

NTE2073 Integrated Circuit Transistor Array ^w/Clamp Diode and Strobe

Description:

The NTE2073 is a 6–Channel sink driver consisting of 12 NPN transistors to form high current gain driver pairs.

Each input has a diode and 20k Ω resistor in series to allow a negative voltage input. All inputs can be controlled simultaneously by a strobe input at Pin1.

The power supply of the predrivers is connected to Pin16. All emitters and the substrate are connected together to Pin8. Each output has an integral diode for inductive load transient suppression and the cathodes of the diodes are connected to Pin9.

The outputs are capable of sinking 320mA and will withstand 20V in the OFF state.

Absolute Maximum Ratings: ($T_A = -20^\circ$ to $+75^\circ\text{C}$ unless otherwise specified)

Supply Voltage, V_{CC}	10V
Output Sustaining Voltage (Transistor OFF), V_{CEO}	–0.5V to +20V
Collector Current (Transistor ON), I_C	320mA
Input Voltage, V_I	–25V to +20V
Strobe Input Voltage, $V_{I(STB)}$	20V
Clamp Diode Reverse Voltage, $V_{R(D)}$	20V
Clamp Diode Forward Current, $I_{F(D)}$	320mA
Power Dissipation ($T_A = +25^\circ\text{C}$), P_d	1.47W
Operating Ambient Temperature Range, T_{opr}	–20° to +75°C
Storage Temperature Range, T_{stg}	–55° to +125°C

Recommended Operational Conditions: ($T_A = -20^\circ$ to $+75^\circ\text{C}$, unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Supply Voltage	V_{CC}		3	–	8	V
Output Voltage	V_O		0	–	20	V
Collector Current (Per Channel)	I_C	Percent Duty Cycle less than 25%, $V_{CC} = 5.5\text{V}$	0	–	300	mA
		Percent Duty Cycle less than 85%, $V_{CC} = 6.5\text{V}$	0	–	150	
“H” Input Voltage	V_{IH}	$I_C = 300\text{mA}$	7	–	18	V
		$I_C = 150\text{mA}$	5	–	18	

Recommended Operational Conditions (Cont'd): ($T_A = -20^{\circ}$ to $+75^{\circ}\text{C}$, unless otherwise noted)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
"L" Input Voltage	V_{IL}	$I_C = 50\mu\text{A}$	0	—	1	V
"H" Input Voltage (Strobe Input)	$V_{IH(STB)}$		2.4	—	18	V
"L" Input Voltage (Strobe Input)	$V_{IL(STB)}$		0	—	0.2	V

Electrical Characteristics: ($T_A = -20^{\circ}$ to $+75^{\circ}\text{C}$, unless otherwise noted)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Output Sustaining Voltage	$V_{(BR)CEO}$	$V_{CC} = 8\text{V}$, $V_I = 18\text{V}$, $V_{I(STB)} = 0.2\text{V}$, $I_{CEO} = 100\mu\text{A}$	20	—	—	V
Output Saturation Voltage	$V_{CE(sat)}$	$V_I = 7\text{V}$, $V_{I(STB)} = 2.4\text{V}$	$V_{CC} = 6.5\text{V}$, $I_C = 250\text{mA}$	—	0.5	V
			$V_{CC} = 3.0\text{V}$, $I_C = 120\text{mA}$	—	0.3	
Input Current	I_I	$V_{CC} = 8\text{V}$, $V_I = 18\text{V}$, $V_{I(STB)} = 2.4\text{V}$	—	0.8	1.8	mA
Input Leakage Current	I_R	$V_{CC} = 8\text{V}$, $V_I = -25\text{V}$	—	—	-20	μA
Strobe Input Current	$I_{t(STB)}$	$V_{CC} = 8\text{V}$, $V_I = 18\text{V}$ (all input), $V_{I(STB)} = 0.2\text{V}$	—	-4	—	mA
Strobe Input Leakage Current	$I_{R(STS)}$	$V_{CC} = 8\text{V}$, $V_I = 0\text{V}$, $V_{I(STB)} = 20\text{V}$	—	—	20	μA
Clamp Diode Forward Voltage	$V_{F(D)}$	$I_{F(D)} = 320\text{mA}$	—	1.4	2.4	V
Clamp Diode Reverse Voltage	$V_{R(D)}$	$I_{R(D)} = 100\mu\text{A}$	20	40	—	V
Supply Current	I_{CC}	$V_{CC} = 8\text{V}$, $V_I = 7\text{V}$ (all input), $V_{I(STS)} = 2.4\text{V}$	—	120	200	mA
DC Forward Current Gain	h_{FE}	$V_{CE} = 4\text{V}$, $V_{CC} = 6.5\text{V}$, $I_C = 300\text{mA}$, $T_A = +25^{\circ}\text{C}$	1000	3000	—	—

Functional Table

IN	STB	OUT
L	L	H
H	L	H
L	H	H
H	H	L

Pin Connection Diagram

