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## NTE2349 (NPN) & NTE2350 (PNP) Silicon Darlington Transistors High Current, General Purpose

### Description:

The NTE2349 (NPN) and NTE2350 (PNP) are silicon complementary Darlington transistors in a TO3 type package designed for use as output devices in general purpose amplifier applications.

### Features:

- High DC Current Gain:  $h_{FE} = 1000$  (Min) @  $I_C = 25A$   
 $h_{FE} = 400$  (Min) @  $I_C = 50A$
- Diode Protection to Rated  $I_C$
- Monolithic Construction w/Built-In Base-Emitter Shunt Resistor
- Junction Temperature to +200°C

### Absolute Maximum Ratings:

Collector-Emitter Voltage, $V_{CEO}$ .....	120V
Collector-Base Voltage, $V_{CB}$ .....	120V
Emitter-Base Voltage, $V_{EB}$ .....	5V
Collector Current, $I_C$	
Continuous .....	50A
Peak .....	100A
Continuous Base Current, $I_B$ .....	2A
Total Power Dissipation ( $T_C = +25^\circ C$ ), $P_D$ .....	300W
Derate Above $25^\circ C$ @ $T_C = +100^\circ C$ .....	1.71W/ $^\circ C$
Operating Junction Temperature Range, $T_J$ .....	-55° to +200°C
Storage Temperature Range, $T_{stg}$ .....	-55° to +200°C
Thermal Resistance, Junction-to-Case, $R_{thJC}$ .....	0.584°C
Lead Temperature (During Soldering, 10sec Max), $T_L$ .....	+275°C

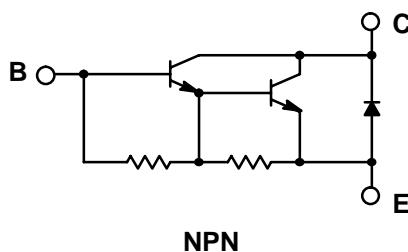
### Electrical Characteristics: ( $T_C = +25^\circ C$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
<b>OFF Characteristics</b>						
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 100mA$ , $I_B = 0$	120	-	-	V
Collector-Emitter Leakage Current	$I_{CER}$	$V_{CE} = 120V$ , $R_{BE} = 1k\Omega$	-	-	2	mA
		$V_{CE} = 120V$ , $R_{BE} = 1k\Omega$ , $T_C = +150^\circ C$	-	-	10	mA
	$I_{CEO}$	$V_{CE} = 50V$ , $I_B = 0$	-	-	2	mA
Emitter Cutoff Current	$I_{EBO}$	$V_{BE} = 5V$ , $I_C = 0$	-	-	2	mA

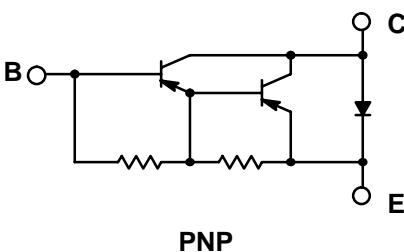
**Electrical Characteristics (Cont'd):** ( $T_C = +25^\circ\text{C}$  unless otherwise specified)

Parameter	Symbol	Test Conditions		Min	Typ	Max	Unit
<b>ON Characteristics (Note 1)</b>							
DC Current Gain	$h_{FE}$	$I_C = 25A$ , $V_{CE} = 5V$		1000	—	18000	
		$I_C = 50A$ , $V_{CE} = 5V$		400	—	—	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 25A$ , $I_B = 250mA$		—	—	2.5	V
		$I_C = 50A$ , $I_B = 500mA$		—	—	3.5	V
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 25A$ , $I_B = 200mA$		—	—	3.0	V
		$I_C = 50A$ , $I_B = 300mA$		—	—	4.5	V

**Note 1.** Pulse Test: Pulse Width  $\leq$  300 $\mu$ s, Duty Cycle  $\leq$  2%.



NPN



PNP

