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NTE287H (NPN) & NTE288H (PNP) Silicon Complementary Transistors High Voltage, General Purpose Amplifier

Absolute Maximum Ratings: ($T_A = +25^\circ\text{C}$, unless otherwise specified)

Collector–Emitter Voltage, V_{CEO}	350V
Collector–Base Voltage, V_{CBO}	350V
Emitter–Base Voltage, V_{EBO}	
NTE287H	6V
NTE288H	5V
Continuous Collector Current, I_C	500mA
Collector Power Dissipation, P_C	625mW
Derate Above $+25^\circ\text{C}$	5mW/ $^\circ\text{C}$
Operating Junction Temperature, T_J	$+150^\circ\text{C}$
Storage Temperature Range, T_{stg}	-55° to $+150^\circ\text{C}$

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector–Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 1\text{mA}$, $I_B = 0$, Note 1	350	–	–	V
Collector–Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = 100\mu\text{A}$, $I_E = 0$	350	–	–	V
Emitter–Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = 10\mu\text{A}$, $I_C = 0$	6	–	–	V
NTE287H						
NTE288H			5	–	–	V
Collector Cutoff Current	I_{CBO}	$V_{CB} = 250\text{V}$, $I_E = 0$	–	–	50	nA
Emitter Cutoff Current	I_{EBO}	$V_{EB} = 5\text{V}$, $I_C = 0$	–	–	50	μA
NTE287						
NTE288		$V_{EB} = 4\text{V}$, $I_C = 0$	–	–	50	μA

Note 1. Pulse Test: Pulse Width $\leq 300\mu\text{s}$, Duty Cycle $\leq 2\%$.

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit	
DC Current Gain	h_{FE}	$I_C = 1\text{mA}$	$V_{CE} = 10\text{V}$, Note 1	20	-	-	
		$I_C = 10\text{mA}$		30	-	-	
		$I_C = 30\text{mA}$		30	-	200	
		$I_C = 50\text{mA}$		20	-	200	
		$I_C = 100\text{mA}$		15	-	-	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 10\text{mA}, I_B = 1\text{mA}$	-	-	0.3	V	
		$I_C = 20\text{mA}, I_B = 2\text{mA}$	-	-	0.35	V	
		$I_C = 30\text{mA}, I_B = 3\text{mA}$	-	-	0.5	V	
		$I_C = 50\text{mA}, I_B = 5\text{mA}$	-	-	1	V	
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 10\text{mA}, I_B = 1\text{mA}$	-	-	0.75	V	
		$I_C = 20\text{mA}, I_B = 2\text{mA}$	-	-	0.85	V	
		$I_C = 30\text{mA}, I_B = 3\text{mA}$	-	-	0.9	V	
Output Capacitance	C_{ob}	$V_{CB} = 20\text{V}, I_E = 0, f = 1\text{MHz}$	-	-	6	pF	
Base-Emitter On Voltage	$V_{BE(on)}$	$V_{CE} = 10\text{V}, I_C = 100\text{mA}$	-	-	2	V	
Current Gain Bandwidth Product	f_T	$I_C = 10\text{mA}, V_{CE} = 20\text{V}, f = 20\text{MHz}$, Note 1	40	-	200	MHz	

The Following Parameters apply ONLY to the NTE288H

Emitter-Base Capacitance	C_{EB}	$V_{EB} = -0.5\text{V}, I_C = 0, f = 1\text{MHz}$	-	-	100	pF
Turn On Time	t_{ON}	$V_{BE(off)} = 2\text{V}, V_{CC} = 100\text{V}$, $I_C = 50\text{mA}, I_{B1} = 10\text{mA}$	-	-	200	ns
Turn Off Time	t_{OFF}	$V_{CC} = 100\text{V}, I_C = 50\text{mA}$, $I_{B1} = I_{B2} = 10\text{mA}$	-	-	3.5	ns

Note 1. Pulse Test: Pulse Width $\leq 300\mu\text{s}$, Duty Cycle $\leq 2\%$.

