ELECTRONICS, INC.
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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°C), P_D 280mW
Derate Above 25°C . . . . . 2.8mW/°C

Note 1. The **NTE611** & **NTE612** are **discontinued** devices 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
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