KVX2001 – KVX3901A

SURFACE MOUNT VARACTOR DIODES
Wide Bandwidth SOT-23 Hyperabrupt

RoHS Compliant e3

DESCRIPTION

These families of high ratio hyperabrupt varactor diodes employ high energy ion implantation and grown junction epitaxy to provide highly repeatable C / V functions and the highest Q values available in the industry. The economical SOT-23 package allows these devices to be used in a wide range of VHF-UHF and wireless microwave designs. All are available in single die 23-0 configuration (see configuration sheet). Other configurations are available - consult factory for availability.

This series of diodes meets RoHS requirements per EU Directive 2002/95/EC. Consult the factory for details.

KEY FEATURES

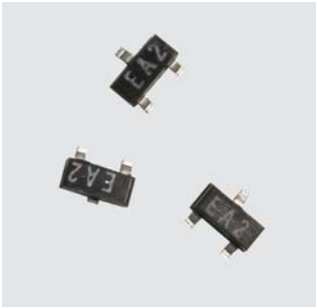
- Silicon Mesa Geometry
- High Reliability Dense SiO2 Passivation
- Widest Tuning Ratios
- Highest Q Available
- Excellent Wide Band Linearity
- Mil Spec Performance/Economy Price
- RoHS Compliant[1]
- Available on Tape & Reel for Automated Assembly

APPLICATIONS

These devices are ideal for wide bandwidth linear VCO's from VHF through 1500 MHz. They are especially well suited for economy applications that demand ruggedness and repeatability. Straight line frequency Vs. Voltage functions are realized across mid voltage ranges. They can also be used in voltage variable filter and phase shifting applications which demand higher peak voltage handling and lower distortion by selecting back to back configurations. Consult factory for availability.

APPLICATIONS/BENEFITS

- High Linearity VCOs
- PLL VCOs
- Octave Bandwidth VCOs
- VVFs
- Low ϕ Noise VCO.s
- ϕ Shifters



ABSOLUTE MAXIMUM RATINGS AT 25° C (UNLESS OTHERWISE SPECIFIED)

Rating	Symbol	Value	Unit
Maximum Working Voltage (KVX3xxx)	V_R	27	V
Maximum Working Voltage (KVX2xxx)	V_R	22	
Maximum Leakage Current @ 80% of Rated V_B	I_R	50	nA
Forward Voltage @ 50mA	V_F	1.0	V
Thermal Coefficient of Capacitance @4 Volts	T_{CC}	300	ppm/ °C
Storage Temperature	T_{STG}	-55 to +125	°C
Operating Temperature	T_{OP}	-55 to +125	°C

IMPORTANT: For the most current data, consult our website: ***www.MICROSEMI.com***

Specifications are subject to change. Consult factory for the latest information.

These devices are ESD sensitive and must be handled using ESD precautions.

[1] Unless otherwise specified, these products are supplied with matte Tin terminations suitable for RoHS compliant assembly.

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20V Microwave Hyperabrupt Varactors

ELECTRICAL PARAMETERS @ 25°C (unless otherwise specified)					
MODEL NUMBER	V_B (V) I_R = 10uA (Min)	C_T (pF)[1] V_R = 0V (Min)	C_T (pF)[1] V_R = 4V (Min – Max)	C_T (pF)[1] V_R = 20V (Min – Max)	Q [2] V_R=4V (Min)
KVX2122	22	2.7	1.25 - 1.75	0.43 - 0.57	1000
KVX2132	22	4.2	1.7 - 2.5	0.52 – 0.72	850
KVX2142	22	6.3	2.2 - 3.8	0.68 - 0.96	700
KVX2152	22	11.9	3.7 - 5.5	0.94 - 1.3	600
KVX2162	22	26.0	9.0 - 11.0	1.9 - 2.5	400

25V VHF/UHF Hyperabrupt Varactors

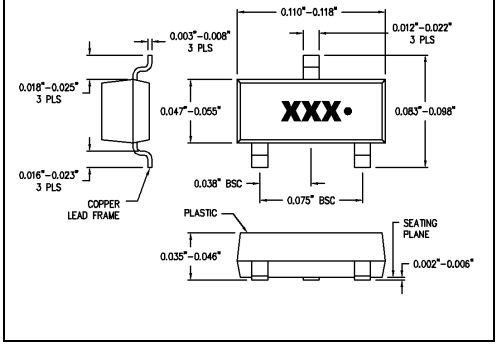
ELECTRICAL PARAMETERS @ 25°C (unless otherwise specified)				
MODEL NUMBER	V_B (V) I_R = 10uA (Min)	C_T (pF)[1] V_R = 3V (Min)	C_T (pF)[1] V_R = 25V (Min – Max)	Q [2] V_R=4V (Min)
KVX31S1	27	9.5 - 14.5	1.8 - 2.8	200
KVX3201A	27	9.5 - 14.5	1.8 - 2.8	750
KVX38S2	27	26.0 – 32.0	4.3- 6.0	200
KVX3901A	27	26.0 – 32.0	4.3 - 6.0	500

20VHF/UHF Hyperabrupt Varactors

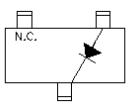
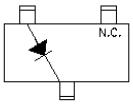
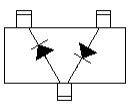
ELECTRICAL PARAMETERS @ 25°C (unless otherwise specified)					
MODEL NUMBER	V_B (V) I_R = 10uA (Min)	C_T (pF)[1] V_R = 4V (Min)	C_T (pF)[1] V_R = 8V (Min – Max)	C_T (pF)[1] V_R = 20V (Min – Max)	Q [2] V_R=4V (Min)
KVX2001	22	18 - 22	7.5 - 10.5	3.1 - 3.9	160
KVX2201	22	45 - 55	18 - 25	7.3 - 9.2	125
KVX2301	22	100 - 120	39 - 55	15 - 19	80

1. Capacitance is measured at f = 1 MHz
2. Q is determined at V_R = 4V, f = 50 MHz by $Q = 1/2\pi fRsCj$

PACKAGE STYLE 23-X



STANDARD CONFIGURATIONS

23-0	23-1	23-2
		
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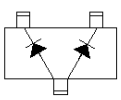	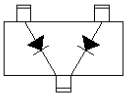	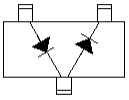

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