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NTE2318 Silicon NPN Transistor High Voltage, High Speed Switch

Description:

The NTE2318 is a high-voltage, high-speed, switching NPN transistor with an internal damper diode in a TO218 type package. This device is specifically designed for use in large screen color deflection circuits.

Features:

- Collector–Emitter Voltage: $V_{CE} = 1500V$
- Collector–Emitter Sustaining Voltage: $V_{CEO(sus)} = 700V$
- Switching Time with Inductive Loads: $t_f = 0.5\mu s$ (Typ) @ $I_C = 4.5A$
- Internal Flyback Diode

Absolute Maximum Ratings:

Collector–Emitter Voltage, $V_{CEO(sus)}$	700V
Collector–Emitter Voltage, V_{CES}	1500V
Emitter–Base Voltage, V_{EB}	5V
Collector Current, I_C	
Continuous	8A
Peak (Note 1)	15A
Base Current, I_B	
Continuous	4A
Peak (Note 1)	6A
Total Power Dissipation ($T_C = +25^\circ C$), P_D	125W
Derate Above $25^\circ C$	1W/ $^\circ C$
Operating 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}	$1^\circ C/W$
Maximum Lead Temperature (During Soldering, 1/8" from case, 5sec), T_L	$+275^\circ C$

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

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	$V_{CEO(sus)}$	$I_C = 100mA, I_B = 0$	700	–	–	V
Collector Cutoff Current	I_{CES}	$V_{CE} = 1500V, V_{BE} = 0$	–	–	0.1	mA
		$V_{CE} = 1500V, V_{BE} = 0,$ $T_C = +125^\circ C$	–	–	2.0	mA
Emitter–Base Leakage Current	I_{EBO}	$V_{EB} = 6V, I_C = 0$	–	–	300	mA

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
ON Characteristics (Note 1)						
DC Current Gain	h_{FE}	$I_C = 4.5\text{A}, V_{CE} = 5\text{V}$	2.25	–	–	
Collector–Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 4.5\text{A}, I_B = 2\text{A}$	–	–	1	V
Base–Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 4.5\text{A}, I_B = 2\text{A}$	–	–	1.3	V
Dynamic Characteristics						
Current–Gain Bandwidth Product	f_T	$I_C = 0.1\text{A}, V_{CE} = 5\text{V}, f = 1\text{MHz}$	–	7	–	MHz
Output Capacitance	C_{ob}	$V_{CB} = 10\text{V}, I_E = 0, f = 0.1\text{MHz}$	–	125	–	pF
Switching Characteristics						
Storage Time	t_s	$I_C = 4.5\text{A}, I_B = 1.8\text{A},$ $L_B = 10\mu\text{H}$	–	8.0	–	μs
Fall Time	t_f		–	0.5	–	μs

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

