



ELECTRONICS, INC.  
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## NTE2414 (NPN) & NTE2415 (PNP) Silicon Complementary Transistors Digital <sup>w/2</sup> Built-In Bias 10k 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)

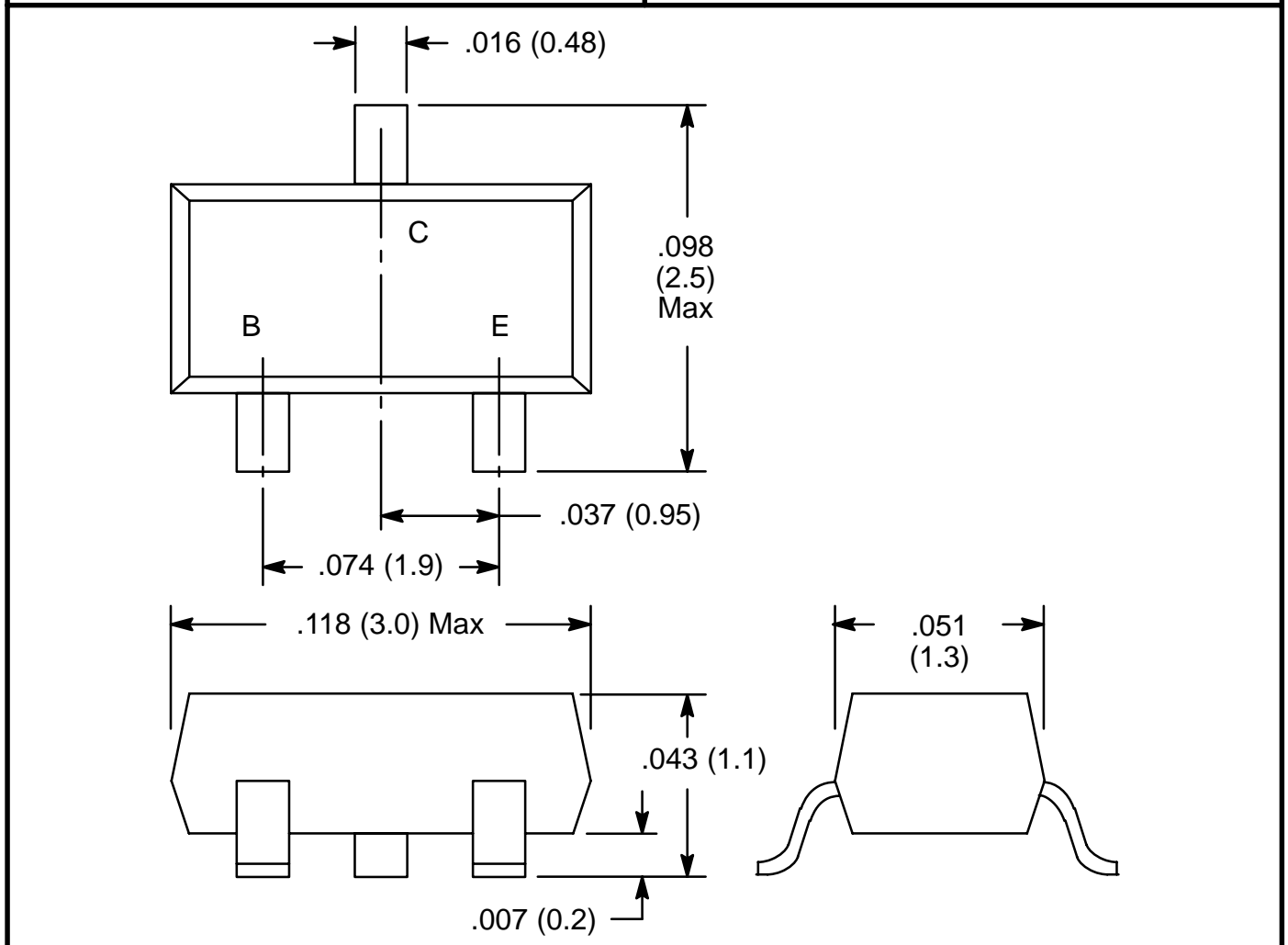
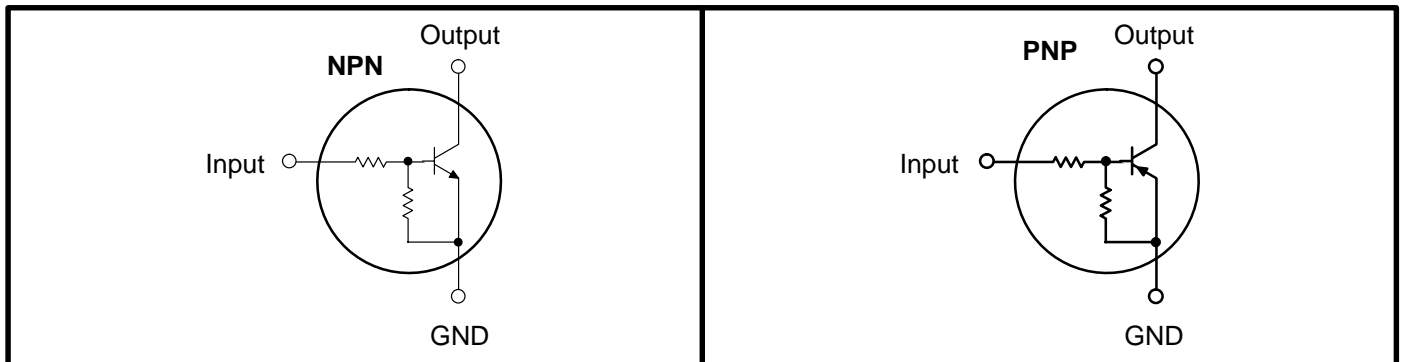
Collector-Base Voltage, $V_{CBO}$ .....	50V
Collector-Emitter Voltage, $V_{CEO}$ .....	50V
Emitter-Base Voltage, $V_{EBO}$ .....	10V
Collector Current, $I_C$	
Continuous .....	100mA
Peak .....	200mA
Collector Dissipation, $P_C$ .....	200mW
Operating Junction Temperature, $T_J$ .....	+150°C
Storage Temperature 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	$\mu\text{A}$
	$I_{CEO}$	$V_{CE} = 40V, I_B = 0$	-	-	0.5	$\mu\text{A}$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB} = 5V, I_C = 0$	170	250	330	$\mu\text{A}$
DC Current Gain	$h_{FE}$	$V_{CE} = 5V, I_C = 10\text{mA}$	50	-	-	
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
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 10\text{mA}, I_B = 0.5\text{mA}$	-	0.1	0.3	V
Current Gain-Bandwidth Product NTE2414	$f_T$	$V_{CE} = 10V, I_C = 5\text{mA}$	-	250	-	MHz
			-	200	-	MHz
NTE2415						

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Output Capacitance NTE2414	$C_{ob}$	$V_{CB} = 10\text{V}, f = 1\text{MHz}$	-	3.5	-	pF
NTE2415			-	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	2.0	4.0	V
Input Resistance	$R_1$		7	10	13	k $\Omega$
Input Resistance Ratio	$R_1/R_2$		0.9	1.0	1.1	



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