ELECTRONICS, INC.
44 FARRAND STREET
BLOOMFIELD, NJ 07003
(973) 748–5089

NTE386
Silicon NPN Transistor
Audio Power Amp, Switch

Description:

The NTE386 is a silicon NPN power transistor in a TO3 type package designed for high voltage, high–speed power switching in inductive circuit where fall time is critical. This device is particularly suited for line operated switchmode applications.

Applications:

- Switching Regulators
- Inverters
- Solenoid and Relay Drivers
- Motor Controls
- Deflection Circuits

Absolute Maximum Ratings:

Collector–Emitter Voltage, $V_{CEO(sus)}$ 500V
Collector–Emitter Voltage, V_{CEV} 800V
Emitter–Base Voltage, V_{EB} 6V
Collector Current, I_C
  Continuous 20A
  Peak (Note 1) 30A
Base Current, I_C
  Continuous 10A
  Peak (Note 1) 30A
Total Power Dissipation (T_C = +100°C), P_D 100W
Total Power Dissipation (T_C = +25°C), P_D 175W
  Derate Above 25°C . . . . . 1.0W/°C
Operating Junction Temperature Range, T_J . . . . . –65° to +200°C
Storage Temperature Range, T_{stg} . . . . . –65° to +200°C
Thermal Resistance, Junction–to–Case, R_{thJC} . . . . . 1.0°C/W
Maximum Lead Temperature (During Soldering, 1/8” from case, 5sec), T_L . . . . . +275°C

Note 1. Pulse Test: Pulse Width = 5ms, Duty Cycle ≤ 10%.

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	500	–	–	V
Collector Cutoff Current	I_{CEV}	V_{CEV} = 800V, $V_{EB(off)}$ = 1.5V	–	–	0.25	mA
	I_{CER}	V_{CE} = 800V, R_{BE} = 50Ω, T_C = +100°C	–	–	5.0	mA
Emitter Cutoff Current	I_{EBO}	V_{BE} = 6V, I_C = 0	–	–	1.0	mA
ON Characteristics (Note 2)						
DC Current Gain	h_{FE}	V_{CE} = 5V, I_C = 5A	10	–	60	
Collector–Emitter Saturation Voltage	$V_{CE(sat)}$	I_C = 10A, I_B = 2A	–	–	1.8	V
		I_C = 20A, I_B = 6.7A	–	–	5.0	V
Base–Emitter Saturation Voltage	$V_{BE(sat)}$	I_C = 10A, I_B = 2A	–	–	1.8	V
Dynamic Characteristics						
Output Capacitance	C_{cb}	V_{CB} = 10V, I_E = 0, f_{test} = 1kHz	125	–	500	pF
Switching Characteristics (Resistive Load)						
Dealy Time	t_d	V_{CC} = 250V, I_C = 10A, I_{B1} = 2A, $V_{BE(off)}$ = 5V, t_p = 10μs, Duty Cycle ≤ 2%	–	0.02	0.1	μs
Rise Time	t_r		–	0.3	0.7	μs
Storage Time	t_s		–	1.6	4.0	μs
Fall Time	t_f		–	0.3	0.7	μs

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