



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

NTE70 Silicon NPN Transistor High Voltage Power Amp, Switch

Description:

The NTE70 is a silicon NPN transistor in a TO63 type case utilizing C2R processing which describes a manufacturing technology that provides surface stabilization for high voltage operation and enhances long term reliability.

Absolute Maximum Ratings:

Collector–Base Voltage, V_{CBO}	180V
Collector–Emitter Voltage, V_{CEO}	150V
Emitter–Base Voltage, V_{EBO}	6V
Continuous Collector Current, I_C	20A
Continuous Base Current, I_B	20A
Total Power Dissipation ($T_C = +25^\circ\text{C}$), P_D	250W
Operating Junction Temperature Range, T_J	-65° to $+200^\circ\text{C}$
Storage Temperature Range, T_{stg}	-65° to $+200^\circ\text{C}$
Thermal Resistance, Junction–to–Case, R_{thJC}	0.7°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 Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 50\text{mA}$	150	–	–	V
Emitter Cutoff Current	I_{EBO}	$V_{EB} = 6\text{V}$	–	–	100	μA
Collector Cutoff Current	I_{CEX}	$V_{CE} = \text{Rated } V_{CB}, V_{EB} = 1.5\text{V}$	–	–	10	μA
		$V_{CE} = \text{Rated } V_{CB}, V_{EB} = 1.5\text{V}, T_C = +150^\circ\text{C}$	–	–	1.0	mA
ON Characteristics (Note 1)						
DC Current Gain	h_{FE}	$V_{CE} = 4\text{V}, I_C = 20\text{A}$	50	–	–	
Collector–Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 50\text{A}, I_B = 10\text{A}$	–	–	3.0	V
Base–Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 20\text{A}, I_B = 2\text{A}$	–	–	1.8	V
		$I_C = 50\text{A}, I_B = 10\text{A}$	–	–	3.5	V

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

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Dynamic Characteristics						
Small-Signal Current Gain	h_{fe}	$V_{CE} = 10\text{V}, I_C = 1\text{A}, f = 1\text{MHz}$	3.0	—	—	
Collector-Base Capacitance	C_{ob}	$V_{CB} = 10\text{V}, I_E = 0, f = 0.1\text{MHz}$	—	—	600	pF
Rise Time	t_r	$V_{CC} = 80\text{V}, I_C = 20\text{A},$ $I_{B1} = 2\text{A}, I_{B2} = 2\text{A}$	—	—	0.35	μs
Storage Time	t_s		—	—	0.80	μs
Fall Time	t_f		—	—	0.25	μs

