



ELECTRONICS, INC.

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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°C @ $T_C = +100^\circ C$	1.71W/°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
OFF Characteristics						
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
ON Characteristics (Note 1)						
DC Current Gain	h_{FE}	$I_C = 25\text{A}, V_{CE} = 5\text{V}$	1000	–	18000	
		$I_C = 50\text{A}, V_{CE} = 5\text{V}$	400	–	–	
Collector–Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 25\text{A}, I_B = 250\text{mA}$	–	–	2.5	V
		$I_C = 50\text{A}, I_B = 500\text{mA}$	–	–	3.5	V
Base–Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 25\text{A}, I_B = 200\text{mA}$	–	–	3.0	V
		$I_C = 50\text{A}, I_B = 300\text{mA}$	–	–	4.5	V

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

Schematic Diagram

