

**NTE313**  
**Silicon NPN Transistor**  
**High Gain, Low Noise,**  
**VHF Mixer and VHF/RF Amp**

**Description:**

The NTE 313 is a silicon NPN transistor specifically designed for VHF mixer and VHF/RF amplifier applications. This device features high power gain, low noise, and excellent forward AGC characteristics.

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

Collector–Base Voltage, $V_{CBO}$ .....	30V
Collector–Emitter Voltage, $V_{CEO}$ .....	30V
Emitter–Base Voltage, $V_{EBO}$ .....	4V
Collector Current, $I_C$ .....	20mA
Total Power Dissipation, $P_T$ .....	150mW
Maximum Junction Temperature, $T_J$ .....	+150°C
Storage Temperature Range, $T_{stg}$ .....	-60° 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	$I_{CBO}$	$V_{CB} = 20V, I_E = 0$	–	–	0.2	$\mu\text{A}$
DC Current Gain	$h_{FE}$	$V_{CE} = 10V, I_C = 2mA$	20	60	200	
Current–Gain Bandwidth Product	$f_T$	$V_{CE} = 10V, I_E = -2mA$	400	530	–	MHz
Output Capacitance	$C_{ob}$	$V_{CB} = 10V, I_E = 0, f = 1MHz$	–	0.5	1.0	pF
Noise Figure	NF	$I_E = -2mA, f = 200MHz$	–	2.5	3.3	dB
Power Gain	PG	$I_E = -2mA, f = 200MHz$	20	23	–	dB
AGC Current	$I_{AGC}$	$PG = -30dB$	–	-9	-11	mA

