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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°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°C), P_D 2.75W
    Derate Above 25°C . . . . . 45°C/W
Operating Temperature Range, T_A . . . . . –20° to +85°C
Storage Temperature Range, T_{stg} . . . . . –55° to +150°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°C unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Output Leakage Current	I_{CEX}	V_{CE} = 80V	–	–	100	µA
		V_{CE} = 80V, T_A = +70°C	–	–	500	µA
Output Sustaining Voltage	$V_{CE(sus)}$	I_C = 100mA, V_{IN} = 400mV	50	–	–	V
Collector–Emitter Saturation Voltage	$V_{CE(sat)}$	I_C = 500mA, I_B = 625µA	–	–	1.1	V
		I_C = 750mA, I_B = 935µA	–	–	1.2	V
		I_C = 1.0A, I_B = 1.25mA	–	–	1.3	V
		I_C = 1.25A, I_B = 2.0mA	–	–	1.4	V
		I_C = 1.5A, I_B = 2.25mA	–	–	1.5	V
Input Current	$I_{IN(ON)}$					
NTE2085		V_{IN} = 2.4V	1.4	–	4.3	mA
		V_{IN} = 3.75V	3.3	–	9.6	mA
NTE2086		V_{IN} = 5.0V	0.6	–	1.8	mA
		V_{IN} = 12V	1.7	–	5.2	mA
Input Voltage	$V_{IN(ON)}$					
NTE2085		V_{CE} = 2V, I_C = 1A	–	–	2.0	V
		V_{CE} = 2V, I_C = 1.5A	–	–	2.5	V
NTE2086		V_{CE} = 2V, I_C = 1A	–	–	6.5	V
		V_{CE} = 2V, I_C = 1.5A	–	–	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 = 80V	–	–	50	µA
		V_R = 80V, T_A = +70°C	–	–	100	µA
Clamp Diode Forward Voltage	V_F	I_F = 1.0A	–	–	1.75	V
		I_F = 1.5A	–	–	2.0	V

Pin Connection Diagram