

NTE10

Silicon NPN Transistor

UHF Low Noise Wide-Band Amplifier

Features:

- Low Noise Figure: $NF = 2.2\text{dB Typ}$ ($f = 0.9\text{GHz}$)
- High Power Gain: $MAG = 14\text{dB Typ}$ ($f = 0.9\text{GHz}$)
- High Cutoff Frequency: $f_T = 5\text{GHz Typ}$

Absolute Maximum Ratings: ($T_A = +25^\circ\text{C}$ unless otherwise specified)

Collector–Base Voltage, V_{CBO}	20V
Collector–Emitter Voltage, V_{CER}	12V
Emitter–Base Voltage, V_{EBO}	3V
Collector Current, I_C	70mA
Base Current, I_B	30mA
Collector Power Dissipation, P_C	500mW
Junction Temperature, T_j	$+150^\circ\text{C}$
Storage Temperature Range, T_{stg}	-55° to $+150^\circ\text{C}$

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector Cutoff Current	I_{CBO}	$V_{CB} = 12\text{V}, I_E = 0$	–	–	1.0	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB} = 2\text{V}, I_C = 0$	–	–	10	μA
DC Current Gain	h_{FE}	$V_{CE} = 10\text{V}, I_C = 20\text{mA}$	40	–	200	
Gain–Bandwidth Product	f_T	$V_{CE} = 10\text{V}, I_C = 20\text{mA}$	–	5.0	–	GHz
Output Capacitance	C_{ob}	$V_{CB} = 10\text{V}, f = 1\text{MHz}$	–	0.8	1.1	pF
Reverse Transfer Capacitance	C_{re}	$V_{CB} = 10\text{V}, f = 1\text{MHz}$	–	0.5	–	pF
Forward Transfer Gain	$ S_{21e} ^2$	$V_{CE} = 10\text{V}, I_C = 20\text{mA}, f = 0.9\text{GHz}$	8	10	–	dB
Maximum Available Power Gain	MAG	$V_{CE} = 10\text{V}, I_C = 5\text{mA}, f = 0.9\text{GHz}$	–	14	–	dB
Noise Figure	NF	$V_{CE} = 10\text{V}, I_C = 5\text{mA}, f = 0.9\text{GHz}$	–	2.2	4.5	dB

