ELECTRONICS, INC.
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NTE2357 (NPN) & NTE2358 (PNP)
Silicon Complementary Transistors
Digital W/2 Built–In 22k Bias Resistors

Features:

- Built–In Bias Resistor (R_1 = 22kΩ, R_2 = 22kΩ)
- Small–Sized Package (TO92 type)

Applications:

- Switching Circuit
- Inverter
- Interface Circuit
- Driver

Absolute Maximum Ratings: (T_A = +25°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 300mW
Operating Junction Temperature, T_J . . . . . +150°C
Storage Temperature Range, T_{stg} . . . . . –55° to +160°C

Electrical Characteristics: (T_A = +25°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	70	113	150	μA
DC Current Gain	h_{FE}	V_{CE} = 5V, I_C = 5mA	50	–	–	
Gain Band–width Product NTE2357	f_T	V_{CE} = 10V, I_C = 5mA	–	250	–	MHz
NTE2358			–	200	–	MHz
Output Capacitance NTE2357	C_{ob}	V_{CB} = 10V, f = 1MHz	–	3.7	–	pF
NTE2358			–	5.5	–	pF

Electrical Characteristics (Cont'd): (T_A = +25°C unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector–Emitter Saturation Voltage	$V_{CE(sat)}$	I_C = 10mA, I_B = 0.5mA	–	0.1	0.3	V
Collector–Base Breakdown Voltage	$V_{(BR)CBO}$	I_C = 10μA, I_E = 0	50	–	–	V
Collector–Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C = 100μA, R_{BE} = ∞	50	–	–	V
Input OFF Voltage	$V_{I(off)}$	V_{CE} = 5V, I_C = 100μA	0.8	1.1	1.5	V
Input ON Voltage	$V_{I(on)}$	V_{CE} = 200mV, I_C = 5mA	1.0	1.9	3.0	V
Input Resistance	R_1		15	22	29	kΩ
Input Resistance Ratio	R_1/R_2		0.9	1.0	1.1	

Schematic Diagram