

NTE124

Silicon NPN Transistor

High Voltage Power Output

Description:

The NTE124 is a general purpose transistor in a TO66 type package designed for high speed switching, linear amplifier applications, high voltage operational amplifiers, switching regulators, converters, inverters, deflection stages, and high fidelity amplifiers.

Features:

- Collector–Emitter Sustaining Voltage: $V_{CEO(sus)} = 300V @ I_C = 5mA$
- DC Current Gain: $h_{FE} = 40 - 200 @ I_C = 100mA$
- Current–Gain – Bandwidth Product: $f_T = 10MHz (Min) @ I_C = 100mA$
- $I_{S/b}$ Rated to 2A

Absolute Maximum Ratings:

Collector–Emitter Voltage, V_{CEO}	300V
Collector–Base Voltage, V_{CBO}	325V
Emitter–Base Voltage, V_{EBO}	6V
Collector Current, I_C	
Continuous	1A
Peak	2A
Base Current, I_B	
Continuous	500mA
Peak	1A
Total Device Dissipation ($T_C = 25^\circ C$), P_D	20W
Derate Above $25^\circ C$	0.133W/ $^\circ C$
Junction Temperature Range, T_J	-65° to $+200^\circ C$
Storage Temperature Range, T_{stg}	-65° to $+200^\circ C$
Thermal Resistance, Junction–to–Case, R_{thJC}	7.5 $^\circ C/W$

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
OFF Characteristics						
Collector–Emitter Sustaining Voltage	$V_{CE(sus)}$	$I_C = 5\text{mA}, I_B = 0$, Note 1	300	–	–	V
Collector–Emitter Cutoff Current	I_{CEO}	$V_{CE} = 200\text{V}, I_B = 0$	–	–	0.25	mA
Collector–Base Cutoff Current	I_{CBO}	$V_{CB} = 325\text{V}, I_E = 0$	–	–	0.1	mA
Collector Cutoff Current	I_{CEV}	$V_{CE} = 300\text{V}, V_{EB(off)} = 1.5\text{V}$	–	–	0.5	mA
		$V_{CE} = 200\text{V}, V_{EB(off)} = 1.5\text{V}, T_C = +100^\circ\text{C}$	–	–	1.0	mA
Emitter–Base Cutoff Current	I_{EBO}	$V_{EB} = 6\text{V}$	–	–	0.1	mA
ON Characteristics (Note 1)						
DC Current Gain	h_{FE}	$I_C = 50\text{mA}, V_{CE} = 10\text{V}$	30	–	–	
		$I_C = 100\text{mA}, V_{CE} = 10\text{V}$	40	–	200	
		$I_C = 250\text{mA}, V_{CE} = 10\text{V}$	25	–	–	
Collector–Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 250\text{mA}, I_B = 25\text{mA}$	–	–	2.5	V
Base–Emitter “ON” Voltage	$V_{BE(on)}$	$I_C = 100\text{mA}, V_{CE} = 10\text{V}$	–	–	1.0	V
Small–Signal Characteristics						
Current–Gain – Bandwidth Product	f_T	$I_C = 100\text{mA}, V_{CE} = 10\text{V}, f = 10\text{MHz}$, Note 2	10	–	–	MHz
Output Capacitance	C_{ob}	$V_{CB} = 100\text{V}, I_E = 0, f = 100\text{kHz}$	–	–	20	pF
Small–Signal Current Gain	h_{fe}	$I_C = 100\text{mA}, V_{CE} = 20\text{V}, f = 1\text{kHz}$	35	–	–	

Note 1. Pulse Test: Pulse Width $\leq 300\mu\text{s}$, Duty Cycle $\leq 2\%$.

Note 2. $f_T = |h_{fe}| \bullet$ frequency

