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NTE261 (NPN) & NTE262 (PNP)
Silicon Complementary Transistors
Darlington Power Amplifier

Description:

The NTE261 (NPN) and NTE262 (PNP) are complementary silicon Darlington power transistors in a TO220 type package designed for general purpose amplifier and low–speed switching applications.

Features:

- High DC Current Gain: h_{FE} = 2500 Typ @ I_C = 4A
- Collector–Emitter Sustaining Voltage: $V_{CEO(sus)}$ = 100V Min @ 100mA
- Low Collector–Emitter Saturation Voltage:
  $V_{CE(sat)}$ = 2V Max @ I_C = 3A
  = 4V Max @ I_C = 5A
- Monolithic Construction with Built–In Base–Emitter Shunt Resistor

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
  Continuous 5A
  Peak 8A
Base Current, I_B 120mA
Total Power Dissipation (T_C = +25°C), P_D 65W
  Derate Above 25°C . . . . . 0.52W/°C
Total Power Dissipation (T_A = +25°C), P_D 2W
  Derate Above 25°C . . . . . 0.016W/°C
Unclamped Inductive Load Energy (Note 1), E 50mJ
Operating Junction Temperature range, T_J . . . . . –65° to +150°C
Storage Temperature Range, T_{stg} . . . . . –65° to +150°C
Thermal Resistance, Junction–to–Case, R_{thJC} . . . . . 1.92°C/W
Thermal Resistance, Junction–to–Ambient, R_{thJA} . . . . . 62.5°C/W

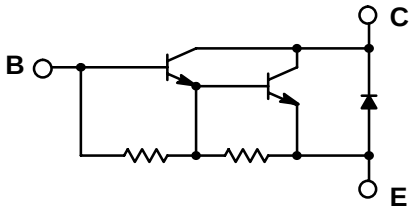
Note 1. I_C = 1A, L = 100mH, P.R.F. = 10Hz, V_{CC} = 20V, R_{BE} = 100Ω.

Electrical Characteristics: (T_C = +25°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 2	100	–	–	V
Collector Cutoff Current	I_{CEO}	V_{CE} = 50V, I_B = 0	–	–	0.5	mA
	I_{CBO}	V_{CB} = 100V, I_E = 0	–	–	0.2	mA
Emitter Cutoff Current	I_{EBO}	V_{BE} = 5V, I_C = 0	–	–	2.0	mA
ON Characteristics (Note 2)						
DC Current Gain	h_{FE}	I_C = 0.5A, V_{CE} = 3V	1000	–	–	
		I_C = 3A, V_{CE} = 3V	1000	–	–	
Collector–Emitter Saturation Voltage	$V_{CE(sat)}$	I_C = 3A, I_B = 12mA	–	–	2.0	V
		I_C = 5A, I_B = 20mA	–	–	4.0	V
Base–Emitter ON Voltage	$V_{BE(on)}$	I_C = 3A, V_{CE} = 3V	–	–	2.5	V
Dynamic Characteristics						
Small–Signal Current Gain	$\|h_{fe}\|$	I_C = 3A, V_{CE} = 4V, f = 1MHz	4.0	–	–	
Output Capacitance NTE261	C_{ob}	V_{CB} = 10V, I_E = 0, f = 0.1MHz	–	–	300	pF
NTE262			–	–	200	pF

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

NTE261



NTE262