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## NTE163A Silicon NPN Transistor Horizontal Deflection

**Description:**

The NTE163A is an NPN silicon transistor in a TO3 type case designed for use in large screen color deflection circuits.

**Features:**

- Collector–Emitter Voltage:  $V_{CEX} = 1500V$
- Collector–Emitter Sustaining Voltage:  $V_{CEO(sus)} = 700V$
- Switching Times With Inductive Loads:  $t_f = 0.4\mu s$  (Typ) @  $I_C = 4.5A$

**Absolute Maximum Ratings:**

Collector–Emitter Voltage, $V_{CEO(sus)}$ .....	700V
Collector–Emitter Voltage, $V_{CEX}$ .....	1500V
Emitter–Base Voltage, $V_{EB}$ .....	5V
Collector Current, $I_C$	
Continuous .....	5A
Peak (Note 1) .....	7.5A
Peak Base Current, $I_B$ .....	4A
Total Device Dissipation ( $T_C = +95^\circ C$ ), $P_D$ .....	12.5W
Derate Above $95^\circ C$ .....	0.625W/ $^\circ C$
Operating Junction Temperature Range, $T_J$ .....	$-65^\circ$ to $+115^\circ C$
Storage Temperature Range, $T_{stg}$ .....	$-65^\circ$ to $+115^\circ C$
Thermal Resistance, Junction–to–Case, $R_{thJC}$ .....	1.6 $^\circ C/W$
Maximum Lead Temperature (For Soldering, 1/8" from case for 5sec), $T_L$ .....	$+275^\circ C$

Note 1. Pulse Test: Pulse Width = 5ms, Duty Cycle  $\leq 10\%$

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
<b>OFF Characteristics</b> (Note 2)						
Collector–Emitter Sustaining Voltage	$V_{CEO(sus)}$	$I_C = 100\text{mA}, I_B = 0$	700	–	–	V
Collector Cutoff Current	$I_{CES}$	$V_{CE} = 1500\text{V}, V_{BE} = 0$	–	–	1.0	mA
Emitter–Base Voltage	$V_{EBO}$	$I_E = 10\text{mA}, I_C = 0$	5	–	–	V
<b>ON Characteristics</b> (Note 2)						
DC Current Gain	$h_{FE}$	$I_C = 4.5\text{A}, V_{CE} = 5\text{V}$	2.25	–	–	
Collector–Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 4.5\text{A}, I_B = 2\text{A}$	–	–	5	V
Base–Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 4.5\text{A}, I_B = 2\text{A}$	–	–	1.5	V
<b>Dynamic Characteristics</b>						
Current Gain–Bandwidth Product	$f_T$	$I_C = 100\text{mA}, V_{CE} = 5\text{V}, f = 1\text{MHz}$	–	4	–	MHz
Output Capacitance	$C_{ob}$	$V_{CB} = 10\text{V}, I_E = 0, f = 1\text{MHz}$	–	125	–	pF
<b>Switching Characteristics</b>						
Fall Time	$t_f$	$I_C = 4.5\text{A}, I_B = 1.8\text{A}, L_B = 10\mu\text{H}$	–	0.6	–	$\mu\text{s}$

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

