

Microwave Hyperabrupt Tuning Varactors

Description

The **MicroMetrics** MHV 500 series Microwave Hyperabrupt Tuning Varactors are silicon epitaxial mesa devices with high reliability glass passivation which ensures optimum VCO settling time and flat post tuning drift response. They offer Q values well above ion-implanted hyperabrupt diodes. These diodes offer octave tuning through 9 GHz. They are available in a variety of case styles for surface mount and/or cavity requirements. Chip devices are recommended for wide bandwidth performance and frequency response.

Applications

The MHV 500 series linear Tuning Varactors are used in VCO's, filters, amplifiers and modulators for wide band tuning through K band. The linear characteristics allow over one octave linear tuning in suitable circuits. The combination of high Q and low surface noise result in low FM noise in VCO applications.

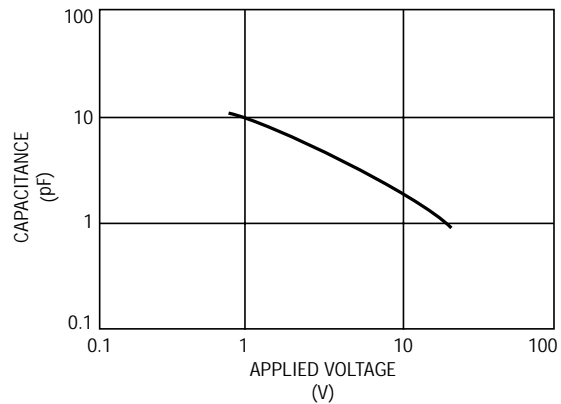
Features

- All EPI Mesa Construction
- High Reliability
- Frequency Linear Profiles
- Glass Passivation
- High Q
- Wide Tuning Ratios

Packaging

- Wide Range of Case Styles for Surface Mount or Cavity Requirements. Also Available in Chip Form.

Typical Performance



Electrical Characteristics

Junction Capacitance, C_j^1 F = 1MHz (pF)									Ratio C_{j4}/C_{j20}		Q^2	Part Number
$V_r = 0$ Volts			$V_r = 4$ Volts			$V_r = 20$ Volts			MIN	MAX	MIN	
MIN	TYP	MAX	MIN	TYP	MAX	MIN	TYP	MAX				
2.25	2.5	2.75	.70	.80	.90	.13	.20	.30	3.0	5.5	2600	MHV500
2.8	3.1	3.4	.90	1.0	1.1	.16	.24	.36	3.0	5.5	2500	MHV501
3.3	3.7	4.1	.98	1.2	1.32	.18	.28	.44	3.0	5.5	2400	MHV502
4.2	4.7	5.2	1.35	1.5	1.65	.24	.36	.55	3.0	5.5	2300	MHV503
5.0	5.6	6.2	1.63	1.8	1.98	.30	.43	.66	3.0	5.5	2200	MHV504
6.1	6.8	7.5	1.98	2.2	2.42	.36	.52	.80	3.0	5.5	2000	MHV505
7.2	8.4	9.2	2.43	2.7	2.97	.44	.64	1.0	3.0	5.5	1800	MHV506
9.0	10.0	11.0	2.97	3.3	3.63	.54	.78	1.21	3.0	5.5	1500	MHV507
10.8	12.0	13.2	3.51	3.9	4.29	.64	.93	1.43	3.0	5.5	1200	MHV508
13.1	14.6	16.1	4.23	4.7	5.17	.77	1.12	1.72	3.0	5.5	1000	MHV509
15.7	17.4	19.1	5.04	5.6	6.16	.91	1.33	2.05	3.0	5.5	800	MHV510
18.9	21.0	23.1	6.12	6.8	7.48	1.11	1.62	2.5	3.0	5.5	700	MHV511
22.9	25.4	28.0	7.38	8.2	9.02	1.34	1.95	3.0	3.0	5.5	650	MHV512
27.9	31.0	34.1	9.0	10.0	11.0	1.64	2.38	3.67	3.0	5.5	600	MHV513

Notes:

1. Capacitance is measured in chip form.

2. $Q = \frac{1}{2 \pi f R_s C_j}$

Maximum Ratings

Parameter	Symbol	Value	Units
Operating Temperature	T_{op}	-55 to + 150	°C
Storage Temperature Range	T_{stg}	-65 to + 200	°C
Minimum Voltage Breakdown	V_b (10 μ A)	22	Volts
Maximum Leakage Current	I_r (20 V)	50	nA

