ELECTRONICS, INC.
44 FARRAND STREET
BLOOMFIELD, NJ 07003
(973) 748–5089

NTE75
Silicon NPN Transistor
High Power Amplifier, Switch
(Stud Mount)

Description:

The NTE75 is a silicon NPN transistor in a TO111 type stud mount package that provides a unique combination of low saturation voltage, high gain, and fast switching. This device is ideally suited for power supply, pulse amplifier, and similar high efficiency power switching applications.

Features:

- Fast Switching: t_r, t_f = 300ns (Max)
- Low Saturation Voltage: 250mV max @ 1A

Absolute Maximum Ratings:

Collector–Base Voltage, V_{CBO} 110V
Collector–Emitter Voltage, V_{CEO} 80V
Emitter–Base Voltage, V_{EBO} 8V
DC Collector Current, I_C 5A
Power Dissipation, P_D
T_A = +25°C 2W
T_C = +100°C 30W
Operating Temperature Range, T_{opr} . . . . . –65° to +200°C
Storage Temperature Range, T_{stg} . . . . . –65° to +200°C
Thermal Resistance, Junction–to–Case, R_{thJC} . . . . . 3.33°C/W

Electrical Characteristics: (T_A = +25°C unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector–Base Breakdown Voltage	$V_{(BR)CBO}$	I_C = 10μA	110	–	–	V
Collector–Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C = 100mA, Note 1	80	–	–	V
Emitter–Base Breakdown Voltage	$V_{(BR)EBO}$	I_E = 10μA	8	–	–	V
Collector–Emitter Cutoff Current	I_{CEO}	V_{CE} = 60V	–	–	100	μA
	I_{CEX}	V_{CE} = 110V, V_{EB} = 500mV	–	–	10	μA
Collector–Base Cutoff Current	I_{CBO}	V_{CB} = 80V	–	–	0.4	μA
Emitter–Base Cutoff Current	I_{EBO}	V_{EB} = 6V	–	–	0.4	μA

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

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
DC Current Gain (Note 1)	h_{FE}	V_{CE} = 5V, I_C = 50mA	40	–	–	
		V_{CE} = 5V, I_C = 1A	40	–	120	
		V_{CE} = 5V, I_C = 1A, T_A = –65°C	15	–	–	
		V_{CE} = 5V, I_C = 5A	15	–	–	
Collector Saturation Voltage	$V_{CE(sat)}$	I_C = 1A, I_B = 100mA, Note 1	–	–	0.25	V
		I_C = 5A, I_B = 500mA, Note 1	–	–	1.5	V
Base Saturation Voltage	$V_{BE(sat)}$	I_C = 1A, I_B = 100mA, Note 1	–	–	1.2	V
Base ON Voltage	$V_{BE(on)}$	V_{CE} = 2V, I_C = 1A, Note 1	–	–	1.2	V
AC Current Gain	h_{FE}	V_{CE} = 5V, I_C = 50mA, f = 1kHz	40	–	120	
Current Gain–Bandwidth Product	f_T	V_{CE} = 10V, I_C = 1A, f = 10MHz	20	–	120	MHz
Output Capacitance	C_{ob}	V_{CE} = 10V, I_E = 0, f = 1MHz	–	–	150	pF
Delay Time	t_d	V_{CC} = 20V, I_C = 1A, I_{B1} = $-I_{B2}$ = 100mA, Pulse Width = 2µs, Duty Cycle ≤ 2%, Source Impedance = 50Ω	–	–	60	ns
Rise Time	t_r		–	–	300	ns
Storage Time	t_s		–	–	1.7	µs
Fall Time	t_f		–	–	300	ns

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