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

NTE2305 (NPN) & NTE2306 (PNP)
Silicon Complementary Transistors
High Voltage Power Amplifier

Description:

The NTE2305 (NPN) and NTE2306 (PNP) are silicon complementary transistors in a TO218 type package designed for use in high power audio amplifier applications and high voltage switching regulator circuits.

Features:

- High Collector–Emitter Sustaining Voltage: $V_{CEO(sus)}$ = 160V
- High DC Current Gain: h_{FE} = 35 Typ @ I_C = 8A
- Low Collector–Emitter Saturation Voltage: $V_{CE(sat)}$ = 2V Max @ I_C = 8A

Absolute Maximum Ratings:

Collector–Emitter Voltage, V_{CEO} 160V
Collector–Base Voltage, V_{CB} 160V
Emitter–Base Voltage, V_{EB} 70V
Collector Current, I_C
  Continuous 16A
  Peak (Note 1) 20A
Continuous Base Current, I_B 5A
Power Dissipation (T_C = +25°C), P_D 125W
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°C/W

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

Electrical Charactertistics: (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 = 200mA, I_B = 0, Note 2	160	–	–	V
Collector–Emitter Cutoff Current	I_{CEX}	V_{CE} = 160V, $V_{EB(off)}$ = 1.5V	–	–	0.1	mA
		V_{CE} = 160V, $V_{EB9off)}$ = 1.5V, T_C = +150°C	–	–	5.0	mA
	I_{CEO}	V_{CE} = 80V, I_B = 0	–	–	750	µA
Emitter–Base Cutoff Current	I_{EBO}	V_{BE} = 7V, I_C = 0	–	–	1.0	mA
Collector–Base Cutoff Current	I_{CBO}	V_{CB} = 160V, I_E = 0	–	–	750	µA

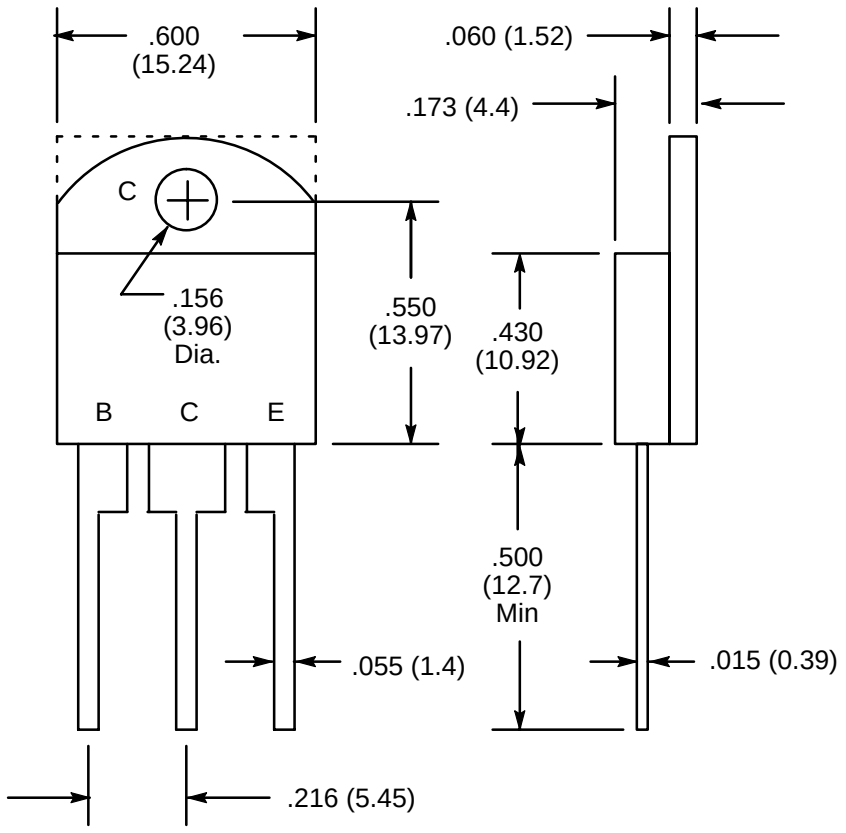
Note 2. Pulse Test: Pulse Width ≤ 300µs, Duty Cycle ≥ 2%.

Electrical Charactertistics (Cont'd): (T_C = +25°C unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
ON Characteristics (Note 2)						
DC Current Gain	h_{FE}	V_{CE} = 2V, I_C = 8A	15	35	–	
		V_{CE} = 4V, I_C = 16A	8	15	–	
Collector–Emitter Saturation Voltage	$V_{CE(sat)}$	I_C = 8A, I_B = 0.8A	–	–	2.0	V
		I_C = 16A, I_B = 2A	–	–	3.5	V
Base–Emitter Saturation Voltage	$V_{BE(sat)}$	I_C = 16A, I_B = 2A	–	–	3.9	V
Base–Emitter ON Voltage	$V_{BE(on)}$	V_{CE} = 4V, I_C = 16A	–	–	3.9	V
Dynamic Characteristics						
Current–Gain Bandwidth Product	f_T	V_{CE} = 20V, I_C = 1A, f = 0.5MHz, Note 3	1.0	–	–	MHz
Output Capacitance	C_{ob}	V_{CB} = 10V, I_E = 0, f = 0.1MHz	–	–	800	pF

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

Note 3. $f_T = |h_{FE}| \bullet f_{test}$.



NOTE: Dotted line indicates that case may have square corners