

NTE2301 Silicon NPN Transistor High Voltage Horizontal Output

Description:

The NTE2301 is a silicon NPN power transistor in a TO218 type package designed for use in large screen deflection circuits.

Features:

- Collector–Emitter Voltage: $V_{CEX} = 1500V$
- Glassivated Base–Collector Junction
- Safe Operating Area @ $50\mu s = 20A, 400V$
- Switching Times with Inductive Loads: $t_f = 0.4\mu s$ (Typ) @ $I_C = 4.5A$

Absolute Maximum Ratings:

Collector–Emitter Voltage, V_{CEO}	750V
Collector–Emitter Voltage, V_{CEX}	1500V
Emitter–Base Voltage, V_{EB}	5V
Continuous Collector Current, I_C	5A
Continuous Base Current, I_B	4A
Continuous Emitter Current, I_E	9A
Total Power Dissipation, P_D	
$T_C = +25^\circ C$	100W
$T_C = +100^\circ C$	40W
Derate Above $25^\circ C$	0.8W/ $^\circ C$
Operating Junction Temperature Range, T_J	-65° to $+150^\circ C$
Storage Temperature Range, T_{stg}	-65° to $+150^\circ C$
Thermal Resistance, Junction–to–Case, R_{thJC}	1.25 $^\circ C/W$
Maximum Lead Temperature (During Soldering, 1/8" from Case for 5sec), T_L	$+275^\circ C$

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
OFF Characteristics (Note 1)						
Collector–Emitter Sustaining Voltage	$V_{CE(sus)}$	$I_C = 50\text{mA}, I_B = 0$	750	–	–	V
Collector Cutoff Current	I_{CES}	$V_{CE} = 1500\text{V}, V_{BE} = 0$	–	–	1	mA
Emitter Cutoff Current	I_{EBO}	$V_{BE} = 5\text{V}, I_C = 0$	–	–	1	mA
ON Characteristics (Note 1)						
Collector–Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 4.5\text{A}, I_B = 1.8\text{A}$	–	–	5	V
		$I_C = 3.5\text{A}, I_B = 1.5\text{A}$	–	–	5	V
Base–Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 4.5\text{A}, I_B = 1.8\text{A}$	–	–	1.5	V
		$I_C = 3.5\text{A}, I_B = 1.5\text{A}$	–	–	1.5	V
Dynamic Characteristics						
Current Gain – Bandwidth Product	f_T	$I_C = 100\text{mA}, V_{CE} = 5\text{V}, f_{test} = 1\text{MHz}$	–	4	–	MHz
Output Capacitance	C_{ob}	$V_{CB} = 10\text{V}, I_E = 0, f = 0.1\text{MHz}$	–	125	–	pF
Switching Characteristics						
Fall Time	t_f	$I_C = 4.5\text{A}, I_{B1} = 1.8\text{A}, L_B = 8\mu\text{H}$	–	0.4	1.0	μs
		$I_C = 4.5\text{A}, I_{B1} = 1.8\text{A}, L_B = 8\mu\text{H}, T_C = +100^\circ\text{C}$	–	0.6	–	μs

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

