



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

## NTE2503 Silicon NPN Transistor High Gain Switch

**Features:**

- High DC Current Gain
- High Current Capacity
- Low Collector–Emitter Saturation Voltage
- High Emitter–Base Voltage

**Applications:**

- AF Amplifier
- Various Driver

**Absolute Maximum Ratings:** ( $T_A = +25^\circ\text{C}$  unless otherwise specified)

Collector–Emitter Voltage, $V_{CEO}$ .....	25V
Collector–Base Voltage, $V_{CBO}$ .....	30V
Emitter–Base Voltage, $V_{EBO}$ .....	15V
Collector Current, $I_C$	
Continuous .....	700mA
Pulse .....	1.5A
Collector Dissipation, $P_C$ .....	600mW
Operating Junction Temperature, $T_J$ .....	+150°C
Storage Temperature Range, $T_{stg}$ .....	–55° to +150°C

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector Cutoff Current	$I_{CBO}$	$V_{CB} = 20V, I_E = 0$	–	–	0.1	$\mu\text{A}$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB} = 10V, I_C = 0$	–	–	0.1	$\mu\text{A}$
DC Current Gain	$h_{FE}$	$I_C = 50\text{mA}, V_{CE} = 5V$	800	1500	3200	
		$I_C = 500\text{mA}, V_{CE} = 5V$	600	–	–	
Current Gain–Bandwidth Product	$f_T$	$I_C = 50\text{mA}, V_{CE} = 10V$	–	270	–	MHz
Output Capacitance	$C_{ob}$	$V_{CB} = 10V, f = 1\text{MHz}$	–	9	–	pF

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector Saturation Voltage	$V_{CE(sat)}$	$I_C = 500\text{mA}, I_B = 10\text{mA}$	–	0.15	0.50	V
Base Saturation Voltage	$V_{BE(sat)}$	$I_C = 500\text{mA}, I_B = 10\text{mA}$	–	0.9	1.2	V
Collector–Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = 10\mu\text{A}, I_E = 0$	30	–	–	V
Collector–Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 1\text{mA}, R_{BE} = \infty$	25	–	–	V
Emitter–Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = 10\mu\text{A}, I_C = 0$	15	–	–	V
Turn–On Time	$t_{on}$	$I_{B1} = 100\text{mA},$ $I_{B2} = I_C = 300\text{mA},$ Pulse Width = $20\mu\text{s},$ Duty Cycle $\leq 1\%$	–	0.1	–	$\mu\text{s}$
Storage Time	$t_{stg}$		–	0.6	–	$\mu\text{s}$
Fall Time	$t_f$		–	0.06	–	$\mu\text{s}$

