

NTE274 (NPN) & NTE275 (PNP) Silicon Complementary Transistors Darlington Power Amplifier, Switch

Description:

The NTE274 (NPN) and NTE275 (PNP) are silicon complementary Darlington transistors in a TO66 type case designed for general purpose amplifier, low-frequency switching and hammer driver applications.

Features:

- High DC Current Gain: $h_{FE} = 3000$ Typ @ $I_C = 2A$
- Low Collector–Emitter Saturation Voltage: $V_{CE(sat)} = 2V$ Max @ $I_C = 2A$
- Collector–Emitter Sustaining Voltage: $V_{CEO(sus)} = 80V$ Min
- 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	
Continuous	4A
Peak	8A
Base Current, I_B	80mA
Total Power Dissipation ($T_C = +25^\circ C$), P_D	50W
Derate Above $25^\circ C$	0.286W/ $^\circ C$
Operating Junction Temperature Range, T_J	-65° to $+200^\circ C$
Storage Temperature Range, T_{stg}	-65° to $+200^\circ C$
Thermal Resistance, Junction–to–Case, R_{thJC}	3.5 $^\circ C/W$

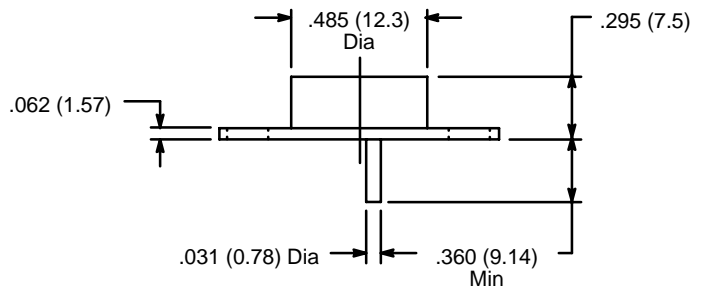
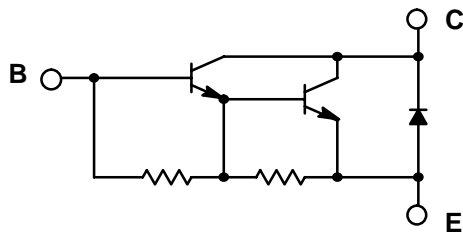
Electrical Characteristics: ($T_C = +25^\circ C$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
OFF Characteristics						
Collector–Emitter Sustaining Voltage	$V_{CEO(sus)}$	$I_C = 50mA, I_B = 0$	80	–	–	V
Collector Cutoff Current	I_{CEO}	$V_{CE} = 40V, I_B = 0$	–	–	0.5	mA
		$V_{CE} = 80V, V_{EB(off)} = 1.5V$	–	–	0.5	mA
	$V_{CB} = 80V, V_{EB(off)} = 1.5V, T_A = +150^\circ C$	–	–	5.0	mA	
Emitter Cutoff Current	I_{EBO}	$V_{BE} = 5V, I_C = 0$	–	–	2.0	mA

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
ON Characteristics						
DC Current Gain	h_{FE}	$V_{CE} = 3\text{V}, I_C = 2\text{A}$	750	–	18000	
		$V_{CE} = 3\text{V}, I_C = 4\text{A}$	100	–	–	
Collector–Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 2\text{A}, I_B = 8\text{mA}$	–	–	2.0	V
		$I_C = 4\text{A}, I_B = 40\text{mA}$	–	–	3.0	V
Base–Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 4\text{A}, I_B = 40\text{mA}$	–	–	4.0	V
Base–Emitter ON Voltage	$V_{BE(on)}$	$V_{CE} = 3\text{V}, I_C = 2\text{A}$	–	–	2.8	V
Dynamic Characteristics						
Magnitude of Common Emitter Small–Signal Short–Circuit Forward Current Transfer Ratio	$ h_{fe} $	$I_C = 1.5\text{A}, V_{CE} = 3\text{V}, f = 1\text{MHz}$	4.0	–	–	
Output Capacitance NTE274	C_{ob}	$V_{CB} = 10\text{V}, I_E = 0, f = 0.1\text{MHz}$	–	–	120	pF
			–	–	200	pF
Small–Signal Current Gain	h_{fe}	$I_C = 1.5\text{A}, V_{CE} = 3\text{V}, f = 1\text{kHz}$	300	–	–	

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