

NTE311 Silicon NPN Transistor Frequency Multiplier, Driver, VHF/UHF

Absolute Maximum Ratings:

Collector–Emitter Voltage, V_{CE0}	30V
Collector–Base Voltage, V_{CBO}	55V
Emitter–Base Voltage, V_{EBO}	3.5V
Continuous Collector Current, I_C	400mA
Total Device Dissipation ($T_C = +25^\circ\text{C}$), P_D	5W
Derate Above 25°C	28.6mW/ $^\circ\text{C}$
Storage Temperature Range, T_{stg}	-65° to $+200^\circ\text{C}$

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
OFF Characteristics						
Collector–Emitter Breakdown Voltage	$V_{CER(sus)}$	$I_C = 5\text{mA}$, $R_{BE} = 10\Omega$	55	–	–	V
Collector–Emitter Sustaining Voltage	$V_{CEO(sus)}$	$I_C = 5\text{mA}$, $I_B = 0$	30	–	–	V
Emitter–Base Breakdown Voltage	$V_{(BR)EBO}$	$I_F = 100\mu\text{A}$, $I_C = 0$	3.5	–	–	V
Collector Cutoff Current	I_{CEO}	$V_{CE} = 28\text{V}$, $I_B = 0$	—	–	0.02	mA
		$V_{CE} = 30\text{V}$, $V_{BE} = -1.5\text{V}$, $T_C = +200^\circ\text{C}$	–	–	5.0	mA
		$V_{CE} = 55\text{V}$, $V_{BE} = -1.5\text{V}$	–	–	0.1	mA
Emitter Cutoff Current	I_{EBO}	$V_{BE} = 3.5\text{V}$, $I_C = 0$	–	–	0.1	mA
ON Characteristics						
DC Current Gain	h_{FE}	$I_C = 50\text{mA}$, $V_{CE} = 5\text{V}$	25	–	200	–
Collector–Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 100\text{mA}$, $I_B = 20\text{mA}$	–	–	1.0	V
Small–Signal Characteristics						
Current–Gain Bandwidth Product	f_T	$I_C = 50\text{mA}$, $V_{CE} = 15\text{V}$, $f = 200\text{MHz}$	800	–	–	MHz
Output Capacitance	C_{obo}	$V_{CB} = 28\text{V}$, $I_E = 0$, $f = 1\text{MHz}$	–	–	3.0	pF
Functional Test						
Amplifier Power Gain	G_{pe}	$V_{CC} = 28\text{V}$, $P_{OUT} = 1\text{W}$, $f = 400\text{MHz}$	10	–	–	dB
Collector Efficiency	h	$V_{CC} = 20\text{V}$, $P_{OUT} = 1\text{W}$, $f = 400\text{MHz}$	45	–	–	%

