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## NTE2361 (NPN) & NTE2362 (PNP) Silicon Complementary Transistors High Speed Switch

### Description:

The NTE2361 (NPN) and NTE2362 (PNP) complimentary silicon transistors are designed for general-purpose amplifier and high speed switching applications. The high gain of these devices makes it possible for them to be driven directly from integrated circuits.

### Features:

- Very Small-Sized Package
- High Breakdown Voltage:  $V_{CEO} = 50V$

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

Collector-Base Voltage, $V_{CBO}$ .....	60V
Collector-Emitter Voltage, $V_{CEO}$ .....	50V
Emitter-Base Voltage, $V_{EBO}$ .....	5V
Collector Current, $I_C$	
Continuous .....	500mA
Peak .....	800mA
Collector Dissipation, $P_C$ .....	300mW
Operating Junction Temperature Range, $T_J$ .....	$-55^{\circ}$ to $+150^{\circ}C$
Storage Temperature Range, $T_{stg}$ .....	$-55^{\circ}$ to $+150^{\circ}C$

Note 1. For PNP device (NTE2362), voltage and current values are negative.

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit	
Collector Cutoff Current	$I_{CBO}$	$V_{CB} = 40Vdc, I_E = 0$	-	-	0.1	$\mu A$	
Emitter Cutoff Current	$I_{EBO}$	$V_{BE} = 4Vdc$	-	-	0.1	$\mu A$	
DC Current Gain	$h_{FE}$	$V_{CE} = 5V, I_C = 10mA$	200	-	400		
Gain Bandwidth Product	$f_T$	$V_{CE} = 10V,$ $I_C = 50mA$	NTE2361	-	200	-	MHz
			NTE2362	-	300	-	MHz

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit	
Output Capacitance	$C_{ob}$	$V_{CB} = 10\text{Vdc}$ , $f = 1\text{MHz}$	NTE2361	–	5.6	–	pF
			NTE2362	–	3.7	–	pF
Collector–Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 100\text{mA}$ , $I_B = 10\text{mA}$	NTE2361	–	0.15	0.4	V
			NTE2362	–	0.1	0.3	V
Base–Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 100\text{mA}$ , $I_B = 10\text{mA}$	–	0.8	1.2	V	
Collector–Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = 10\mu\text{A}$ , $I_E = 0$	60	–	–	V	
Collector–Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 100\mu\text{A}$ , $R_{BE} = \infty$	50	–	–	V	
Emitter–Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = 10\mu\text{A}$ , $I_C = \infty$	5	–	–	V	
Rise Time	$t_{on}$	$V_{CC} = 20\text{V}$ , $I_C = 100\text{mA}$ , $I_{B1} = 10\text{mA}$ , $I_{B2} = 100\text{mA}$	–	70	–	ns	
Storage Time	$t_{stg}$		–	400	–	ns	
Fall Time	$t_f$		NTE2361	–	50	–	ns
		NTE2362	–	70	–	ns	

Note 1. For PNP device (NTE2362), voltage and current values are negative.

Note 2. Conditions apply to both except where noted.

