

NTE2369 (NPN) & NTE2370 (PNP) Silicon Complementary Transistors Digital ^{w/2} Built-In 4.7k Bias Resistors

Features:

- Built-In Bias Resistor ($R_1 = 4.7k\Omega$, $R_2 = 4.7k\Omega$)
- Small-Sized Package (TO92 type)

Applications:

- Switching Circuit
- Inverter
- Interface Circuit
- Driver

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

Collector to Base Voltage, V_{CBO}	50V
Collector to Emitter Voltage, V_{CEO}	50V
Emitter to Base Voltage, V_{EBO}	10V
Collector Current, I_C	
Continuous	100mA
Peak	200mA
Collector Dissipation, P_C	
NTE2369	300mW
NTE2370	200mW
Operating Junction Temperature, T_J	+150°C
Storage Temperature Range, T_{stg}	-55° to +160°C

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector Cutoff Current	I_{CBO}	$V_{CB} = 40V$, $I_E = 0$	—	—	0.1	μA
	I_{CEO}	$V_{CE} = 40V$, $I_B = 0$	—	—	0.5	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB} = 5V$, $I_C = 0$	170	250	330	μA
DC Current Gain	h_{FE}	$V_{CE} = 5V$, $I_C = 10mA$	80	—	—	
Current Gain–Bandwidth Product NTE2369	f_T	$V_{CE} = 10V$, $I_C = 5mA$	—	250	—	MHz
NTE2370			—	200	—	MHz
Output Capacitance	C_{ob}	$V_{CB} = 10V$, $f = 1MHz$	—	3.0	—	pF

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector–Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 5\text{mA}$, $I_B = 0.25\text{mA}$	–	0.1	0.3	V
Collector–Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = 10\mu\text{A}$, $I_E = 0$	50	–	–	V
Collector–Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 100\mu\text{A}$, $R_{BE} = \infty$	50	–	–	V
Input OFF Voltage	$V_{I(off)}$	$V_{CE} = 5\text{V}$, $I_C = 100\mu\text{A}$	0.5	–	0.8	V
Input ON Voltage	$V_{I(on)}$	$V_{CE} = 200\text{mV}$, $I_C = 5\text{mA}$	0.7	–	1.3	V
Input Resistance	R_1		3.29	4.7	6.11	$\text{k}\Omega$
Input Resistance Ratio	R_1/R_2		0.09	0.1	0.11	

Schematic Diagram

