

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°C
Storage Temperature Range, T_{stg}	-55° to +150°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

