

## NTE2303 Silicon NPN Transistor Horizontal Deflection

**Description:**

The NTE2303 is a silicon NPN transistor in a TO220 type package designed for use in small screen black and white deflection circuits.

**Features:**

- Collector–Emitter Voltage:  $V_{CEX} = 1500V$
- Glassivated Base–Collector Junction
- Switching Times with Inductive Loads:  $t_f = 0.65\mu s$  (Typ) @  $I_C = 2A$

**Maximum Ratings:**

Collector–Emitter Voltage, $V_{CEO(sus)}$ .....	750V
Collector–Emitter Voltage, $V_{CEX}$ .....	1500V
Emitter–Base Voltage, $V_{EBO}$ .....	5V
Continuous Collector Current, $I_C$ .....	2.5A
Continuous Base Current, $I_B$ .....	2.0A
Continuous Emitter Current, $I_E$ .....	4.5A
Total Power Dissipation ( $T_C = +25^\circ C$ ), $P_D$ .....	65W
Derate above $25^\circ C$ .....	0.65W/ $^\circ C$
Operating Junction Temperature Range, $T_J$ .....	$-65^\circ$ to $+125^\circ C$
Storage Temperature Range, $T_{stg}$ .....	$-65^\circ$ to $+125^\circ C$
Maximum Thermal Resistance, Junction–to–Case, $R_{thJC}$ .....	1.54 $^\circ C/W$

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
<b>OFF Characteristics</b> (Note 1)						
Collector–Emitter Sustaining Voltage	$V_{CEO(sus)}$	$I_C = 50mA, I_B = 0$	750	–	–	V
Collector Cutoff Current	$I_{CES}$	$V_{CE} = 1500V, V_{BE} = 0$	–	–	1.0	mA
Emitter Cutoff Current	$I_{EBO}$	$V_{EB} = 5V, I_C = 0$	–	–	0.1	mA
<b>ON Characteristics</b> (Note 1)						
Collector–Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 2A, I_B = 660mA$	–	–	5.0	V
Base–Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 2A, I_B = 660mA$	–	–	1.5	V

Note 1 Pulse Test: Pulse Width  $\leq 300\mu s$ , Duty Cycle = 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>						
Output Capacitance	$C_{ob}$	$V_{CB} = 10\text{V}, I_E = 0, f = 0.1\text{MHz}$	–	50	–	pF
Current Gain–Bandwidth Product	$f_T$	$V_{CE} = 5\text{V}, I_C = 100\text{mA}, f_{test} = 1\text{MHz}, \text{Note 1}$	–	4.0	–	MHz
<b>Switching Characteristics</b>						
Fall Time	$t_f$	$I_C = 2\text{A}, I_{B1} = 600\text{mA}, L_B = 12\mu\text{H}$	–	0.65	–	$\mu\text{s}$

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

