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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° to $+125^\circ C$
Storage Temperature Range, T_{stg}	-65° 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
OFF Characteristics (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
ON Characteristics (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
Dynamic Characteristics						
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	$V_{CE} = 5\text{V}, I_C = 100\text{mA}, f_{\text{test}} = 1\text{MHz}, \text{Note 1}$	–	4.0	–	MHz
Switching Characteristics						
Fall Time	t_f	$I_C = 2\text{A}, I_{B1} = 600\text{mA}, L_B = 12\mu\text{H}$	–	0.65	–	μs

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

