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NTE2315 Silicon NPN Transistor Fast Switching Power Darlington

Description:

The NTE2315 is a silicon epitaxial planer NPN power Darlington transistor in a TO220 type package with an integrated base-emitter speed-up diode designed for use in high voltage, high current, fast switching applications. In particular, the NTE2315 can be used in horizontal output stages of 110° CRT video displays and is primarily intended for large screen displays.

Absolute Maximum Ratings:

Collector-Base Voltage ($I_E = 0$), V_{CBO}	400V
Collector-Emitter Voltage ($V_{BE} = -6V$), V_{CEV}	400V
Collector-Emitter Voltage ($I_B = 0$), V_{CEO}	200V
Emitter-Base Voltage ($I_C = 0$), V_{EBO}	6V
Collector Current, I_C	
Continuous	8A
Peak	15A
Base Current, I_B	2A
Damper Diode Peak Forward Current, I_{DM}	10A
Total Power Dissipation ($T_C \leq +25^\circ C$), P_{tot}	60W
Operating Junction Temperature, T_J	+150°C
Storage Temperature Range, T_{stg}	-65° to +150°C
Thermal Resistance, Junction-to-Case, R_{thJC}	2.08°C/W
Thermal Resistance, Junction-to-Ambient, R_{thJA}	70°C/W

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector Cutoff Current	I_{CES}	$V_{CE} = 400V, V_{BE} = 0$	-	-	100	μA
	I_{CEV}	$V_{CE} = 400V, V_{BE} = -6V$	-	-	100	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB} = 6V, I_C = 0$	-	-	3	mA
Collector-Emitter Sustaining Voltage	$V_{CEO(sus)}$	$I_C = 100mA, I_B = 0, \text{Note 1}$	200	-	-	V
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 5A, I_B = 50mA, \text{Note 1}$	-	-	-1.5	V
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 5A, I_B = 50mA, \text{Note 1}$	-	-	2.0	V
DC Current Gain	h_{FE}	$I_C = 3A, V_{CE} = 5V$	-	3500	-	

Note 1. Pulse test: Pulse Duration = 300 μs , Duty Cycle = 1.5%.

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Damper Diode Forward Voltage	V_F	$I_F = 4\text{A}$, Note 1	–	–	2	V
Turn-Off Time	t_{off}	$I_C = 5\text{A}$, $I_{B1} = 50\text{mA}$	–	0.4	1.0	μs
Resistive Load						
Turn-On Time	t_{on}	$I_C = 5\text{A}$, $I_{B1} = 50\text{mA}$, $I_{B2} = -500\text{mA}$, $V_{CC} = 100\text{V}$	–	0.35	–	μs
Storage Time	t_s		–	0.55	–	μs
Fall Time	t_f		–	0.20	–	μs

Note 1. Pulse test: Pulse Duration = $300\mu\text{s}$, Duty Cycle = 1.5%.

