Silicon Hyperabrupt Tuning Varactors: VHF


Bare Die


Ceramic Epoxy SMT


Glass Axial Leaded

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

The Aeroflex / Metelics VHF Tuning Varactors are Ion-implanted highly 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 ± 5% capacitance tolerance at 4 volts of reverse bias.

Model	Total Capacitance pF						Tuning Ratio				Q		V_{BR} Vdc		I_R nAdc					
	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	TYP	MIN	TYP	TYP	MAX	TYP	MAX	TYP	MAX
TV2001	18	22	7.5	10.5	3.1	3.9	–	–	5.4	6.6	160	220	22	30	–	–	–	–	15	100
TV2001A	19	21	7.8	9.2	3.1	3.9	–	–	5.4	6.6	160	230	22	30	–	–	–	–	15	15
TV2002	18	22	7.5	10.5	–	–	1.8	2.7	–	–	160	220	15	18	–	–	15	100	–	–
TV2002A	19	21	7.8	9.2	–	–	2.0	2.7	–	–	160	220	15	18	–	–	15	100	–	–
TV2004	18	22	7	11	–	–	–	–	–	–	80	120	8	12	50	250	–	–	–	–
TV2201	45	55	18	25	7.3	9.2	–	–	5.6	6.9	125	165	22	30	–	–	–	–	20	100
TV2201A	47.5	52.5	18.4	21.6	7.3	9.2	–	–	5.6	6.9	125	165	22	30	–	–	–	–	20	100
TV2202	45	55	18	25	–	–	1.8	2.8	–	–	125	165	15	18	–	–	20	100	–	–
TV2202A	47.5	52.5	18.4	21.6	–	–	2.2	2.8	–	–	125	165	15	18	–	–	20	100	–	–
TV2204	45	55	17	26	–	–	–	–	–	–	65	100	8	12	50	250	–	–	–	–
TV2301	100	120	39	55	15	19	–	–	5.9	7.3	80	110	22	30	–	–	–	–	30	100
TV2301A	105	115	41.5	48.6	15	19	–	–	5.9	7.3	80	110	22	30	–	–	–	–	30	100
TV2302	100	120	39	55	–	–	1.8	2.8	–	–	80	110	15	18	–	–	30	100	–	–
TV2302A	105	115	41.5	48.6	–	–	2.15	2.8	–	–	80	110	15	18	–	–	30	100	–	–
TV2304	100	120	36	58	–	–	–	–	–	–	40	60	8	12	50	250	–	–	–	–
TV2401	140	170	55	80	22.5	28	–	–	5.8	7.1	70	90	22	30	–	–	–	–	50	500
TV2401A	147	163	59.8	70.2	22.5	28	–	–	5.8	7.1	70	90	22	30	–	–	–	–	50	500
TV2402	140	170	55	80	–	–	1.8	2.8	–	–	70	90	15	18	–	–	50	500	–	–
TV2402A	147	163	59.8	70.2	–	–	2.1	2.7	–	–	70	90	15	18	–	–	50	500	–	–
TV2404	140	170	50	85	–	–	–	–	–	–	35	50	8	12	50	500	–	–	70	500
TV2501	180	220	70	105	29	36	–	–	5.8	7.1	60	80	22	30	–	–	–	–	–	–
TV2501A	190	210	78	92	29	36	–	–	5.8	7.1	60	80	22	30	–	–	–	–	70	500
TV2502	180	220	70	105	–	–	1.8	2.8	–	–	60	80	15	18	–	–	70	500	–	–
TV2502A	190	210	78	92	–	–	2.0	2.7	–	–	60	80	15	18	–	–	70	500	–	–
TV2504	180	220	65	110	–	–	–	–	–	–	30	45	8	12	50	500	–	–	–	–
Test Conditions	@ -4 Vdc, F=1MHz		@ -8 Vdc, F=1MHz		@ -20 Vdc, F= 1 MHz		C_T 4 / C_T 8		C_T 4 / C_T 20		@ -4 V, F = 50 MHz		@ 10 µA		@ -6 V		@ -10 V		@ -20 V	

Maximum Ratings	Parameter	Value
	Reverse Voltage	Same as V_{BR} (Volts)
	Forward Current	100 mA
	Power Dissipation	250 mW
	Operating Temperature	-55 to + 150 °C
	Storage Temperature	°C