT	29.7	33.0	36.3	9.0	150	10	15
MAVR-000409-0287AT	42.3	47.0	51.7	9.5	150	8	10
MAVR-000401-0287FT	9.0	10.0	11.0	6.0	250	10	15
MAVR-000403-0287FT	13.5	15.0	16.5	7.0	250	10	15
MAVR-000404-0287FT	16.2	18.0	19.8	7.0	175	8	10
MAVR-000405-0287FT	19.8	22.0	24.2	7.5	175	10	15
MAVR-000407-0287FT	29.7	33.0	36.3	9.0	150	10	15
MAVR-000409-0287FT	42.3	47.0	51.7	9.5	150	8	10

2. The suffix defines package style, configuration and packaging information. Contact representative for complete part identification.
3. Capacitance specification is per diode

Absolute Maximum Ratings[4,5] @ T_A = +25°C (Unless Otherwise Noted)

Parameter	Absolute Maximum
Reverse Voltage	30 V
Forward Current	50 mA
Total Power Dissipation	250 mW
Operating & Storage Temperature	-55°C to +125°C

4. Operation of this device above any one of these parameters may cause permanent damage.
5. Please refer to application note M538 for surface mounting instructions.

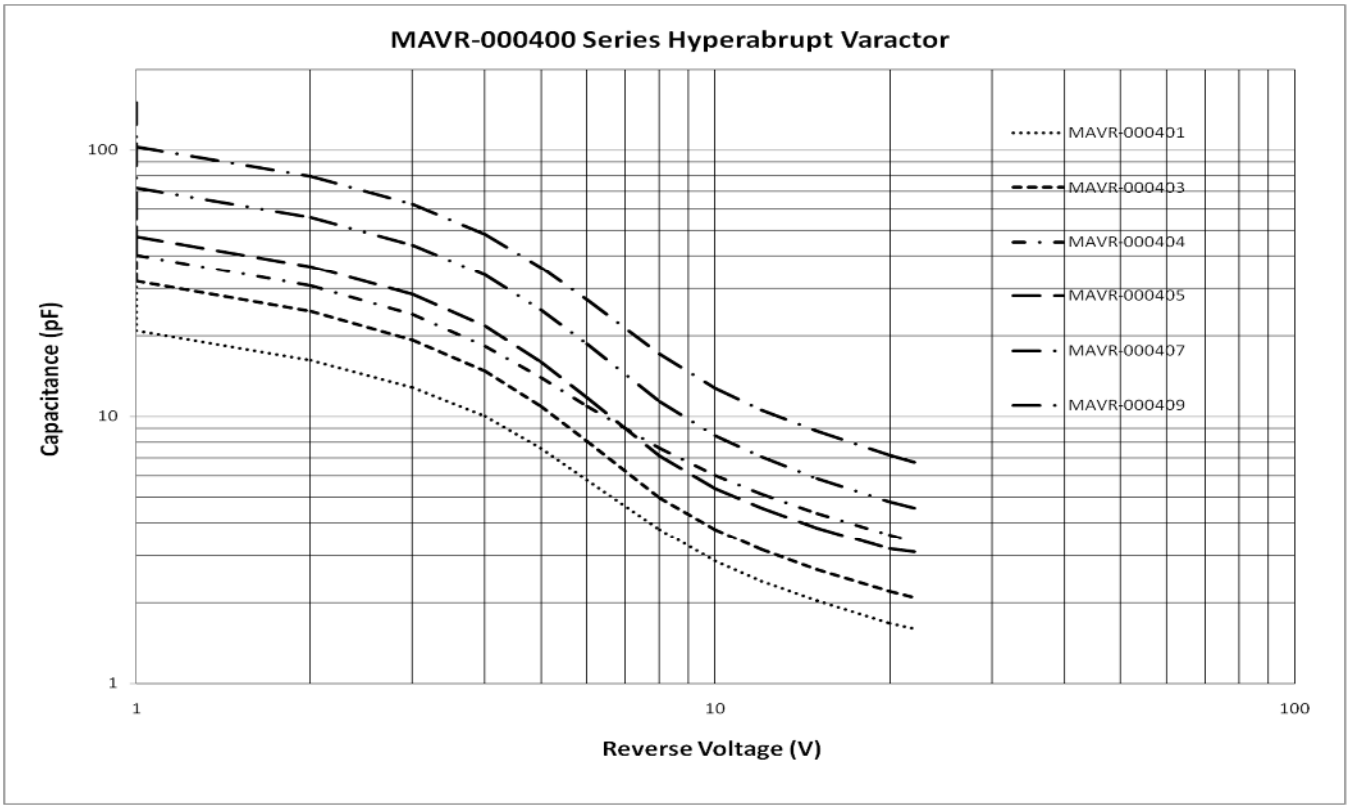
Handling Procedures

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 devices.

Typical Performance Curve



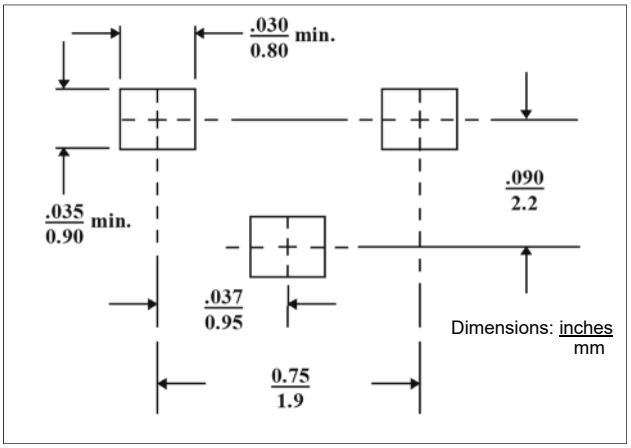
Bias (V)	MAVR-000401	MAVR-000403	MAVR-000404	MAVR-000405	MAVR-000407	MAVR-000409
0	30.37	47.05	59.64	69.45	105.60	150.59
1	20.86	32.12	40.43	47.47	72.34	103.10
2	16.19	24.72	30.89	36.55	55.93	79.70
3	12.83	19.33	24.00	28.57	44.02	62.79
4	9.99	14.74	18.35	21.73	33.85	48.45
5	7.59	10.90	13.95	15.95	25.13	36.27
6	5.80	8.08	10.94	11.73	18.64	27.26
8	3.76	4.96	7.61	7.11	11.37	17.11
10	2.86	3.76	6.00	5.37	8.45	12.73
12	2.41	3.17	5.12	4.53	7.05	10.58
15	2.03	2.66	4.33	3.81	5.87	8.79
20	1.68	2.21	3.60	3.18	4.81	7.17
22	1.60	2.09	3.39	3.11	4.53	6.75

Mounting Information

The illustration indicates the recommended mounting pad configuration for the SOT-23 package. 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 +260°C, using RoHS compliant solders

Please refer to Application Note M538 for surface mounting instructions.

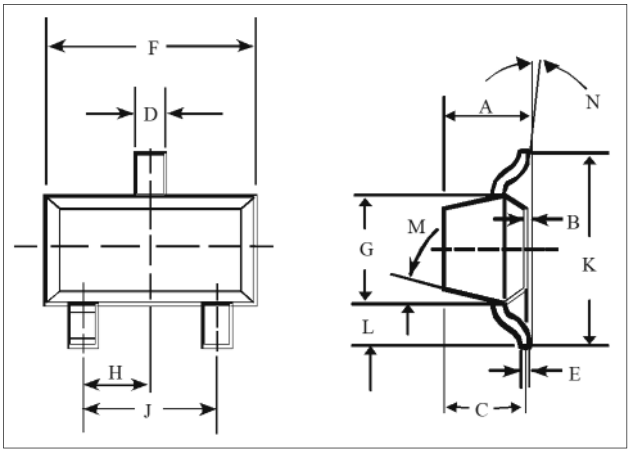
SOT-23 Pad Layout



SOT-23 (Case Style 287)

DIM.	INCHES		MILLIMETERS	
	MIN.	MAX.	MIN.	MAX.
A	—	0.048	—	1.22
B	—	0.008	—	0.20
C	—	0.040	—	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 typ.		0.95 typ.	
J	0.075 typ.		1.90 typ.	
K	—	0.103	—	2.60
L	—	0.024	—	0.60
DIM.	GRADIENT			
M	10° max.			
N	2° . . .30°			

SOT-23 (Case Style 287)

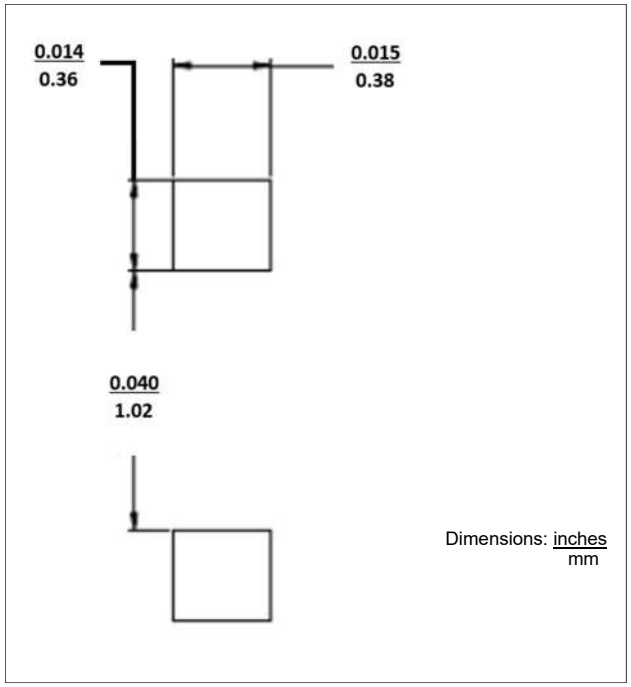


Mounting Information

The illustration indicates the recommended mounting pad configuration for the SC-79 package. 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 +260°C, using RoHS compliant solders

Please refer to Application Note M538 for surface mounting instructions.

SC-79 Pad Layout



SC-79 (Case Style 1279)

DIM.	INCHES		MILLIMETERS	
	MIN.	MAX.	MIN.	MAX.
A	0.0197	0.0276	0.50	0.70
B	0.003	0.008	0.07	0.20
C	0.006	0.010	0.15	0.25
D	0.010	0.014	0.25	0.35
E	0.059	0.067	1.50	1.70
F	0.043	0.051	1.09	1.30
G	0.0098 nominal		0.25 nominal	
H	0.0433 nominal		1.10 nominal	
I	0.027	0.035	0.68	0.89

SC-79 (Case Style 1279)