



NTE2085 & NTE2086 Integrated Circuit 4-Stage Darlington Array

Description:

The NTE2085 and NTE2086 are high voltage, high current Darlington arrays in a 16-Lead DIP type package are designed for use as an interface between low-level logic and a variety of peripheral loads such as relays, solenoids, DC and stepper motors, multiplexed LED and incandescent displays, heaters, and similar loads to 480 watts (1.5A per output, 80V, 26% duty cycle).

The NTE2085 is a quad driver intended for use with TTL, low-speed TTL, and 5V MOS logic. The NTE2086 is similar to the NTE2085 except that it is designed for use with PMOS and 12V CMOS logic.

Features:

- TTL, DTL, PMOS, and CMOS Compatible Inputs
- Transient-Protected Outputs
- Loads to 480 Watts
- Heat-Sink Contact Tabs

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

Output Voltage, V_{CEX}	80V
Output Sustaining Voltage, $V_{CE(sus)}$	50V
Output Current, I_{OUT}	1.75A
Input Voltage (Note 1), V_{IN}	
NTE2085	15V
NTE2086	30V
Input Current (Note 2), I_B	25mA
Supply Voltage, V_S	10V
Total Package Power Dissipation ($T_A = +25^{\circ}\text{C}$), P_D	2.75W
Derate Above 25°C	45°C/W
Operating Temperature Range, T_A	-20° to $+85^{\circ}\text{C}$
Storage Temperature Range, T_{stg}	-55° to $+150^{\circ}\text{C}$

Note 1. Input voltage is referenced to GND.

Note 2. Input current may be limited by maximum allowable input voltage.

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Output Leakage Current	I_{CEX}	$V_{CE} = 80\text{V}$	–	–	100	μA
		$V_{CE} = 80\text{V}, T_A = +70^\circ\text{C}$	–	–	500	μA
Output Sustaining Voltage	$V_{CE(sus)}$	$I_C = 100\text{mA}, V_{IN} = 400\text{mV}$	50	–	–	V
Collector–Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 500\text{mA}, I_B = 625\mu\text{A}$	–	–	1.1	V
		$I_C = 750\text{mA}, I_B = 935\mu\text{A}$	–	–	1.2	V
		$I_C = 1.0\text{A}, I_B = 1.25\text{mA}$	–	–	1.3	V
		$I_C = 1.25\text{A}, I_B = 2.0\text{mA}$	–	–	1.4	V
		$I_C = 1.5\text{A}, I_B = 2.25\text{mA}$	–	–	1.5	V
Input Current NTE2085	$I_{IN(ON)}$	$V_{IN} = 2.4\text{V}$	1.4	–	4.3	mA
		$V_{IN} = 3.75\text{V}$	3.3	–	9.6	mA
		$V_{IN} = 5.0\text{V}$	0.6	–	1.8	mA
		$V_{IN} = 12\text{V}$	1.7	–	5.2	mA
Input Voltage NTE2085	$V_{IN(ON)}$	$V_{CE} = 2\text{V}, I_C = 1\text{A}$	–	–	2.0	V
		$V_{CE} = 2\text{V}, I_C = 1.5\text{A}$	–	–	2.5	V
		$V_{CE} = 2\text{V}, I_C = 1\text{A}$	–	–	6.5	V
		$V_{CE} = 2\text{V}, I_C = 1.5\text{A}$	–	–	10.0	V
Turn–On Delay	t_{PLH}	$0.5E_{in}$ to $0.5E_{out}$	–	–	1.0	μs
Turn–Off Delay	t_{PHL}	$0.5E_{in}$ to $0.5E_{out}$	–	–	1.5	μs
Clamp Diode Leakage Current	I_R	$V_R = 80\text{V}$	–	–	50	μA
		$V_R = 80\text{V}, T_A = +70^\circ\text{C}$	–	–	100	μA
Clamp Diode Forward Voltage	V_F	$I_F = 1.0\text{A}$	–	–	1.75	V
		$I_F = 1.5\text{A}$	–	–	2.0	V

Pin Connection Diagram

