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NTE157
Silicon NPN Transistor
Audio Power Amp, High Voltage Converter
(Compl to NTE39)

Description:

The NTE157 is a silicon NPN transistor in a TO126 type package designed for use in line–operated equipment such as audio output amplifiers, low–current, high–voltage converters, and AC line relays.

Features:

- Excellent DC Current Gain: h_{FE} = 30 to 250 @ I_C = 100mA
- Current–Gain – Bandwidth Product: f_T = 10MHz (Min) @ I_C = 50mA

Absolute Maximum Ratings:

Collector–Emitter Voltage, V_{CEO} 300V
Collector–Base Voltage, V_{CB} 325V
Emitter–Base Voltage, V_{EB} 6V
Collector Current, I_C
  Continuous 500mA
  Peak 1A
Base Current, I_B 250mA
Total Power Dissipation (T_C = +25°C), P_D 20W
  Derate Above 25°C . . . . . 0.16W/°C
Operating Junction Temperature Range, T_J . . . . . –65° to +150°C
Storage Temperature Range, T_{stg} . . . . . –65° to +150°C
Thermal Resistance, Junction to case, $R_{\Theta JC}$ . . . . . 6.25°C/W

Electrical Characteristics: (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 = 100mA (Inductive), L = 50mH	300	–	–	V
Collector–Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C = 1mA, I_B = 0	300	–	–	V
Collector Cutoff Current	I_{CEO}	V_{CE} = 200V, I_B = 0	–	–	0.1	mA
	I_{CEX}	V_{CE} = 300V, $V_{EB(off)}$ = 1.5V	–	–	0.1	mA
		V_{CE} = 300V, $V_{EB(off)}$ = 1.5V, T_C = +100°C	–	–	1.0	mA
	I_{CBO}	V_{CB} = 325V, I_E = 0	–	–	10	μA
Emitter Cutoff Current	I_{EBO}	V_{EB} = 6V, I_C = 0	–	–	10	μA

Electrical Characteristics (Cont'd): (T_C = +25°C unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
ON Characteristics (Note 1)						
DC Current Gain	h_{FE}	I_C = 50mA, V_{CE} = 10V	25	–	–	
		I_C = 100mA, V_{CE} = 10V	30	–	250	
		I_C = 250mA, V_{CE} = 10V	15	–	–	
		I_C = 500mA, V_{CE} = 10V	5	–	–	
Collector–Emitter Saturation Voltage	$V_{CE(sat)}$	I_C = 100mA, I_B = 10mA	–	–	1	V
		I_C = 250mA, I_B = 25mA	–	–	2.5	
		I_C = 500mA, I_B = 100mA	–	–	10	
Base–Emitter Voltage	V_{BE}	I_C = 100mA, V_{CE} = 10V	–	–	1	V
Dynamic Characteristics						
Current–Gain–Bandwidth Product	f_T	I_C = 50mA, V_{CE} = 10V, f = 10MHz, Note 2	10	–	–	MHz
Output Capacitance	C_{ob}	V_{CB} = 10V, I_E = 0, f = 100kHz	–	–	25	pF
Small–Signal Current Gain	h_{fe}	I_C = 100mA, V_{CE} = 10V, f = 1kHz	20	–	–	

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

Note 2. f_T is defined as the frequency at which $|h_{fe}|$ extrapolates to unity.