



**ELECTRONICS, INC.**  
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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)

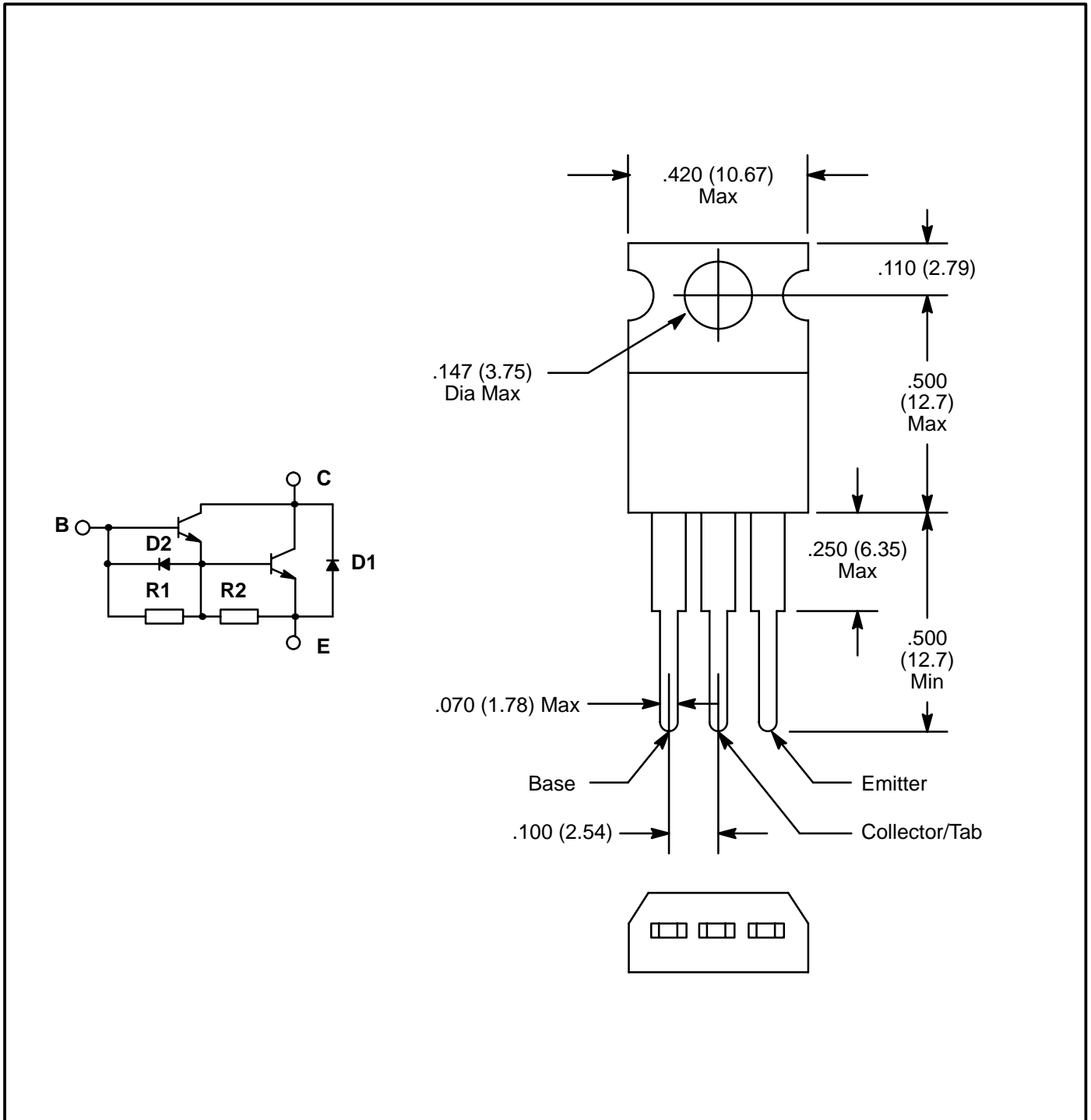
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector Cutoff Current	$I_{CES}$	$V_{CE} = 400V, V_{BE} = 0$	-	-	100	$\mu A$
	$I_{CEV}$	$V_{CE} = 400V, V_{BE} = -6V$	-	-	100	$\mu A$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB} = 6V, I_C = 0$	-	-	3	mA
Collector-Emitter Sustaining Voltage	$V_{CEO(sus)}$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

Note 1. Pulse test: Pulse Duration = 300 $\mu s$ , 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	$t_{\text{off}}$	$I_C = 5\text{A}$ , $I_{B1} = 50\text{mA}$	–	0.4	1.0	$\mu\text{s}$
<b>Resistive Load</b>						
Turn-On Time	$t_{\text{on}}$	$I_C = 5\text{A}$ , $I_{B1} = 50\text{mA}$ , $I_{B2} = -500\text{mA}$ , $V_{CC} = 100\text{V}$	–	0.35	–	$\mu\text{s}$
Storage Time	$t_s$		–	0.55	–	$\mu\text{s}$
Fall Time	$t_f$		–	0.20	–	$\mu\text{s}$

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



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