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## NTE2334 Silicon NPN Transistor Darlington Driver <sup>w</sup>/Internal Damper and Zener Diode

**Description:**

The NTE2334 is a silicon Darlington NPN Driver with an internal damper and zener diode in a TO220 type package designed for use in applications such as the switching of the L load of a motor driver, hammer driver, relay driver, etc.

**Features:**

- High DC Current Gain
- Large Current Capacity and Wide ASO
- Contains 60 ±10V Avalanche Diode between Collector and Base
- High 50mJ Reverse Energy Rating

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

Collector to Base Voltage, $V_{CBO}$ .....	60 ±10V
Collector to Emitter Voltage, $V_{CEO}$ .....	60 ±10V
Emitter to Base Voltage, $V_{EBO}$ .....	6V
Collector Current, $I_C$	
Continuous .....	5A
Peak .....	8A
Base Current, $I_B$ .....	500mA
Collector Power Dissipation ( $T_C = +25^{\circ}\text{C}$ ), $P_C$ .....	40W
Operating Junction Temperature, $T_J$ .....	+150°C
Storage 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	$I_{CBO}$	$V_{BE} = 40\text{V}, I_E = 0$	–	–	100	$\mu\text{A}$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB} = 5\text{V}, I_C = 0$	–	–	3	mA
DC Current Gain	$h_{FE}$	$V_{CE} = 3\text{V}, I_C = 2.5\text{A}$	1000	4000	–	
Gain Bandwidth Product	$f_T$	$V_{CE} = 5\text{V}, I_C = 2.5\text{A}$	–	20	–	MHz

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector–Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 2.5\text{A}, I_B = 5\text{mA}$	–	0.9	1.5	V
Base–Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 2.5\text{A}, I_B = 5\text{mA}$	–	–	2.0	V
Collector–Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = 5\text{mA}, I_E = 0$	50	60	70	V
Collector–Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 50\text{mA}, R_{BE} = \infty$	50	60	70	V
Unclamped Inductive Load Energy	$E_{s/b}$	$L = 100\text{mH}, R_{BE} = 100\Omega$	50	–	–	mJ
Turn–On Time	$t_{on}$	$V_{CC} = 20\text{V}, I_C = 3\text{A},$ $I_{B1} = -I_{B2} = 6\text{mA}$	–	0.6	–	$\mu\text{s}$
Storage Time	$t_{stg}$		–	4.0	–	$\mu\text{s}$
Fall Time	$t_f$		–	1.5	–	$\mu\text{s}$

