

NTE72 Silicon NPN Transistor High Current Amp, Fast Switch

Features:

- High Power: 100W @ $T_C = +50^\circ\text{C}$, $V_{CE} = 40\text{V}$
- High Voltage: $V_{CEO} = 80\text{V}$ Min
- High Current Saturation Voltage: $V_{CE(sat)} = 1.5\text{V}$ @ 10A
- High Frequency: $f_T = 30\text{MHz}$ Min
- Isolated Collector Package, No Isolating hardware Required

Absolute Maximum Ratings: (Note 1)

Collector–Emitter Voltage, V_{CES}	100V
Collector–Emitter Voltage (Note 2), V_{CEO}	80V
Emitter–Base Voltage, V_{EBO}	6V
Collector Current, I_C	10A
Total Power Dissipation ($T_C = +50^\circ\text{C}$, $V_{CE} = 40\text{V}$), P_T	100W
Operating Junction Temperature Range, T_{opr}	-65° to $+200^\circ\text{C}$
Storage Temperature Range, T_{stg}	-65° to $+200^\circ\text{C}$
Lead Temperature (During Soldering, 60sec max), T_L	$+300^\circ\text{C}$

Note 1. These ratings are limiting values above which the serviceability of the NTE72 transistor may be impaired.

Note 2. This rating refers to a high current point where collector–emitter voltage is lowest.

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector–Emitter Sustaining Voltage	$V_{CEO(sus)}$	$I_C = 200\text{mA}$, $I_B = 0$, Notes 2 & 3	80	–	–	V
Collector–Emitter Breakdown Voltage	$V_{(BR)CES}$	$I_C = 1\text{mA}$, $V_{BE} = 0$	100	–	–	V
Emitter–Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = 1\text{mA}$, $I_C = 0$	6	–	–	V
DC Pulse Current Gain (Note 3)	h _{FE}	$I_C = 100\text{mA}$, $V_{CE} = 5\text{V}$	50	95	–	
		$I_C = 5\text{A}$, $V_{CE} = 5\text{V}$	70	108	200	
		$I_C = 5\text{A}$, $V_{CE} = 5\text{V}$, $T_C = -55^\circ\text{C}$	35	51	–	
		$I_C = 10\text{A}$, $V_{CE} = 5\text{V}$	45	91	–	

Note 2. This rating refers to a high current point where collector–emitter voltage is lowest.

Note 3. Pulse Conditions: Pulse Width = 300μs, Duty Cycle = 1%.

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
High Frequency Current Gain	h_{fe}	$I_C = 2\text{A}, V_{CE} = 5\text{V}, f = 20\text{MHz}$	2.0	2.8	–	
Collector–Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 5\text{A}, I_B = 0.5\text{A}, \text{Note 3}$	–	0.55	0.9	V
		$I_C = 10\text{A}, I_B = 1\text{A}, \text{Note 3}$	–	1.1	1.5	V
Base–Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 5\text{A}, I_B = 0.5\text{A}, \text{Note 3}$	–	1.2	1.8	V
		$I_C = 10\text{A}, I_B = 1\text{A}, \text{Note 3}$	–	1.7	2.2	V
Base–Emitter ON Voltage	$V_{BE(on)}$	$I_C = 5\text{A}, V_{CE} = 5\text{V}, \text{Note 3}$	–	–	1.8	V
Collector Cutoff Current	I_{CES}	$V_{CE} = 60\text{V}, V_{BE} = 0$	–	0.014	1.0	μA
Collector Reverse Current	I_{CEX}	$V_{CE} = 60\text{V}, V_{EB} = 2\text{V}, T_C = +150^\circ\text{C}$	–	–	500	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB} = 5\text{V}, I_C = 0$	–	–	1.0	μA
Collector–Base Capacitance	C_{cb}	$V_{CB} = 10\text{V}, I_E = 0, f = 1\text{MHz}$	–	235	275	pF

Note 3. Pulse Conditions: Pulse Width = $300\mu\text{s}$, Duty Cycle = 1%.

