

NTE390 (NPN) & NTE391 (PNP) Silicon Complementary Transistors General Purpose

Description:

The NTE390 (NPN) and NTE391 (PNP) are silicon complementary transistors in a TO218 type package designed for general purpose power amplifier and switching applications.

Features:

- 10A Collector Current
- Low Leakage Current: $I_{CEO} = 0.7\text{mA}$ @ $V_{CE} = 60\text{V}$
- Excellent DC Gain: $h_{FE} = 40$ Typ @ 3A
- High Current Gain Bandwidth Product: $h_{fe} = 3$ Min @ $I_C = 500\text{mA}$, $f = 1\text{MHz}$

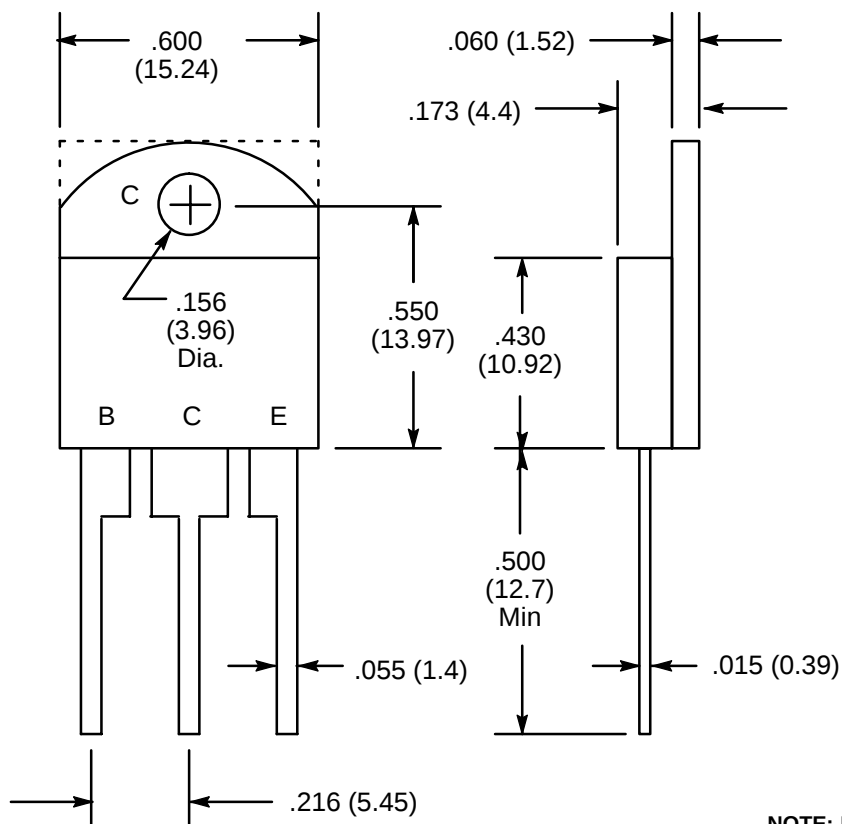
Absolute Maximum Ratings:

Collector–Emitter Voltage, V_{CEO}	100V
Collector–Base Voltage, V_{CB}	100V
Emitter–Base Voltage, V_{EB}	5V
Collector Current, I_C	
Continuous	10A
Peak (Note 1)	15A
Continuous Base Current, I_B	3A
Total Power Dissipation ($T_C = +25^\circ\text{C}$), P_D	80W
Derate Above 25°C	0.64W/ $^\circ\text{C}$
Operating Junction Temperature Range, T_J	-65° to $+150^\circ\text{C}$
Storage Temperature Range, T_{stg}	-65° to $+150^\circ\text{C}$
Thermal Resistance, Junction–to–Case, R_{thJC}	1.56 $^\circ\text{C/W}$
Thermal Resistance, Junction–to–Ambient, R_{thJA}	35.7 $^\circ\text{C/W}$

Note 1. Pulse Test: Pulse Width = 10ms, Duty Cycle $\leq 10\%$.

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
OFF Characteristics						
Collector–Emitter Sustaining Voltage	V _{CEO(sus)}	I _C = 30mA, I _B = 0, Note 2	100	–	–	V
Collector–Emitter Cutoff Current	I _{CEO}	V _{CE} = 60V, I _B = 0	–	–	0.7	mA
	I _{CES}	V _{CE} = 100V, V _{EB} = 0	–	–	0.4	mA
Emitter–Base Cutoff Current	I _{EBO}	V _{EB} = 5V, I _C = 0	–	–	1	mA
ON Characteristics (Note 2)						
DC Current Gain	h _{FE}	I _C = 1A, V _{CE} = 4V	40	–	–	
		I _C = 3A, V _{CE} = 4V	20	–	100	
Collector–Emitter Saturation Voltage	V _{CE(sat)}	I _C = 3A, I _B = 0.3A	–	–	1	V
		I _C = 10A, I _B = 2.5A	–	–	4	V
Base–Emitter ON Voltage	V _{BE(on)}	I _C = 3A, V _{CE} = 4V	–	–	1.6	V
		I _C = 10A, V _{CE} = 4V	–	–	3.0	V
Dynamic Characteristics						
Small–Signal Current Gain	h _{fe}	I _C = 0.5A, V _{CE} = 10V, f = 1kHz	20	–	–	
Current–Gain Bandwidth Product	f _T	I _C = 0.5A, V _{CE} = 10V, f = 1MHz, Note 3	3	–	–	MHz

Note 2. Pulse Test: Pulse Width = $300\mu\text{s}$, Duty Cycle $\leq 2\%$.Note 3. $f_T = |h_{fe}| \cdot f_{\text{test}}$ **NOTE:** Dotted line indicates that case may have square corners