



ELECTRONICS, INC.  
 44 FARRAND STREET  
 BLOOMFIELD, NJ 07003  
 (973) 748-5089  
<http://www.nteinc.com>

## NTE16007 Silicon NPN Transistor General Purpose for Medium Power Applications

**Description:**

The NTE16007 is a silicon NPN diffused-junction power transistor in a TO8 type package intended for a wide variety of applications in industrial and military equipment. This device is particularly useful in power-switching circuits such as in DC-to-DC converters, inverters, choppers, solenoid and relay controls; and as class A and class B push-pull audio and servo amplifiers.

**Absolute Maximum Ratings:**

Collector-to -Emitter Voltage, $V_{CEO}$ .....	55V
Collector-to-Base Voltage, $V_{CBO}$ .....	100V
Emitter-to-Base Voltage, $V_{EBO}$ .....	12V
Continuous Collector Current, $I_C$ .....	3A
Total Power Dissipation, $P_T$	
$T_A = +25^\circ\text{C}$ .....	25W
Derate Linearly Above $+25^\circ\text{C}$ .....	0.010W/ $^\circ\text{C}$
$T_C = +25^\circ\text{C}$ .....	14.1W
Derate Linearly Above $+25^\circ\text{C}$ .....	0.143W/ $^\circ\text{C}$
Operating Temperature Range, $T_{opr}$ .....	-65 to $+200^\circ\text{C}$
Storage Temperature Range, $T_{stg}$ .....	-65 to $+200^\circ\text{C}$

**Electrical Characteristics:**

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
<b>OFF Characteristics</b>						
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 100\text{mA}$	55	-	-	V
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = 100\mu\text{A}$	100	-	-	V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEX}$	$V_{EB} = 1.5\text{V}, I_C = 0.25\text{mA}$	100	-	-	V
Collector-Base Cutoff Current	$I_{CBO}$	$V_{CB} = 50\text{V}$	-	-	15	$\mu\text{A}$
Emitter-Base Cutoff Current	$I_{EBO}$	$V_{EB} = 12\text{V}$	-	-	15	$\mu\text{A}$
<b>ON Characteristics (Note 1)</b>						
Forward-Current Transfer Ratio	$h_{FE}$	$V_{CE} = 4\text{V}, I_C = 750\text{mA}$	35	-	100	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 750\text{mA}, I_B = 40\text{mA}$	-	-	0.75	V

Note 1. Pulse Test: Pulse Width = 300 $\mu\text{s}$ , Duty Cycle = 2.0%.

**Electrical Characteristics (Con't):**

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
<b>Dynamic Characteristics</b>						
Forward Current Transfer Ratio	$f_{hfb}$	$V_{CB} = 28V, I_C = 5mA$	600	-	-	kHz
Output Capacitance	$C_{obo}$	$V_{CB} = 10V, I_E = 0, f = 100kHz \text{ to } 1MHz$	-	-	400	pF
<b>Switching Characteristics</b>						
Turn-On Time	$t_{on} + t_{off}$	$V_{CC} = 12V, R_C = 15.9\Omega, I_{B0} = I_{B2} = 35mA, I_{B1} = 65mA$	-	-	25	$\mu s$

