

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

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 ($T_C = +25^\circ\text{C}$), P_D	0.375W
Derate Above 25°C	3.3mW/ $^\circ\text{C}$
Storage Temperature Range, T_{stg}	-65° to $+150^\circ\text{C}$
Thermal Resistance, Junction-to-Ambient, R_{thJA}	300 $^\circ\text{C/W}$

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

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

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

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

