



**ELECTRONICS, INC.**  
 44 FARRAND STREET  
 BLOOMFIELD, NJ 07003  
 (973) 748-5089

## NTE2416 (NPN) & NTE2417 (PNP) Silicon Complementary Transistors Digital <sup>w/2</sup> Built-In Bias 22k Resistors (Surface Mount)

**Features:**

- Built-In Bias Resistors
- Small SOT-23 Surface Mount Package

**Applications:**

- Switching Circuits
- Inverters
- Interface Circuits
- Driver

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

Collector-Base Voltage, $V_{CBO}$ .....	50V
Collector-Emitter Voltage, $V_{CEO}$ .....	50V
Emitter-Base Voltage, $V_{EBO}$ .....	10V
Collector Current, $I_C$	
Continuous .....	100mA
Peak .....	200mA
Collector Dissipation, $P_C$ .....	200mW
Operating Junction Temperature, $T_J$ .....	+150°C
Storage Temperature Range, $T_{stg}$ .....	-55° to +150°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	$\mu A$
	$I_{CEO}$	$V_{CE} = 40V, I_B = 0$	-	-	0.5	$\mu A$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB} = 5V, I_C = 0$	70	113	150	$\mu A$
DC Current Gain	$h_{FE}$	$V_{CE} = 5V, I_C = 10mA$	50	-	-	
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = 10\mu A, I_E = 0$	50	-	-	V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 100\mu A, R_{BE} = \infty$	50	-	-	V
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 10mA, I_B = 0.5mA$	-	0.1	0.3	V
Current Gain-Bandwidth Product NTE2416	$f_T$	$V_{CE} = 10V, I_C = 5mA$	-	250	-	MHz
			NTE2417	-	200	-

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Output Capacitance NTE2416	$C_{ob}$	$V_{CB} = 10\text{V}, f = 1\text{MHz}$	-	3.5	-	pF
NTE2417			-	5.3	-	pF
Input OFF Voltage	$V_{I(off)}$	$V_{CE} = 5\text{V}, I_C = 100\mu\text{A}$	0.8	1.1	1.5	V
Input ON Voltage	$V_{I(on)}$	$V_{CE} = 0.2\text{V}, I_C = 10\text{mA}$	1.0	1.9	3.0	V
Input Resistance	$R_1$		15	22	29	k $\Omega$
Input Resistance Ratio	$R_1/R_2$		0.9	1.0	1.1	

