

VHF Hyperabrupt Tuning Varactors

Description

The **MicroMetrics** VHF Tuning Varactors are Ion-implanted high reproducible hyperabrupt diodes which allow octave tuning of LC tanks up to 500 MHz or, with a reduced 1.5 to 1 frequency ratio, straight-line frequency tuning over a 3 to 8 volt tuning range. These UHF diodes give a full capacitance range of 20 to 200pF at 4 volts bias, ultra-high Q and excellent large signal handling capabilities, along with a 2 to 1 capacitance ratio by tuning from 9 to 20 volts of reverse bias. Closely matched sets of all VHF diodes are available along with "A" suffix versions having $\pm 5\%$ capacitance tolerance at 4 volts of reverse bias.

Features

- High Reliability, Silicon Planar Hermetically Sealed
- Octave Tuning or Ultra-High Q Applications
- Straight-Line Frequency Applications Over 3 to 8 Volt Bias Range.
- Low Cost Applications

Packaging

- Hermetically Sealed

Maximum Ratings

Parameter	Symbol	Value	Units
Reverse Voltage	V_r	Same as V_{br}	Volts
Forward Current	I_f	100	mA
Power Dissipation	P_d (25°C)	250	mW
Operating Temperature	T_{op}	-55 to +150	°C
Storage Temperature	T_{stg}	-65 to +200	°C

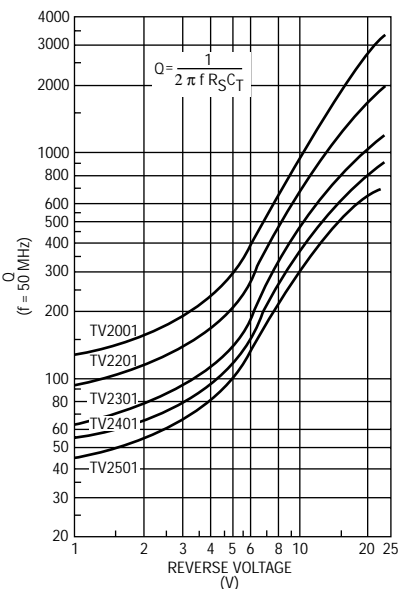
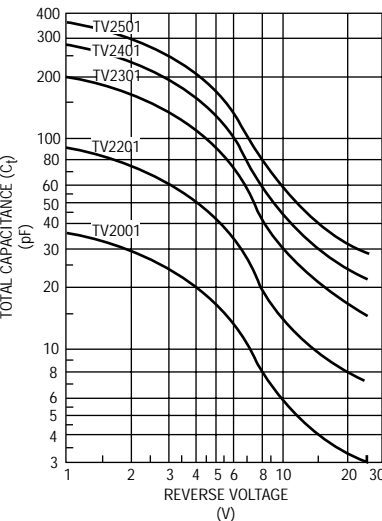
Electrical Characteristics

Total Capacitance, C_t^1 F = 1 MHz (pF)			Tuning Ratio, T_r F = 1 MHz		
$V_r = 4$ Vdc MIN/MAX	$V_r = 8$ Vdc MIN/MAX	$V_r = 20$ Vdc MIN/MAX	C(4V)/C(8V) MIN/MAX	C(4V)/C(20V) MIN/MAX	
18/22	7.5/10.5	3.1/3.9	-	5.4/6.6	
19/21	7.8/9.2	3.1/3.9	-	5.4/6.6	
18/22	7.5/10.5	-	1.8/2.7	-	
19/21	7.8/9.2	-	2.0/2.7	-	
18/22	7/11	-	-	-	
45/55	18/25	7.3/9.2	-	5.6/6.9	
47.5/52.5	18.4/21.6	7.3/9.2	-	5.6/6.9	
45/55	18/25	-	1.8/2.8	-	
47.5/52.5	18.4/21.6	-	2.2/2.8	-	
45/55	17/26	-	-	-	
100/120	39/55	15/19	-	5.9/7.3	
105/115	41.5/48.6	15/19	-	5.9/7.3	
100/120	39/55	-	1.8/2.8	-	
105/115	41.5/48.6	-	2.15/2.8	-	
100/120	36/58	-	-	-	
140/170	55/80	22.5/28	-	5.8/7.1	
147/163	59.8/70.2	22.5/28	-	5.8/7.1	
140/170	55/80	-	1.8/2.8	-	
147/163	59.8/70.2	-	2.1/2.7	-	
140/170	50/85	-	-	-	
180/220	70/105	29/36	-	5.8/7.1	
190/210	78/92	29/36	-	5.8/7.1	
180/220	70/105	-	1.8/2.8	-	
190/210	78/92	-	2.0/2.7	-	
180/220	65/110	-	-	-	

Notes: 1. Capacitance is measured in standard case style CS85.



Typical Performance



Q V _r = 4 Vdc F = 50 MHz	V _{br} (Vdc) I _r = 10 µAdc	I _r (nAdc)			Part Number
MIN/TYP	MIN/TYP	V _r = 6 Vdc TYP/MAX	V _r = 10 Vdc TYP/MAX	V _r = 20 Vdc TYP/MAX	
160/220	22/30	-	-	15/100	TV2001
160/230	22/30	-	-	15/100	TV2001A
160/220	15/18	-	15/100	-	TV2002
160/220	15/18	-	15/100	-	TV2002A
80/120	8/12	50/250	-	-	TV2004
125/165	22/30	-	-	20/100	TV2201
125/165	22/30	-	-	20/100	TV2201A
125/165	15/18	-	20/100	-	TV2202
125/165	15/18	-	20/100	-	TV2202A
65/100	8/12	50/250	-	-	TV2204
80/110	22/30	-	-	30/100	TV2301
80/110	22/30	-	-	30/100	TV2301A
80/110	15/18	-	30/100	-	TV2302
80/110	15/18	-	30/100	-	TV2302A
40/60	8/12	50/250	-	-	TV2304
70/90	22/30	-	-	50/500	TV2401
70/90	22/30	-	-	50/500	TV2401A
70/90	15/18	-	50/500	-	TV2402
70/90	15/18	-	50/500	-	TV2402A
35/50	8/12	50/500	-	-	TV2404
60/80	22/30	-	-	70/500	TV2501
60/80	22/30	-	-	70/500	TV2501A
60/80	15/18	-	70/500	-	TV2502
60/80	15/18	-	70/500	-	TV2502A
30/45	8/12	50/500	-	-	TV2504