KV3201 – KV3902

VARACTOR DIODES
LOW COST UHF Hyperabrupt Junction

RoHS Compliant e4 RoHS

DESCRIPTION

These families of hyperabrupt junction RF varactor diodes feature computer controlled grown junction epitaxy which provides extraordinary consistency and the highest Q available in a 30 Volt hyperabrupt varactor. These series give the designer a full capacitance range of 9 to 27.5 pF at 3V of bias. They allow octave tuning of LC tanks through 500 MHz. With a reduced 1.5 to 1 frequency ratio, straight-line-frequency tuning over a 3 to 8 volt tuning range is possible. Ultrahigh Q and excellent large signal handling capabilities, along with a 2 to 1 capacitance ratio can be obtained by tuning from 9 to 20 volts of reverse bias. Linear, wide deviation tuning of VCXO/TCXO'S and frequency modulators also results when these diodes are tuned over a 3 to 8 volt bias range.

Closely matched sets of all HF-VHF diodes are available along with "A" suffix versions having ±5% capacitance tolerance at 3 or 4 volts of reverse bias depending on series selected.

KEY FEATURES

- Low Inductance
- Wide Capacity Swing
- High Q
- Superior Reproducibility
- Hermetic Glass (DO-34) Package

APPLICATIONS

These families of hyperabrupt varactors are ideal for wide bandwidth VCOs. They also provide excellent performance in frequency modulators, voltage variable filters, analog phase shifters, TCXOs and VCXOs.

APPLICATIONS/BENEFITS

- Values cover the entire VHV / UHF spectrum;
- Highest Q / lowest VCO phase noise
- Tough MIL-Spec SiO_2 passivation

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

Rating	Symbol	Value	Unit
Maximum Working Voltage	V_R	30	V
Forward Current	I_F	200	mAdc
Power Dissipation	Pd	TA= 25 ºC Derate above 25 ºC	400 mW 4.0 mW ºC
Maximum Junction Temp.	T_j	+150	ºC
Storage Temperature	T_{STG}	-65 to +150	ºC
Operating Temperature	T_{OP}	-55 to +150	ºC

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 Gold terminations suitable for RoHS compliant assembly.

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RoHS Compliant

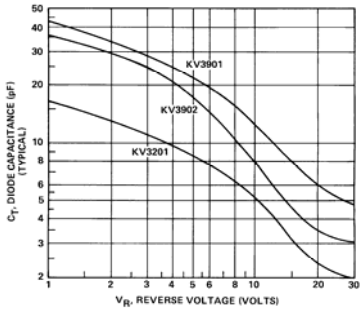
UHF – HYPERABRUPT VARACTORS

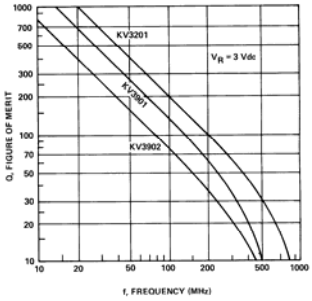
ELECTRICAL PARAMETERS @ 25°C (unless otherwise specified)

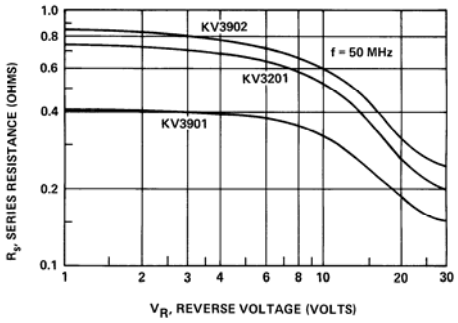
MODEL NUMBER	C_T (pF) f = 1 MHz Min / Typ / Max		T_R f = 1 MHz Min / Typ / Max	V_{BR} I_R = 10 uAdc	Quality Factor[1] Min/Typ	I_R V_R = @80% of Vb Typ/Max	Cathode Stripe
	V_R = 3V	V_R = 25V	C (3V) / C (25V)	V	Q @ 3V f = 50MHz	(nA)	
KV3201	9 / 11 / 13	2.0 / 2.1 / 2.3	4.5 / 5.2 / 5.8	30	300 / 415	50	White
KV3901	26 / 29 / 32	4.5 / 5.1 / 6.0	5.0 / 5.7 / 6.5	30	200 / 280	50	Yellow
KV3902	22.5 / 25 / 27.5	2.9 / 3.2 / 3.5	6.8 / 7.8 / 8.9	30	115 / 160	50	Green

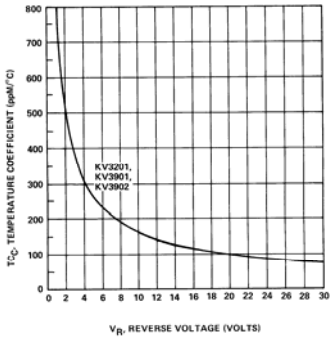
1. Q is determined at V_R= 4V, f=50 MHz by $Q = 1/(2\pi fRsCj)$

GRAPHS









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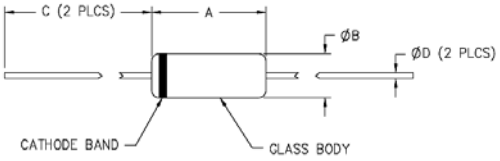
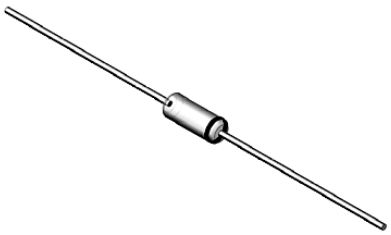
PACKAGE STYLE DO-34





DIM	INCHES			MM		
	MIN	TYP	MAX	MIN	TYP	MAX
A	0.085	–	0.120	2.159	–	3.048
B	0.050	–	0.075	1.270	–	1.905
C	1.000	–	–	25.400	–	–
D	0.018	–	0.022	0.457	–	0.559

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