

NTE210 (NPN) & NTE211 (PNP) Silicon Complementary Transistors General Purpose Output & Driver

Description:

The NTE210 (NPN) and NTE211 (PNP) are silicon complementary transistors in a TO202 type package designed for general purpose, medium voltage, medium power amplifier and driver applications such as series, shunt and switching regulators, and low and high frequency inverters and converters.

Features:

- TO202 Type Package: 2W Free Air Dissipation @ $T_A = +25^\circ\text{C}$

Absolute Maximum Ratings:

Collector–Emitter Voltage, V_{CEO}	75V
Collector–Emitter Voltage, V_{CES}	90V
Emitter–Base Voltage, V_{EBO}	5V
Collector Current, I_C	
Continuous	1A
Peak (Note 1)	2A
Total Power Dissipation ($T_A = +25^\circ\text{C}$, Note 2), P_D	1.67W
Derate Above 25°C	13.3mW/ $^\circ\text{C}$
Total Power Dissipation ($T_C = +25^\circ\text{C}$), P_D	6.25W
Derate Above 25°C	50mW/ $^\circ\text{C}$
Operating Junction Temperature Range, T_J	-55° to $+150^\circ\text{C}$
Storage Temperature Range, T_{stg}	-55° to $+150^\circ\text{C}$
Lead Temperature (During Soldering, 1/16" from case, 10sec), T_L	$+260^\circ\text{C}$
Maximum Thermal Resistance, Junction–to–Ambient, R_{thJA}	75 $^\circ\text{C}/\text{W}$
Maximum Thermal Resistance, Junction–to–Case, R_{thJC}	20 $^\circ\text{C}/\text{W}$

Note 1. Pulse Test: Pulse Width $\leq 300\mu\text{s}$.

Note 2. The actual power dissipation capability of the TO202 type package is 2W @ $T_A = +25^\circ\text{C}$.

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
OFF Characteristics						
Collector–Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 10\text{mA}$, $I_B = 0$	75	–	–	V
Collector Cutoff Current	I_{CES}	$V_{CE} = 90\text{V}$	–	–	100	nA
Emitter Cutoff Current	I_{EBO}	$V_{EB} = 5\text{V}$	–	–	100	nA

Electrical Characteristics (Cont'd): ($T_A = +25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
ON Characteristics (Note 3)						
DC Current Gain	h_{FE}	$I_C = 100\text{mA}, V_{CE} = 2\text{V}$	120	–	360	
		$I_C = 1\text{A}, V_{CE} = 2\text{V}$	10	–	–	
Collector–Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 500\text{mA}, I_B = 50\text{mA}$	–	–	1.0	V
Base–Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 500\text{mA}, I_B = 50\text{mA}$	–	–	1.5	V
Dynamic Characteristics						
Current–Gain Bandwidth Product	f_T	$I_C = 20\text{mA}, V_{CE} = 10\text{V}, f = 20\text{MHz}$	75	–	375	MHz
Collector–Base Capacitance NTE210	C_{cb}	$V_{CB} = 20\text{V}, I_E = 0, f = 1\text{MHz}$	–	–	12	pF
NTE211			–	–	18	pF

Note 3. Pulse Test: Pulse Width $\leq 300\mu\text{s}$, Duty Cycle $\leq 2\%$.

