

NTE245 (NPN) & NTE246 (PNP) Silicon Complementary Transistors Darlington Power Amplifier

Description:

The NTE245 (NPN) and NTE246 (PNP) are silicon complementary Darlington transistors in a TO3 type case designed for use as output devices in general purpose amplifier applications.

Features:

- High DC Current Gain: $h_{FE} = 4000$ Typ @ $I_C = 5A$
- Monolithic Construction with Built-In Base-Emitter Shunt Resistors

Absolute Maximum Ratings:

Collector-Emitter Voltage, V_{CEO}	80V
Collector-Base Voltage, V_{CB}	80V
Emitter-Base Voltage, V_{EB}	5V
Collector Current, I_C	10A
Base Current, I_B	200mA
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 Sustaining Voltage	$V_{CEO(sus)}$	$I_C = 100mA$, $I_B = 0$, Note 1	80	—	—	V
Collector-Emitter Leakage Current	I_{CEO}	$V_{CE} = 40V$, $I_B = 0$	—	—	1.0	mA
		$V_{EB} = 80V$, $R_{BE} = 1k\Omega$	—	—	1.0	mA
	I_{CER}	$V_{EB} = 80V$, $R_{BE} = 1k\Omega$, $T_C = +150^\circ C$	—	—	5.0	mA
Emitter Cutoff Current	I_{EBO}	$V_{BE} = 5V$, $I_C = 0$	—	—	2.0	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}	$V_{CE} = 3\text{V}, I_C = 5\text{A}$	1000	—	—	
Collector–Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 5\text{A}, I_B = 20\text{mA}$	—	—	2.0	V
		$I_C = 10\text{A}, I_B = 50\text{mA}$	—	—	4.0	V
Base–Emitter Voltage	V_{BE}	$V_{CE} = 3\text{V}, I_C = 5\text{A}$	—	—	3.0	V

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

