MV1652 (SILICON)
MV1654
MV1656
MV1658
MV1660
MV1662
MV1664
MV1666

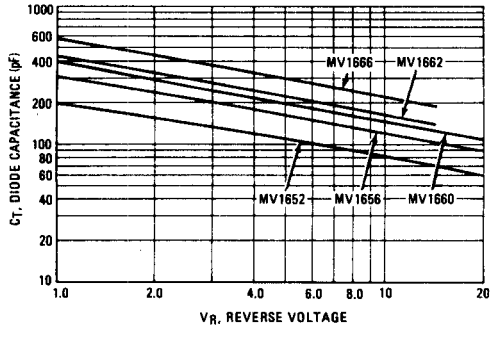
Silicon epicap epitaxial passivated tuning diodes designed for general tuning, trimming and AFC applications at low radio frequencies.

CASE 146

MAXIMUM RATINGS

Rating	Symbol	MV1652 MV1654 MV1656 MV1658 MV1660	MV1662 MV1664 MV1666	Unit
Reverse Voltage	V_R	20	15	Vdc
Forward Current	I_F	400		mAdc
Total Device Dissipation @ T_A = 25°C	P_D	400		mW
Derate above 25°C		2.67		mW/°C
Junction Temperature	T_J	175		°C
Storage Temperature Range	T_{stg}	-65 to +200		°C

FIGURE 1 - DIODE CAPACITANCE versus REVERSE VOLTAGE



PARAMETER TEST METHODS

1. L_S, SERIES INDUCTANCE
   L_S, is determined from the self resonant frequency and the junction capacity of the device.

$$L_S = \frac{1}{\omega^2_{res} C_J}$$

2. C_T, DIODE CAPACITANCE
   ($C_T = C_C + C_J$). C_T is measured at 1.0 MHz using a capacitance bridge (Boonton Electronics Model 75A or equivalent).
3. TR, TUNING RATIO
   TR is the ratio of C_T measured at 2.0 Vdc divided by C_T measured at 20 Vdc or at 15 Vdc.
4. Q, FIGURE OF MERIT
   Q is calculated by taking the G and C readings of an admittance bridge at the specified frequency and substituting in the following equations:

$$Q = \frac{2\pi fC}{G}$$

(Boonton Electronics Model 33AS9 with range extender or equivalent).

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

Characteristic		Symbol	Min	Typ	Max	Unit
Reverse Breakdown Voltage (I_R = 10 μAdc)	MV1652 thru MV1660	BV_R	20	-	-	Vdc
	MV1662 thru MV1666		15	-	-	
Reverse Current (V_R = 15 Vdc)	MV1652 thru MV1660	I_R	-	-	0.1	μAdc
(V_R = 10 Vdc)	MV1662 thru MV1666		-	-	0.1	
Series Inductance	MV1652 thru MV1666	L_S	-	5.0	-	nH

Device	C_T, Diode Capacitance V_R = 4.0 Vdc, f = 1.0 MHz (pF)			Q, Figure of Merit V_R = 4.0 Vdc, f = 20 MHz	Capacitance Ratio C_2/C_{20}
	Min	Nom	Max		Typical
MV1652	108	120	135	250	2.6
MV1654	132	150	165	250	2.6
MV1656	162	180	198	200	2.6
MV1658	180	200	220	200	2.6
MV1660	198	220	242	150	2.6
					C_2/C_{15}
MV1662	225	250	275	150	2.3
MV1664	243	270	300	100	2.3
MV1666	297	330	363	100	2.3

MV1803 (SILICON)

For Specifications, See 2N3137 Data, Volume I.