

**DESCRIPTION**

These super hyperabrupt varactor diodes are ideal for tuning LC resonant circuits from video frequencies through VHF with frequency ratios as high as 4 to 1. They are also ideal for wide deviation voltage controlled oscillators and voltage controlled crystal oscillators. Two volt capacitance values range from 57 to 350 pF are offered in this designer-oriented family. These diodes feature exceptionally large capacitance ratios, very high Q, straight-line frequency performance over a 1.5 to 4 volt tuning range.

They are also available in closely matched sets as well as tight Ct tolerance options. Consult the factory for details.

The standard Super Hyperabrupt series of devices meet RoHS requirements per EU Directive 2002/95/EC, including the discrete chip (style 00) and package styles 30 and 17. The standard axial device (style 11) is not RoHS compliant. Please consult the factory for ordering information for the RoHS version of the 11 style package.

**APPLICATIONS**

Ultrahigh Q and excellent large signal handling capabilities, along with a greater than 10 to 1 capacitance ratio, is obtained by tuning from 2 to 10 volts of reverse bias. These diodes are well suited for linear, wide deviation tuning of VCXO/TCXO'S and frequency modulators as well as analog phase shifters, receiver preselectors, and active antenna matching units.

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

Rating	Symbol	Value	Unit
Maximum Working Voltage	V <sub>R</sub>	12	V
Storage Temperature	T <sub>STG</sub>	-55 to +125	°C
Operating Temperature	T <sub>OP</sub>	-65 to +200	°C

**KEY FEATURES**

- Available as packaged devices or as chips for hybrid applications
- Octave Tuning Range
- Ultrahigh Q
- Tough MIL-Spec Glass Passivation
- Precision Grown Junction Epitaxy
- Available with 5% Tolerance C<sub>T</sub>
- ROHS Compliant<sup>1</sup>

**APPLICATIONS/BENEFITS**

- HV-VHF VCO's
- TCXOs and VCXOs
- Analog phase shifters
- Frequency Modulators
- Preselectors

**IMPORTANT:** For the most current data, consult our website: [www.MICROSEMI.com](http://www.MICROSEMI.com)  
 Specifications are subject to change. Consult factory for the latest information.

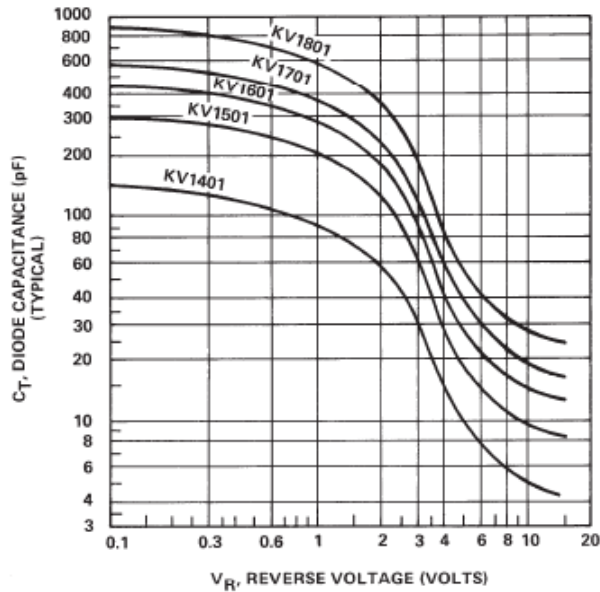
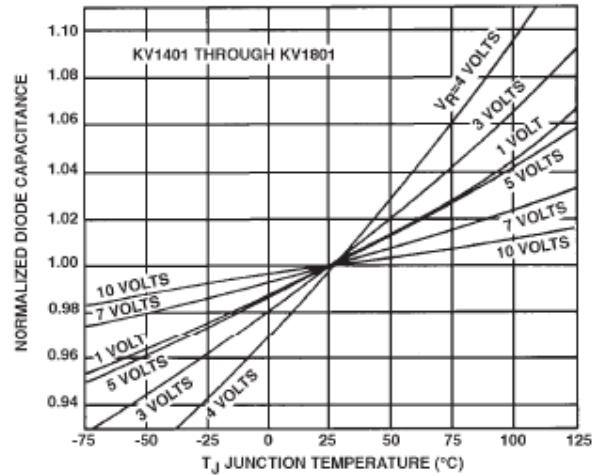


These devices are ESD sensitive and must be handled using ESD precautions.

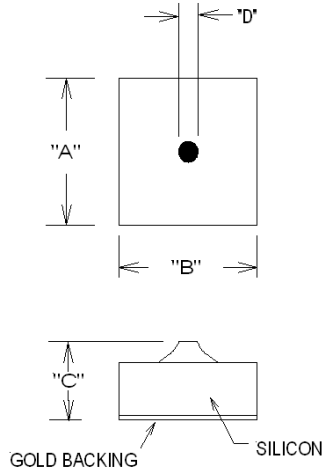
<sup>1</sup> Unless otherwise specified, these products are supplied with Gold terminations suitable for RoHS compliant assembly.

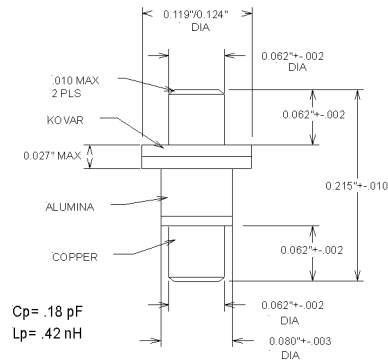
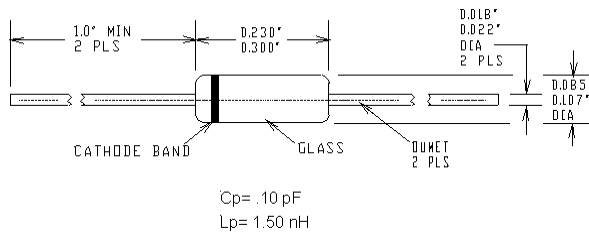
**ELECTRICAL PARAMETERS @ 25°C (unless otherwise specified)**

MODEL NUMBER	$C_T$ (pF) $f = 1$ MHz Min / Typ / Max				TUNING RATIO Min/Typ/Max		Q Min/Typ		$I_R$ Typ / Max
	$V_R = 1.25V$	$V_R = 2V$	$V_R = 7$	$V_R = 10$	$C(-1.25V) / C(-7V)$	$C(-2V) / C(-10V)$	$V_R = 1.25V$ $f = 1MHz$	$V_R = 2V$ $f = 10MHz$	$V_R = 10V$ (nA)
KV1401	-- / 81.5 / --	46 / 57 / 68	-- / 6.1 / --	4.2/4.7/5.2	-- / 13 / --	10 / 12 / 17		75 / 140	10 / 50
KV1501	-- / 180 / --	100 / 125 / 150	-- / 13 / --	8.6/9.6/10.6	-- / 14 / --	10 / 13 / 17.5		50 / 130	10 / 50
KV1601	-- / 255 / --	140 / 175 / 210	-- / 18.5 / --	12.6/14.0/15.4	-- / 14 / --	10 / 12.5 / 17		50 / 120	10 / 50
KV1701	-- / 325 / --	180 / 225 / 270	-- / 24 / --	16.2/18.0/19.8	-- / 14 / --	10 / 12.5 / 17		50 / 115	10 / 50
KV1801	450 / 500 / 550	-- / 350 / --	30.5 / 35 / 37.5	- / 26.5 / -	12 / 14 / 18	-- / 13 / --	30 / 70		10 / 50

**C-V CURVES**

**C-V (UHF HYPERABRUPT)**


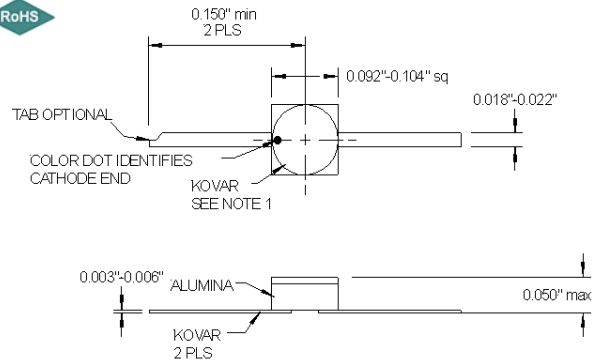
**PACKAGE STYLE 00 (NOTE 1)**


**PACKAGE STYE 30**


**PACKAGE STYLE 11**


The standard 11pkg is not RoHS compliant.  
 Consult factor for RoHS compliant version.

**PACKAGE STYLE 17**


**TYPICAL PACKAGE SYLES**

Microsemi offers a variety of package styles to meet specific application requirements. Some limitations apply. Consult factory for details.

**Notes:**

- Chip dimensions vary by device characteristics / model number. Please consult the factory for details.