

NTE2024 Integrated Circuit 2-Digit BCD-to-7-Segment Decoder/Driver

Features:

- Separate BCD inputs and segment outputs for each digit
- Input loading less than 15 μ A
- I²L logic with buffered inputs and outputs
- Internal input overrange protection circuit
- 5V supply operation
- Internal biasing circuits
- Output drive capability of 25mA per segment
- Open collector outputs drive indicators directly

Description:

The NTE2024 is a monolithic integrated circuit intended for 2-digit display such as “numbers” for tv and “CB” channel selection, and other 0-99 numerical or counting for consumer or industrial indicator applications. It consists of two independent BCD-to-7 segment decoder/drivers. Two sets of BCD inputs are buffered with p-n-p differential amplifier stages internally referenced to 1.7V. Each of the eight input terminals draws less than 15 μ A and is provided with an internal protection circuit.

Decoding is accomplished with I²L ROM's. The fourteen output terminals are buffered with Darlington pairs driving common-emitter output transistors. Each output is capable of sinking 25mA for an LED common-anode display device. The supply-voltage range (V_{CC}) is intended to be 4.5V to 6V. The output voltage (V_O) must not exceed 12V, which provides for a wide range of common-anode voltage sources.

Absolute Maximum Ratings:

Supply Voltage, V _{CC}	6V
Input-Voltage (Min/Max)	-0.3V _{CC} V
Input Current (Protection Circuit)	±10mA
Output Voltage, V _O	12V
Output Segment Current, I _{Display}	25mA
Power Dissipation (T _A ≤ +70°C), P _D	400mW
Derate Linearly Above +70°C	8.7mW/°C
Operating Ambient temperature Range, T _{opr}	0° to 70°C
Storage Temperature range, T _{stg}	-55° to +150°C
Lead Temperature (During Soldering, 1/16" ± 1/32" from case, 10sec max), T _L	+265°C

Electrical Characteristic: ($V_{CC} = 5V$, $V_1 = GND$, $V_{DISP} = 12V$, and $T_A = +25^\circ C$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Input Voltage, High	V_{IH}		2.4	5.0	V_{CC}	V
Input Voltage, Low	V_{IL}		0	–	0.6	V
Input Current, High	I_{IH}	All BCD Inputs = 5V	–	–	15	μA
Input Current, Low	I_{IL}	All BCD Inputs = 0V	–10	–	–	μA
On–State Output Voltage	V_{OL}	$I_{O(Sink)} = 25mA$	–	–	1	V
Off–State Output Current	I_{OL}		–	5	50	μA
Power Supply Drain Current	I_{CC}	$V_{CC} = 6V$	–	17	25	mA
Input Capacitance	C_I		–	5	–	[pF

Pin Connection Diagram

