

# TUNING VARACTORS

T 07-19

## VHF HYPERABRUPT TUNING VARACTORS

### DESCRIPTION

VHF Diodes: Ion-implanted, highly reproducible hyper-abrupt 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 are offered in this family which, with the UHF diodes, give the designer a full capacitance range of 10 to 500 pF at 4 volts of bias. Ultra-high Q and excellent large signal handling capabilities, along with a 2 to 1 capacitance ratio, is obtained by tuning from 9 to 20 volts of reverse bias. Linear, wide-deviation tuning of VCXO/TCXO'S and frequency modulators results when these diodes are tuned over a 3 to 8 volt bias range.

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
- KV2001, KV2201, KV2301, KV2401, KV2501, KV2601, KV2701 for octave tuning or ultra-high Q applications
- KV2002, KV2202, KV2302, KV2402, KV2502, KV2602, KV2702 for straight-line-frequency applications over the 3 to 8 volt bias range
- KV2004, KV2204, KV2304, KV2404, KV2504, KV2604, KV2704 for economy applications

### ELECTRICAL SPECIFICATIONS

TA= 25°C

MODEL NUMBER	CT DIODE CAPACITANCE (pF) f=1MHz			TR TUNING RATIO f=1 MHz		Q VR=4 Vdc f=50 MHz	VBR (Vdc) IR=10 $\mu$ Adc	IR (nAdc)			PACKAGE <sup>1</sup>
	VR=4Vdc MIN/TYP/MAX	VR=8 Vdc MIN/TYP/MAX	VR=20 Vdc MIN/TYP/MAX	C(4V)/C(8V) MIN/TYP/MAX	C(4V)/C(20V) MIN/TYP/MAX			VR=6 Vdc TYP/MAX	VR=10 Vdc TYP/MAX	VR=20 Vdc TYP/MAX	
	KV2001	18/20/22	7.5/8.5/10.5	3.1/3.5/3.9	-			5.4/6.0/6.6	160/220	22/30	
KV2001A	19/20/21	7.8/8.5/9.2	3.1/3.5/3.9	-	5.4/6.0/6.6	160/230	22/30	-	-	15/100	DO-7
KV2002	18/20/22	7.5/8.5/10.5	-	1.8/2.4/2.7	-	160/220	15/18	-	15/100	-	DO-7
KV2002A	19/20/21	7.8/8.5/9.2	-	2.0/2.4/2.7	-	160/220	15/18	-	15/100	-	DO-7
KV2004	18/20/22	7.0/8.5/11.0	-	-	-	80/120	8/12	50/250	-	-	DO-7
KV2201	45/50/55	18/20/25	7.3/8.0/9.2	-	5.6/6.3/6.9	125/165	22/30	-	-	20/100	DO-7
KV2201A	47.5/50/52.5	18.4/20/21.6	7.3/8.0/9.2	-	5.6/6.3/6.9	125/165	22/30	-	-	20/100	DO-7
KV2202	45/50/55	18/20/25	-	1.8/2.5/2.8	-	125/165	15/18	-	20/100	-	DO-7
KV2202A	47.5/50/52.5	18.4/20/21.6	-	2.2/2.5/2.8	-	125/165	15/18	-	20/100	-	DO-7
KV2204	45/50/55	17/20/26	-	-	-	65/100	8/12	50/250	-	-	DO-7
KV2301	100/110/120	39/45/55	15/17/19	-	5.9/6.6/7.3	80/110	22/30	-	-	30/100	DO-7
KV2301A	105/110/115	41.5/45/48.6	15/17/19	-	5.9/6.6/7.3	80/110	22/30	-	-	30/100	DO-7
KV2302	100/110/120	39/45/55	-	1.8/2.5/2.8	-	80/110	15/18	-	30/100	-	DO-7
KV2302A	105/110/115	41.4/45/48.6	-	2.15/2.5/2.8	-	80/110	15/18	-	30/100	-	DO-7
KV2304	100/110/120	36/45/58	-	-	-	40/60	8/12	50/250	-	-	DO-7
KV2401	140/155/170	55/65/80	22.5/25/28	-	5.8/6.4/7.1	70/90	22/30	-	-	50/500	DO-7
KV2401A	147/155/163	59.8/65/70.2	22.5/25/28	-	5.8/6.4/7.1	70/90	22/30	-	-	50/500	DO-7
KV2402	140/155/170	55/65/80	-	1.8/2.4/2.8	-	70/90	15/18	-	50/500	-	DO-7
KV2402A	147/155/163	59.8/65/70.2	-	2.1/2.4/2.7	-	70/90	15/18	-	50/500	-	DO-7
KV2404	140/155/170	50/65/85	-	-	-	35/50	8/12	50/500	-	-	DO-7
KV2501	180/200/220	70/85/105	29/32/36	-	5.8/6.4/7.1	60/80	22/30	-	-	70/500	DO-7
KV2501A	190/200/210	78/85/92	92/32/36	-	5.8/6.4/7.1	60/80	22/30	-	-	70/500	DO-7
KV2502	180/200/220	70/85/105	-	1.8/2.5/2.8	-	60/80	15/18	-	70/500	-	DO-7
KV2502A	190/200/210	78/85/92	-	2.0/2.5/2.7	-	60/80	15/18	-	70/500	-	DO-7
KV2504	180/200/220	65/85/110	-	-	-	30/45	8/12	50/500	-	-	DO-7
KV2601	270/300/330	110/125/155	42.5/48/53.5	-	6.0/6.5/7.3	40/50	22/30	-	-	100/1000	DO-14
KV2601A	285/300/315	115/125/135	42.5/48/53.5	-	6.0/6.5/7.3	40/55	22/30	-	-	100/1000	DO-14
KV2602	270/300/330	110/125/155	-	1.8/2.5/2.8	-	40/55	15/18	-	100/1000	-	DO-14
KV2602A	285/300/315	115/125/135	-	2.1/2.5/2.8	-	40/55	15/18	-	100/1000	-	DO-14
KV2604	270/300/330	100/125/165	-	-	-	20/30	8/12	100/1000	-	-	DO-14
KV2701	450/500/550	175/195/225	66/75/83	-	6.0/6.7/7.4	30/40	22/30	-	-	150/1000	DO-14
KV2701A	475/500/525	180/195/210	66/75/83	-	6.0/6.7/7.4	30/40	22/30	-	-	150/1000	DO-14
KV2702	450/500/550	175/195/225	-	1.8/2.5/2.8	-	30/40	15/18	-	150/1000	-	DO-14
KV2702A	475/500/525	180/195/225	-	2.1/2.5/2.8	-	30/40	15/18	-	150/1000	-	DO-14
KV2704	450/500/550	155/195/260	-	-	-	15/25	8/12	150/1000	-	-	DO-14

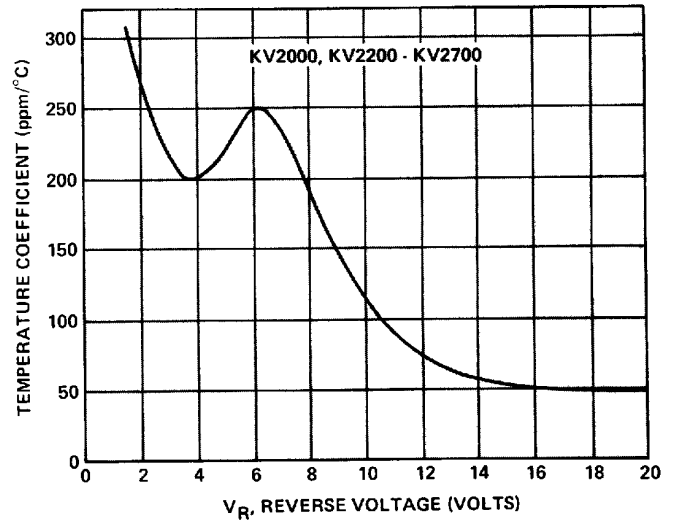
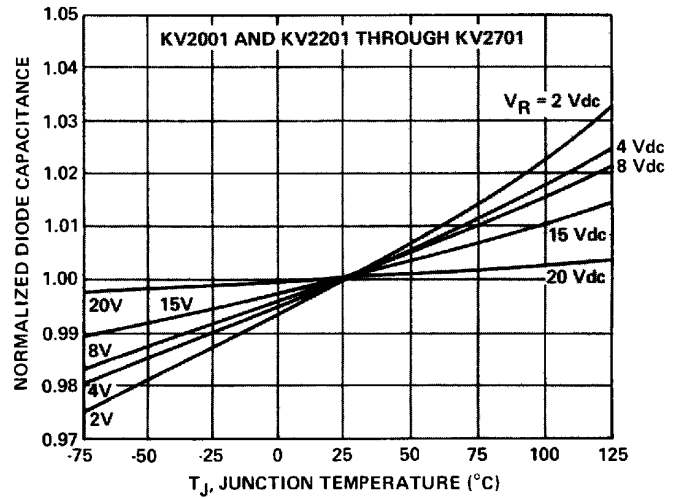
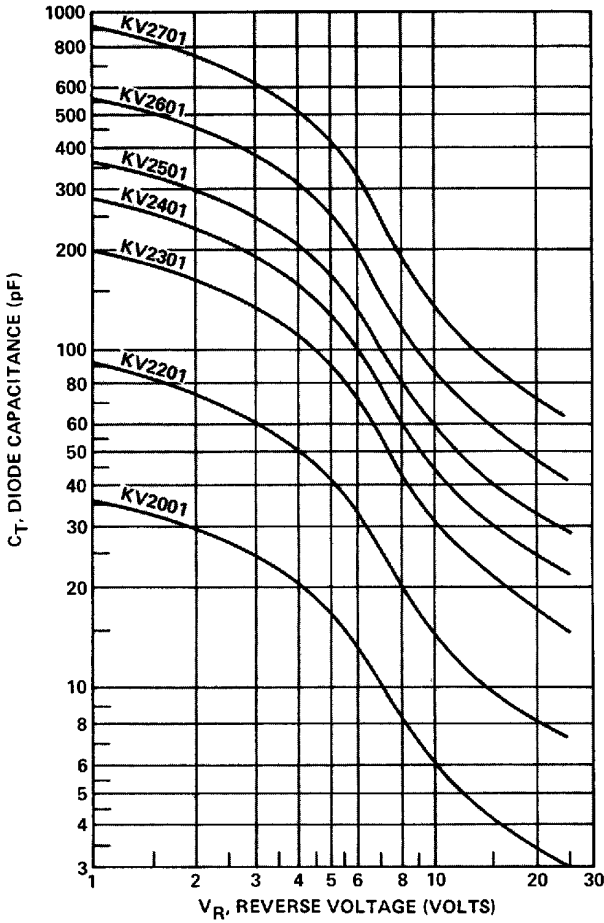
NOTES: 1. OTHER PACKAGES AVAILABLE UPON REQUEST

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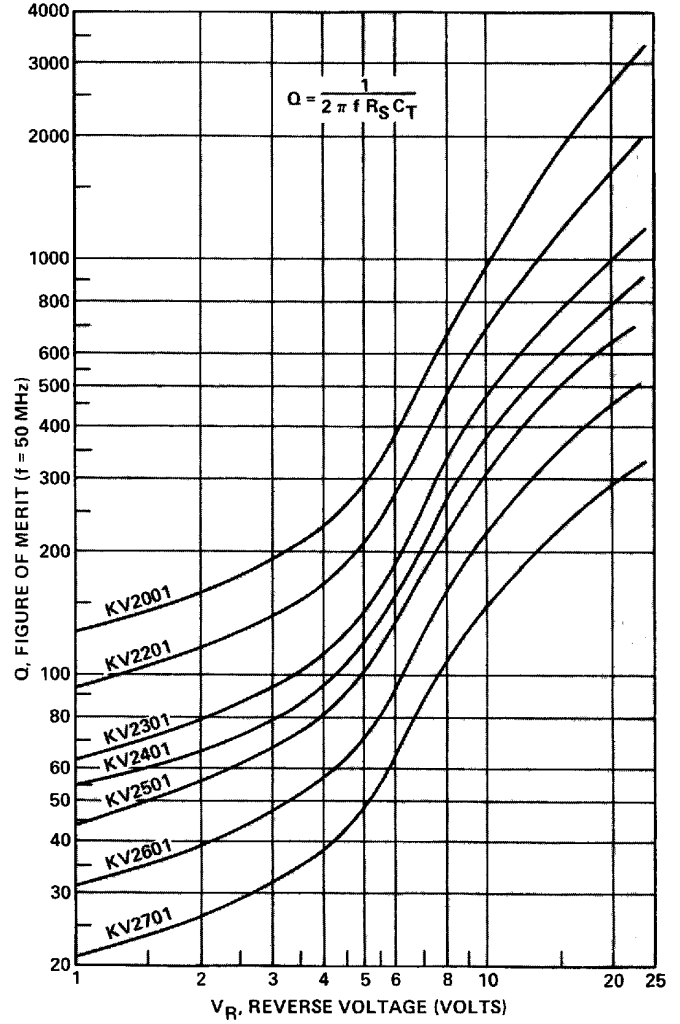
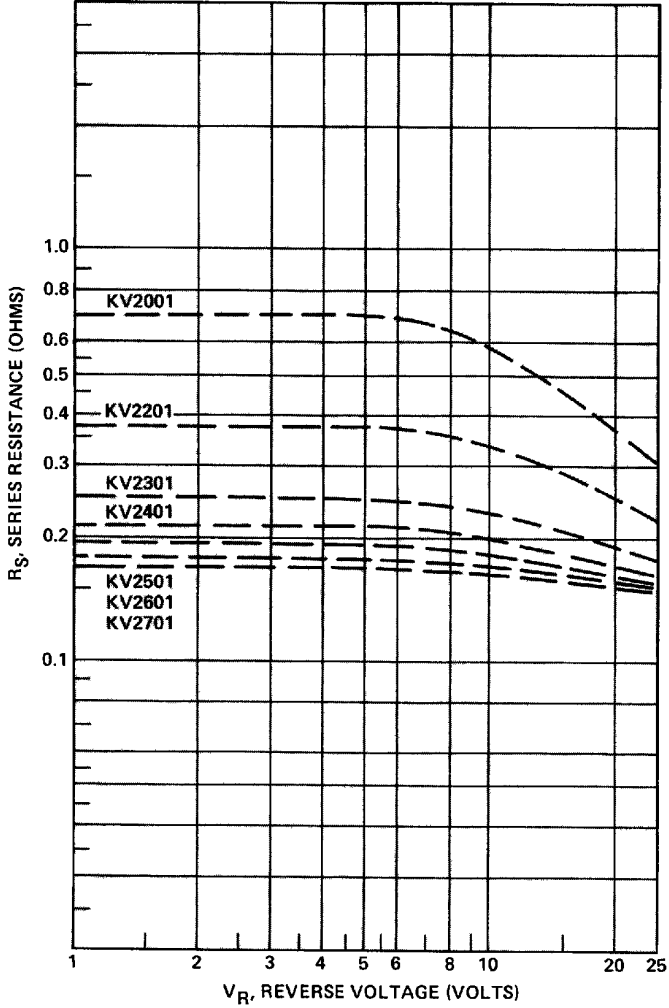
### TYPICAL ELECTRICAL CHARACTERISTICS

( $T_A = 25^\circ\text{C}$  unless otherwise noted)



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### ENGINEERING NOTES: