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## NTE2079 Integrated Circuit 7-Stage Darlington Transistor Array

**Description:**

The NTE2079 is a 7-channel sink driver in a 16-Lead DIP type package and consists of 14 NPN transistors connected to form seven high current gain driver pairs.

**Features:**

- High Output Sustaining Voltage to 40V
- High Output Sink Current to 400mA
- PMOS Compatible Input
- Wide Operating Temperature Range ( $T_A = -20^\circ$  to  $+75^\circ\text{C}$ )

**Application:**

Relay and printer driver, LED or Incandescent display digit driver, Interfacing for standard MOS/BI POLAR logics.

**Function:**

The NTE2079 is comprised of seven NPN Darlington drivers pairs with 20kΩ series input resistors. All emitters and the substrate are connected together to Pin8. The outputs are capable of sinking 400mA and will withstand 40V in the OFF state.

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

Output sustaining Voltage (Transistor OFF),  $V_{CEO}$  ..... -0.5 to +40V  
 Collector Current (Transistor ON),  $I_C$  ..... 400mA  
 Input Voltage,  $V_I$  ..... 40V  
 Power Dissipation ( $T_A = +25^\circ\text{C}$ ),  $P_D$  ..... 1.47W  
 Operating Ambient Temperature Range,  $T_{opr}$  .....  $-20^\circ$  to  $+75^\circ\text{C}$   
 Storage Temperature Range,  $T_{stg}$  .....  $-55^\circ$  to  $+125^\circ\text{C}$

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

| Parameter                     | Symbol   | Test Conditions                  | Min | Typ | Max | Unit |
|-------------------------------|----------|----------------------------------|-----|-----|-----|------|
| Output Voltage                | $V_O$    |                                  | 0   | –   | 40  | V    |
| Collector Current Per Channel | $I_O$    | Percent duty cycle less than 8%  | 0   | –   | 400 | mA   |
|                               |          | Percent duty cycle less than 30% | 0   | –   | 40  | V    |
| Input Voltage, High Level     | $V_{IH}$ | $I_C = 400\text{mA}$             | 8   | –   | 30  | V    |
|                               |          | $I_C = 100\text{mA}$             | 5   | –   | 30  | V    |
| Input Voltage, Low Level      | $V_{IL}$ | $I_{O(Leak)} = 50\mu\text{A}$    | 0   | –   | 0.5 | 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 | $V_{(BR)CEO}$ |   | 40   | –    | –   | V    |
| Output Saturation Voltage | $V_{CE(sat)}$ | $V_i = 5V, I_C = 400\text{mA}$                            | –    | 1.2  | 2.4 | V    |
|                           |               | $V_i = 5V, I_C = 200\text{mA}$                            | –    | 0.9  | 1.6 | V    |
| Input Current             | $I_I$         | $V_i = 17V$   | 0.3  | 0.8  | 1.8 | mA   |
| DC Forward Current Gain   | $h_{FE}$      | $V_{CE} = 4V, I_C = 400\text{mA}, T_A = 25^\circ\text{C}$ | 1000 | 6000 | –   | –    |

Note 1. A typical value is at  $T_A = +25^\circ\text{C}$

**Pin Connection Diagram**

