



**ELECTRONICS, INC.**  
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## NTE2304 Silicon NPN Transistor High Current, High Speed Switch (Compl to NTE2314)

**Description:**

The NTE2304 is a silicon NPN transistor in a TO3P type package. Typical applications include relay drivers, high-speed inverters, converters, and other general high-current switching applications.

**Features:**

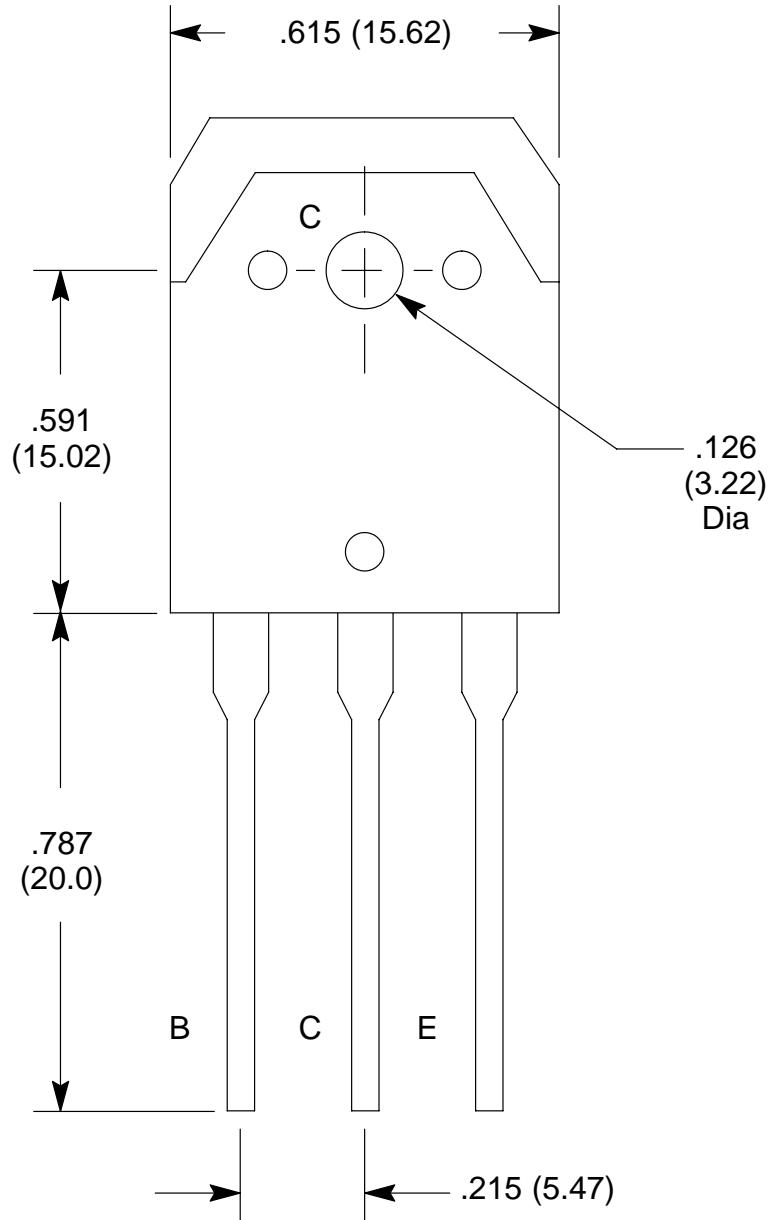
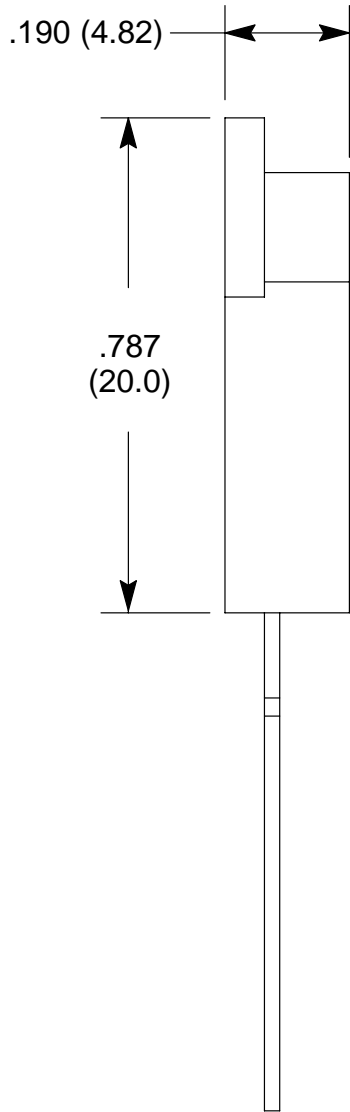
- Low Collector-Emitter Saturation Voltage
- Wide ASO and Resistant to Breakdowns

**Absolute Maximum Ratings:** ( $T_A = +25^\circ\text{C}$  unless otherwise specified)

Collector-Base Voltage, $V_{CBO}$ .....	60V
Collector-Emitter Voltage, $V_{CEO}$ .....	50V
Emitter-Base voltage, $V_{EBO}$ .....	6V
Collector Current, $I_C$	
Continuous .....	15A
Peak .....	20A
Allowable Collector Dissipation ( $T_C = +25^\circ\text{C}$ ), $P_C$ .....	90W
Operating Junction Temperature, $T_J$ .....	+150°C
Storage Ambient Temperature Range, $T_{stg}$ .....	-55° to +150°C

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector Cutoff Current	$I_{CBO}$	$V_{CB} = 40V, I_E = 0$	-	-	0.1	mA
Emitter Cutoff Current	$I_{EBO}$	$V_{EB} = 4V, I_C = 0$	-	-	0.1	mA
DC Current Gain	$h_{FE}$	$V_{CE} = 2V, I_C = 1A$	100	-	200	
		$V_{CE} = 2V, I_C = 8A$	30	-	-	
Current Gain-Bandwidth Product	$f_T$	$V_{CE} = 5V, I_C = 1A$	-	20	-	MHz
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 8A, I_B = 0.4A$	-	0.18	0.4	V
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = 1mA, I_E = 0$	60	-	-	V
Collector-Emitter Breakdown Voltage	$V_{(BR)CBO}$	$I_C = 1mA, R_{BE} = \infty$	50	-	-	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = 1mA, I_C = 0$	6	-	-	V
Turn-On Time	$t_{on}$	$10I_{B1} = -10I_{B2} = I_C = 2A,$ $PW = 20\mu s$	-	0.2	-	$\mu s$
Storage Time	$t_{stg}$		-	1.0	-	$\mu s$
Fall Time	$t_f$		-	0.1	-	$\mu s$



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