

## NTE287 (NPN) & NTE288 (PNP) Silicon Complementary Transistors High Voltage, General Purpose Amplifier

**Absolute Maximum Ratings:**

Collector–Emitter Voltage, $V_{CEO}$ .....	300V
Collector–Base Voltage, $V_{CBE}$ .....	300V
Emitter–Base Voltage, $V_{EBO}$	
NTE287 .....	6V
NTE288 .....	5V
Continuous Collector Current, $I_C$ .....	500mA
Total Device Dissipation @ $T_A = +25^\circ\text{C}$ , $P_D$ .....	625mW
Derate Above $+25^\circ\text{C}$ .....	5mW/ $^\circ\text{C}$
Total Device Dissipation @ $T_C = +25^\circ\text{C}$ , $P_D$ .....	1.5W
Derate Above $+25^\circ\text{C}$ .....	12mW/ $^\circ\text{C}$
Operating Junction Temperature Range, $T_J$ .....	$-55^\circ$ to $+150^\circ\text{C}$
Storage Temperature Range, $T_{stg}$ .....	$-55^\circ$ to $+150^\circ\text{C}$
Thermal Resistance, Junction–to–Ambient, $R_{thJA}$ .....	200 $^\circ\text{C}/\text{mW}$
Thermal Resistance, Junction–to–Case, $R_{thJC}$ .....	83.3 $^\circ\text{C}/\text{mW}$

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
<b>OFF Characteristics</b>						
Collector–Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 1\text{mA}$ , $I_B = 0$ , Note 1	300	–	–	V
Collector–Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = 100\mu\text{A}$ , $I_E = 0$	300	–	–	V
Emitter–Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = 100\mu\text{A}$ , $I_C = 0$	6	–	–	V
NTE287			5	–	–	V
Collector Cutoff Current	$I_{CBO}$	$V_{CB} = 200\text{V}$ , $I_E = 0$	–	–	0.1	$\mu\text{A}$
NTE287			–	–	0.25	$\mu\text{A}$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB} = 6\text{V}$ , $I_C = 0$	–	–	0.1	$\mu\text{A}$
NTE287			–	–	0.1	$\mu\text{A}$
NTE288		$V_{EB} = 3\text{V}$ , $I_C = 0$	–	–	0.1	$\mu\text{A}$

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	
<b>ON Characteristics (Note 1)</b>							
DC Current Gain NTE287 & NTE288	$h_{FE}$	$I_C = 1\text{mA}, V_{CE} = 10\text{V}$	25	-	-		
		$I_C = 10\text{mA}, V_{CE} = 10\text{V}$	40	-	-		
		$I_C = 30\text{mA}, V_{CE} = 10\text{V}$	NTE287	40	-	-	
			NTE288	25	-	-	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 20\text{mA}, I_B = 2\text{mA}$	-	-	0.5	V	
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 20\text{mA}, I_B = 2\text{mA}$	-	-	0.9	V	
<b>Small-Signal Characteristics</b>							
Current Gain – Bandwidth Product	$f_T$	$I_C = 10\text{mA}, V_{CE} = 20\text{V}, f = 100\text{MHz}$	50	-	-	MHz	
Collector-Base Capacitance NTE287	$C_{cb}$	$V_{CB} = 20\text{V}, I_E = 0, f = 1\text{MHz}$	-	-	3	pF	
			NTE288	-	-	6	pF

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

