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°C), P_D 280mW

       Derate Above 25°C . . . . 2.8mW/°C

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

Electrical Characteristics: (T_A = +25°C unless otherwise specified)

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

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): $(T_A = +25°C$ unless otherwise specified)

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

.135 (3.45) Min

.185
(4.7)

.500
(12.7)
Min

.019 (0.50) Dia Typ

A   K

.100 (2.54)

.165
(4.2)
Max

.200 (5.08) Dia