



ELECTRONICS, INC.
44 FARRAND STREET
BLOOMFIELD, NJ 07003
(973) 748-5089

NTE278 Silicon NPN Transistor Broadband RF Amp

Description:

The NTE278 is a silicon NPN transistor in a TO39 type package designed specifically for broadband applications requiring good linearity. Usable as a high frequency current mode switch to 200mA.

Features:

- Low Noise Figure: $NF = 3.0dB$ Typ @ $f = 200MHz$
- High Current-Gain Bandwidth Product: $f_T = 1200MHz$ Min @ $I_C = 50mA$

Absolute Maximum Ratings:

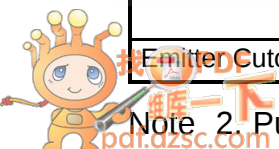
Collector-Emitter Voltage, V_{CEO}	20V
Collector-Base Voltage, V_{CBO}	40V
Emitter-Base Voltage, V_{EBO}	3V
Continuous Collector Current, I_C	400mA
Continuous Base Current, I_B	400mA
Total Device Dissipation ($T_C = +75^\circ C$, Note 1), P_D	2.5W
Derate Above $25^\circ C$	20mW/ $^\circ C$
Storage Temperature Range, T_{stg}	-65° to $+200^\circ C$

Note 1. Total Device Dissipation at $T_A = +25^\circ C$ is 1 Watt.

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
OFF Characteristics						
Collector-Emitter Sustaining Voltage	$V_{CEO(sus)}$	$I_C = 5mA, I_B = 0$	20	—	—	V
	$V_{CER(sus)}$	$I_C = 5mA, R_{BE} = 10\Omega$, Note 2	40	—	—	V
Collector Cutoff Current	I_{CEO}	$V_{CE} = 15V, I_B = 0$	—	—	20	μA
	I_{CEX}	$V_{CE} = 15V, V_{BE} = -1.5V, T_C = +150^\circ C$	—	—	5	mA
		$V_{CE} = 35V, V_{BE} = -1.5V$	—	—	5	mA
Emitter Cutoff Current	I_{EBO}	$V_{BE} = 3V, I_C = 0$	—	—	100	μA

Note 2. Pulsed through a 25mH inductor; 50% Duty Cycle.



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 = 360mA, V _{CE} = 5V	5	–	–	
		I _C = 50mA, V _{CE} = 15V	40	–	120	
Dynamic Characteristics						
Current–Gain Bandwidth Product	f _T	I _C = 50mA, V _{CE} = 15V, f = 200MHz	1200	–	–	MHz
Collector–Base Capacitance	C _{cb}	V _{CB} = 15V, I _E = 0, f = 1MHz	–	1.8	3.5	pF
Noise Figure	NF	I _C = 10mA, V _{CE} = 15V, f = 200MHz	–	3	–	dB
Functional Test						
Common–Emitter Amplifier Voltage Gain	G _{ve}	I _C = 50mA, V _{CC} = 15V, f = 50 to 216MHz	11	–	–	dB
Power Input	P _{in}	I _C = 50mA, V _{CC} = 15V, R _S = 50Ω, P _{out} = 1.26mW, f = 200MHz	–	–	0.1	mW

