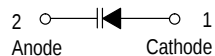


Silicon Hyper-Abrupt Tuning Diodes

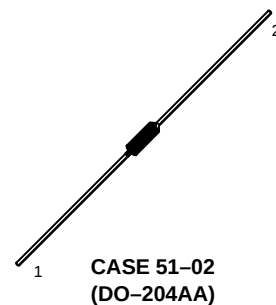
These devices are designed with high capacitance and a capacitance change of greater than TEN TIMES for a bias change from 2.0 to 10 volts. They provide tuning over broad frequency ranges; tune AM radio broadcast band, general AFC and tuning applications in lower RF frequencies.

- High Capacitance: 120–250 pF
- Large Capacitance Change with Small Bias Change
- Guaranteed High Q
- Available in Standard Axial Glass Packages



MV1403
MV1404
MV1405

120–250 pF
12 VOLTS
HIGH TUNING RATIO
VOLTAGE-VARIABLE
CAPACITANCE DIODES



MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Reverse Voltage	V_R	12	Vdc
Forward Current	I_F	250	mAdc
Device Dissipation @ $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	400 2.67	mW mW/°C
Junction Temperature	T_J	+125	°C
Storage Temperature Range	T_{stg}	–65 to +200	°C

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

Characteristic	Symbol	Min	Typ	Max	Unit
Reverse Breakdown Voltage ($I_R = 10 \mu\text{Adc}$)	$V_{(BR)R}$	12	—	—	Vdc
Reverse Voltage Leakage Current ($V_R = 10 \text{ Vdc}$, $T_A = 25^\circ\text{C}$)	I_R	—	—	0.1	μAdc
Series Inductance ($f = 250 \text{ MHz}$, Lead Length $\approx 1/16''$)	L_S	—	5.0	—	nH
Case Capacitance ($f = 1.0 \text{ MHz}$, Lead Length $\approx 1/16''$)	C_C	—	0.25	—	pF

Device	C _T , Diode Capacitance			Q, Figure of Merit	TR, Tuning Ratio	
	V _R = 2.0 Vdc, f = 1.0 MHz pF			V _R = 2.0 Vdc, f = 1.0 MHz	C ₁ /C ₁₀ f = 1.0 MHz	C ₂ /C ₁₀ f = 1.0 MHz
	Min	Nom	Max	Min	Min	Min
MV1403	140	175	210	200	—	10
MV1404	96	120	144	200	—	10
MV1405	200	250	300	200	—	10

TYPICAL CHARACTERISTICS

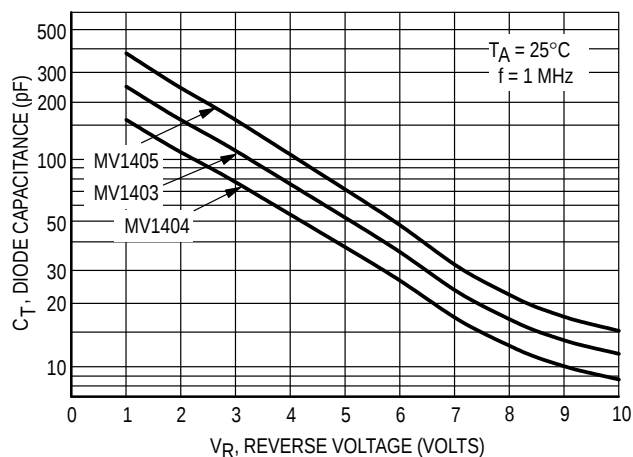


Figure 1. Diode Capacitance versus Reverse Voltage

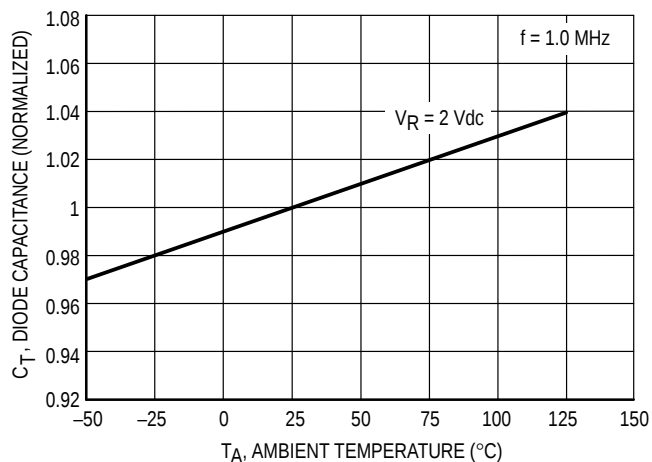


Figure 2. Diode Capacitance versus Ambient Temperature

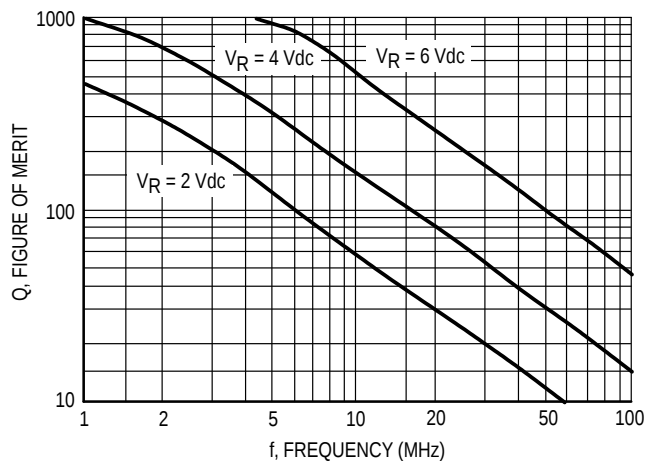
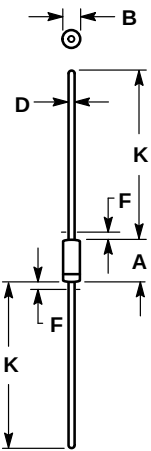


Figure 3. Figure of Merit versus Frequency

PACKAGE DIMENSIONS



- NOTES:
- 1. PACKAGE CONTOUR OPTIONAL WITHIN DIA B AND LENGTH A. HEAT SLUGS, IF ANY, SHALL BE INCLUDED WITHIN THIS CYLINDER, BUT SHALL NOT BE SUBJECT TO THE MIN LIMIT OF DIA B.
 - 2. LEAD DIA NOT CONTROLLED IN ZONES F, TO ALLOW FOR FLASH, LEAD FINISH BUILDUP, AND MINOR IRREGULARITIES OTHER THAN HEAT SLUGS.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	5.84	7.62	0.230	0.300
B	2.16	2.72	0.085	0.107
D	0.46	0.56	0.018	0.022
F	—	1.27	—	0.050
K	25.40	38.10	1.000	1.500

All JEDEC dimensions and notes apply.

CASE 51-02
(DO-204AA)
ISSUE E