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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°C), P_D 20W
  Derate Above 25°C . . . . . 0.133W/°C
Junction Temperature Range, T_J . . . . . –65° to +200°C
Storage Temperature Range, T_{stg} . . . . . –65° to +200°C
Thermal Resistance, Junction–to–Case, R_{thJC} . . . . . 7.5°C/W

Electrical Characersitics: (T_C = +25°C unless otherwise specified)

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

Note 1. Pulse Test: Pulse Width ≤ 300µs, Duty Cycle ≤ 2%.

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