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NTE64
Silicon NPN Transistor
UHF High Speed Switch

Description:

The NTE64 is a silicon NPN high frequency transistor designed primarily for use in high–gain, low noise small–signal amplifiers and applications requiring fast switching times.

Features:

- High Current Gain–Bandwidth Product: f_T = 4.5GHz Typ @ I_C = 15mA
- Low Noise Figure: NF = 2dB Typ @ f = 1GHz
- High Power Gain: G_{pe} = 10dB Min @ f = 1GHz
- Third Order Intercept: +23dBm Typ

Absolute Maximum Ratings:

Collector–Emitter Voltage, V_{CEO} 15V
Collector–Base Voltage, V_{CBO} 25V
Emitter–Base Voltage, V_{EBO} 3V
Continuous Collector Current, I_C 30mA
Total Device Dissipation (T_C = +25°C), P_D 0.375W
Derate Above 25°C . . . . . 3.3mW/°C
Storage Temperature Range, T_{stg} . . . . . –65° to +150°C
Thermal Resistance, Junction–to–Ambient, R_{thJA} . . . . . 300°C/W

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
OFF Characteristics						
Collector–Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C = 1mA, I_B = 0	15	–	–	V
Collector–Base Breakdown Voltage	$V_{(BR)CBO}$	I_C = 0.1mA, I_E = 0	25	–	–	V
Emitter–Base Breakdown Voltage	$V_{(BR)EBO}$	I_E = 0.1mA, I_C = 0	2	–	–	V
Collector Cutoff Current	I_{CBO}	V_{CB} = 15V, I_E = 0	–	–	50	nA

Electrical Characteristics (Cont'd): (T_C = +25°C unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
ON Characteristics						
DC Current Gain	h_{FE}	I_C = 5mA, V_{CE} = 5V	30	80	200	
Dynamic Characteristics						
Current Gain–Bandwidth Product	f_T	I_C = 15mA, V_{CE} = 10V, f = 1GHz	–	4.5	–	GHz
Collector–Base Capacitance	C_{cb}	V_{CB} = 10V, I_E = 0, f = 1MHz	–	0.4	1.0	pF
Noise Figure	NF	I_C = 5mA, V_{CE} = 6V, f = 1GHz	–	2.0	2.5	dB
Functional Tests						
Common–Emitter Amplifier Power Gain	G_{pe}	V_{CC} = 6V, I_C = 5mA, f = 1GHz	10	12	–	dB
Third Order Intercept		I_C = 5mA, V_{CE} = 6V, f = 0.9GHz	–	+23	–	dBm