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NTE617 Varactor Diode

Description:

The NTE617 is a dual voltage-variable capacitance diode designed for FM tuning, general frequency control and tuning, or any top-of-the-line application requiring back-to-back diode configurations for minimum signal distortion and detuning. This device is supplied in the popular TO92 type plastic package for high volume, economical requirements of consumer and industrial applications.

Features:

- High Figure of Merit: $Q = 140$ (Typ) @ $V_R = 3V$, $f = 100MHz$
- Guaranteed Capacitance Range: $34 - 39pF$ @ $V_R = 3V$
- Dual Diodes – Save Space and Reduce Cost
- Monolithic Chip Provides Near Perfect Matching: Guaranteed $\pm 1\%$ (Max) Over Specified Tuning Range

Absolute Maximum Ratings (Each Device):

Reverse Voltage, V_R 32V
 Forward Current, I_F 200mA
 Total Power Dissipation ($T_A = +25^\circ C$), P_D 280mW
 Derate Above $25^\circ C$ 2.8mW/ $^\circ C$
 Junction Temperature, T_J $+125^\circ C$
 Storage Temperature Range, T_{stg} -65° to $+150^\circ C$

Electrical Characteristics (Each Device): ($T_A = +25^\circ C$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Reverse Breakdown Voltage	BV_R	$I_R = 10\mu A$	32	–	–	V
Reverse Voltage Leakage Current	I_R	$T_A = +25^\circ C$ $V_R = 30V$	–	–	50	nA
		$T_A = +60^\circ C$	–	–	500	nA
Series Inductance	L_S	$f = 250MHz$, Lead Length $\approx 1/16"$	–	6	–	nH
Case Capacitance	C_C	$f = 1MHz$, Lead Length $\approx 1/16"$	–	0.18	–	pF
Diode Capacitance Temperature Coefficient	TC_C	$V_R = 4V$, $f = 1MHz$	–	280	400	ppm/ $^\circ C$
Diode Capacitance	C_T	$V_R = 3V$, $f = 1MHz$	34	–	39	pF
Figure of Merit	Q	$V_R = 3V$, $f = 100MHz$, Note 1	100	–	140	
Capacitance Ratio	C_R	C_3/C_{30} , $f = 1MHz$	2.5	–	2.8	

Note 1. $Q = \frac{1}{2 \pi f C_T R_S}$

