

NTE395 Silicon PNP Transistor Wide Band Linear Amplifier

Absolute Maximum Ratings:

Collector–Base Voltage, V_{CB0}	30V
Collector–Emitter Voltage, V_{CEO}	25V
Emitter–Base Voltage, V_{EBO}	3V
Collector Current, I_C	50mA
Power Dissipation ($T_A = +25^\circ\text{C}$), P_{tot}	225mW
Power Dissipation ($T_C = +25^\circ\text{C}$), P_{tot}	360mW
Operating Junction Temperature, T_J	+200°C
Storage Temperature Range, T_{stg}	–55° to +200°C
Thermal Resistance, Junction–to–Case, R_{thJC}	485°C/W
Thermal Resistance, Junction–to–Ambient, R_{thJA}	775°C/W

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector–Base Cutoff Current	I_{CBO}	$V_{CB} = 15\text{V}, I_E = 0$	–	–	50	nA
Collector–Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = 100\mu\text{A}, I_E = 0$	30	–	–	V
Collector–Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 5\text{mA}, I_B = 0$	25	–	–	V
Emitter–Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = 10\mu\text{A}, I_C = 0$	3	–	–	V
Static Forward Current Transfer Ratio	h_{21E}	$V_{CE} = 10\text{V}, I_C = 10\text{mA}, \text{Note 1}$	20	–	–	
Base–Emitter Voltage	V_{BE}	$V_{CE} = 10\text{V}, I_C = 10\text{mA}$	–	0.75	–	V
Knee Voltage	V_{CEK}	$I_C = 20\text{mA}, \text{Note 2}$	–	0.8	–	V
Transition Frequency	f_T	$V_{CE} = 15\text{V}, I_C = 10\text{mA}$	1.4	2.3	–	GHz
Maximum Oscillation Frequency	f	$V_{CE} = 15\text{V}, I_C = 10\text{mA}$	–	6.5	–	GHz
Output Capacitance	C_{22b}	$V_{CB} = 15\text{V}, I_E = 0, f = 1\text{MHz}$	–	1.1	–	pF

Note 1. Pulsed.

Note 2. V_{CEK} tested with $I_C = 100\text{mA}$ and $I_B =$ values for which $I_C = 110\text{mA}$ at $V_{CE} = 1\text{V}$.

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Power Gain		$V_{CE} = 15\text{V}, I_C = 10\text{mA}, f = 800\text{MHz}$	–	10	–	dB
Wide Band Power Gain	G_P	$f = 40 \text{ to } 860\text{MHz}, R_S = R_L = 75\Omega$	–	16	–	dB
Noise Figure	NF	$V_{CE} = 15\text{V}, I_C = 3\text{mA}, f = 200\text{MHz}$	–	2.5	–	dB
		$V_{CE} = 15\text{V}, I_C = 10\text{mA}, f = 800\text{MHz}$	–	3.5	–	dB
		$V_{CE} = 15\text{V}, I_C = 10\text{mA}, f = 200\text{MHz}$	–	3.0	–	dB
		$V_{CE} = 15\text{V}, I_C = 10\text{mA}, f = 800\text{MHz}$	–	4.0	–	dB

