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NTE249 (NPN) & NTE250 (PNP) Silicon Complementary Transistors Darlington Power Amplifier

Description:

The NTE249 (NPN) and NTE250 (PNP) are silicon complementary Darlington transistors in a TO3 type case designed for use as output devices in complementary general purpose amplifier applications.

Features:

- High DC Current Gain: $h_{FE} = 3500$ Typ @ $I_C = 10A$
- Monolithic Construction with Built-In Base-Emitter Shunt Resistors

Absolute Maximum Ratings:

Collector-Emitter Voltage, V_{CEO}	100V
Collector-Base Voltage, V_{CB}	100V
Emitter-Base Voltage, V_{EB}	5V
Collector Current, I_C	16A
Base Current, I_B	500mA
Total Power Dissipation ($T_C = +25^\circ C$), P_D	150W
Derate Above $25^\circ C$	0.857W/ $^\circ C$
Operating Junction Temperature Range, T_J	-55° to $+200^\circ C$
Storage Temperature Range, T_{stg}	-55° to $+200^\circ C$
Thermal Resistance, Junction-to-Case, R_{thJC}	1.17 $^\circ C/W$

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
OFF Characteristics						
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 100mA, I_B = 0$, Note 1	100	—	—	V
Collector-Emitter Leakage Current	I_{CEO}	$V_{CE} = 50V, I_E = 0$	—	—	3.0	mA
		$V_{CB} = 100V, R_{BE} = 1k\Omega$	—	—	1.0	mA
		$V_{CB} = 100V, R_{BE} = 1k\Omega, T_A = +150^\circ C$	—	—	5.0	mA
Emitter Cutoff Current	I_{EBO}	$V_{BE} = 5V, I_C = 0$	—	—	5.0	mA

Note 1. Pulse Test: Pulse Width = 300 μs , Duty Cycle = 2%

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
ON Characteristics (Note 1)						
DC Current Gain	h_{FE}	$V_{CE} = 3\text{V}, I_C = 10\text{A}$	1000	–	–	
Collector–Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 10\text{A}, I_B = 40\text{mA}$	–	–	2.5	V
		$I_C = 16\text{A}, I_B = 80\text{mA}$	–	–	4.0	V
Base–Emitter Voltage	V_{BE}	$V_{CE} = 3\text{V}, I_C = 10\text{A}$	–	–	3.0	V

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

