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NTE610 thru NTE614 Voltage Variable Capacitance Diode (Tuning Diode)

Description:

These diodes are designed for high volume requirements of FM Radio and TV tuning and AFC, general frequency control and tuning applications; providing solid-state reliability in replacement of mechanical tuning methods.

Features:

- High Q with Guaranteed Minimum Values
- Controlled and Uniform Tuning Ratio
- Standard Capacitance Tolerance – 10%

Absolute Maximum Ratings:

Reverse Voltage, V_R 30V
 Forward Current, I_F 200mA
 Device Dissipation ($T_A = 25^\circ\text{C}$), P_D 280mW
 Derate Above 25°C 2.8mW/ $^\circ\text{C}$

Note 1. The **NTE611** is a **discontinued** device and no longer available.

Electrical Characteristics: ($T_A = +25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Reverse Breakdown Voltage	$V_{(BR)R}$	$I_R = 10\mu\text{A}$	30	–	–	V
Reverse Voltage Leakage Current	I_R	$V_R = 25\text{V}$, $T_A = +25^\circ\text{C}$	–	–	0.1	μA
Series Inductance	L_S	$f = 250\text{MHz}$, Lead Length ~ 1/16"	–	6	–	nH
Case Capacitance	C_C	$f = 1\text{MHz}$, Lead Length ~ 1/16"	–	0.18	–	pF
Diode Capacitance Temperature Coefficient	TC_C	$V_R = 4\text{V}$, $f = 1\text{MHz}$	–	280	400	ppm/ $^\circ\text{C}$
Diode Capacitance	C_T	$V_R = 4\text{V}$, $f = 1\text{MHz}$	6.1	6.8	7.5	pF
NTE610			9.0	10.0	11.0	pF
NTE611			10.8	12.0	13.2	pF
NTE612						

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
NTE613			19.8	22.0	24.2	pF
NTE614			29.7	33.0	36.3	pF

Electrical Characteristics (Cont'd): ($T_A = +25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Figure of Merit NTE610	Q	$V_R = 4\text{V}, f = 50\text{MHz}$	450	-	-	
NTE611, NTE612			400	-	-	
NTE613			350	-	-	
NTE614			200	-	-	
Tuning Ratio NTE610	TR	$C_2/C_{30}, f = 1\text{MHz}$	2.5	2.7	3.2	
NTE611, NTE612, NTE613			2.5	2.9	3.2	
NTE614			2.5	3.0	3.2	

