

## NTE71 Silicon NPN Transistor High Current Amp, Fast Switch

**Description:**

The NTE71 is silicon NPN transistor in a TO63 stud mount package utilizing C2R processing that provides surface stabilization for high voltage operation and enhances long term reliability.

**Absolute Maximum Ratings:**

Collector–Base Voltage, $V_{CBO}$ .....	150V
Collector–Emitter Voltage, $V_{CEO}$ .....	150V
Emitter–Base Voltage, $V_{EBO}$ .....	10V
Continuous Collector Current, $I_C$ .....	20A
Continuous Base Current, $I_B$ .....	4.5A
Total Power Dissipation ( $T_C = +25^\circ\text{C}$ ), $P_D$ .....	200W
Storage Temperature Range, $T_{stg}$ .....	$-65^\circ$ to $+200^\circ\text{C}$

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
<b>OFF Characteristics</b>						
Collector–Emitter Sustaining Voltage	$V_{(BR)CEO(sus)}$	$I_C = 100\text{mA}$	150	–	–	V
Emitter Cutoff Current	$I_{EBO}$	$V_{EB} = 10\text{V}$	–	–	250	$\mu\text{A}$
Collector Cutoff Current	$I_{CEX}$	$V_{CE} = 150\text{V}, V_{BE} = -1.5\text{V}$	–	–	2	mA
		$V_{CE} = 150\text{V}, V_{BE} = -1.5\text{V}, T_C = +150^\circ\text{C}$	–	–	20	mA
<b>ON Characteristics (Note 1)</b>						
DC Current Gain	$h_{FE}$	$V_{CE} = 3\text{V}, I_C = 10\text{A}$	10	–	50	
Collector Saturation Voltage	$V_{CE(sat)}$	$I_C = 10\text{A}, I_B = 1.5\text{A}$	–	–	1.5	V
Base–Emitter Voltage	$V_{BE}$	$I_C = 10\text{A}, I_B = 1.5\text{A}$	–	–	2.5	V

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

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
<b>Dynamic Characteristics</b>						
Small-Signal Current Gain	$h_{fe}$	$V_{CE} = 3V, I_C = 10A, f = 1\text{MHz}$	0.6	—	—	
Turn-On Time	$t_{on}$	$V_{CC} = 30V, I_C = 10A, I_{B1} = 1.5A, I_{B2} = 1.5A$	—	—	3.5	$\mu\text{s}$
Turn-Off Time	$t_{off}$		—	—	12.0	$\mu\text{s}$
Rise Time	$t_r$		—	—	3.5	$\mu\text{s}$
Storage Time	$t_s$		—	—	6.0	$\mu\text{s}$
Fall Time	$t_f$		—	—	6.0	$\mu\text{s}$

