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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°C), P_D 300W
  Derate Above 25°C @ T_C = +100°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°C unless otherwise specified)

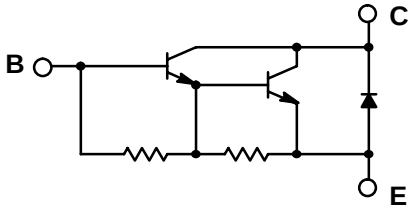
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
OFF Characteristics						
Collector–Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C = 100mA, I_B = 0	120	–	–	V
Collector–Emitter Leakage Current	I_{CER}	V_{CE} = 120V, R_{BE} = 1kΩ	–	–	2	mA
		V_{CE} = 120V, R_{BE} = 1kΩ, T_C = +150°C	–	–	10	mA
	I_{CEO}	V_{CE} = 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°C unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
ON Characteristics (Note 1)						
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 ≤ 300μs, Duty Cycle ≤ 2%.

Schematic Diagram



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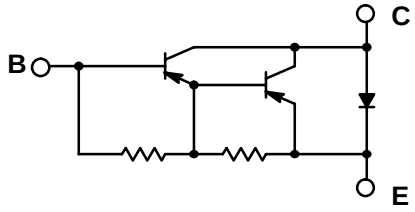

PNP