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NTE2087 Integrated Circuit 4-Stage Darlington Array w/Pre-Drive Stage for TTL

Description:

The NTE2087 is a High-Voltage, High-Current Darlington Array designed to interface low-level logic to a variety of peripheral loads such as relays, solenoids, d-c and stepper motors, multiplexed LED and incandescent displays, heaters, and similar loads to 480 watts (1.5 A per output, 80V, 26% duty cycle).

This device is specified with a minimum output breakdown of 50 volts and $V_{CE(sus)}$ minimum of 35 volts measured at 100mA and an output current specification of 1.5A (saturated).

A Quad driver Type, the NTE2087 is intended for use with TTL, low-speed TTL, and 5V MOS logic. This device incorporates predriver stages and is most suitable for applications requiring high gain (low input current loading).

Features:

- TTL, DTL, PMOS, CMOS Compatible Inputs
- Transient Protected Outputs
- Handle Loads to 480 Watts
- Plastic Dual In-Line Package with Heat Sink Contact Tabs

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

Output Voltage, V_{CEX}	80V
Minimum Output Sustaining Voltage, $V_{CE(sus)}$	50V
Output Current, I_{OUT}	1.75A
Input Voltage (Note 1), V_{IN}	15V
Input Current (Note 2), I_B	25mA
Supply Voltage, V_S	10V
Operating Ambient Temperature Range, T_{opr}	-20° to +85°C
Storage Temperature Range, T_{stg}	-55° to +150°C

Note 1. Input Voltage is with reference to ground

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

Electrical Characteristics: ($T_A = +25^\circ\text{C}$, $V_S = 5\text{V}$ 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
Collector–Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 500\text{mA}$, $V_{IN} = 2.75\text{V}$	–	–	1.1	V
		$I_C = 750\text{mA}$, $V_{IN} = 2.75\text{V}$	–	–	1.2	V
		$I_C = 1.0\text{A}$, $V_{IN} = 2.75\text{V}$	–	–	1.3	V
		$I_C = 1.25\text{A}$, $V_{IN} = 2.75\text{V}$	–	–	1.4	V
		$I_C = 1.5\text{A}$, $V_{IN} = 2.75\text{V}$	–	–	1.5	V
Input Current	$I_{IN(ON)}$	$V_{IN} = 2.75\text{V}$	–	–	550	μA
		$V_{IN} = 3.75\text{V}$	–	–	1000	μA
Input Voltage	$V_{IN(ON)}$	$V_{CE} = 2\text{V}$, $I_C = 1.5\text{A}$	–	–	2.75	V
Supply Current	I_S	$I_C = 500\text{mA}$, $V_{IN} = 2.75\text{V}$	–	–	6.0	mA
Turn–On Delay	t_{PLH}	$0.5E_{in}$ to $0.5E_{out}$	–	–	1.0	μs
Turn–Off Delay	t_{PHL}	$0.5E_{in}$ to $0.5E_{out}$, $I_C = 1.25\text{A}$	–	–	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

