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NTE7142
Integrated Circuit
+5V-Powered, Multichannel RS-232 Driver/Receiver

Description:

The NTE7142 is a multichannel RS-232 driver/receiver in a 16-Lead DIP type package intended for all EIA/TIA-232E and V.28/V.24 communications interfaces, particularly applications where ±12V is not available.

Features:

- Operate From Single +5V Power Supply
- Meet All EIA/TIA-232E and V.28 Specifications
- Multiple Drivers and Receivers
- 3-State Driver and Receiver Outputs

Applications:

- Portable Computers
- Low-Power Modems
- Interface Translation
- Battery-Powered RS-232 Systems
- Multidrop RS-232 Networks

Absolute Maximum Ratings: (Note 1)

Supply Voltage, V_{CC} . . . . . -0.3V to +6V
Supply Voltage, V+ . . . . . (V_{CC} -0.3V) to +14V
Supply Voltage, V- . . . . . +0.3V to -14V
Input Voltage, T_{IN} . . . . . -0.3V to (V_{CC}-0.3V)
Input Voltage, R_{IN} . . . . . ±30V
Output Voltage (Note 2), T_{OUT} . . . . . ±15V
Output Voltage, R_{OUT} . . . . . -0.3V to (V_{CC}+0.3V)
Driver/Receiver Output Short Circuited to GND . . . . . Continuous
Continuous Power Dissipation (T_A = +70°C), P_D 842mW
Dreate Above +70°C . . . . . 10.53mW/°C
Operating Temperature Range, T_{opr} . . . . . 0° to +70°C
Storage Temperature Range, T_{stg} . . . . . -65° to +160°C
Lead Temperature (During Soldering, 10sec), T_L . . . . . +300°C

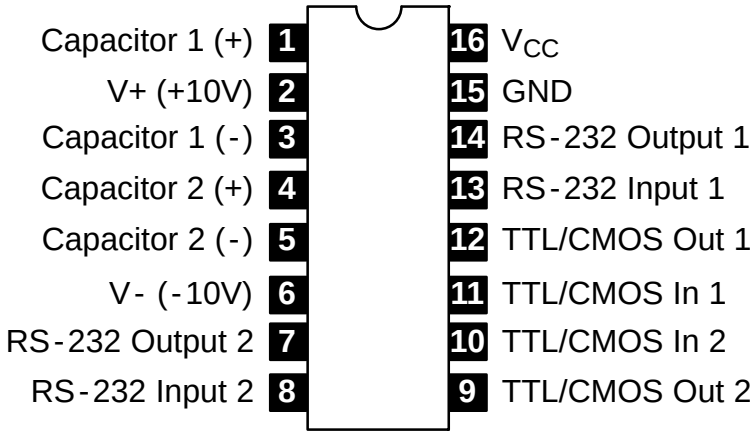
Note 1. Stresses beyond those listed under “Absolute Maximum Ratings” may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated in the operational section of the specifications is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

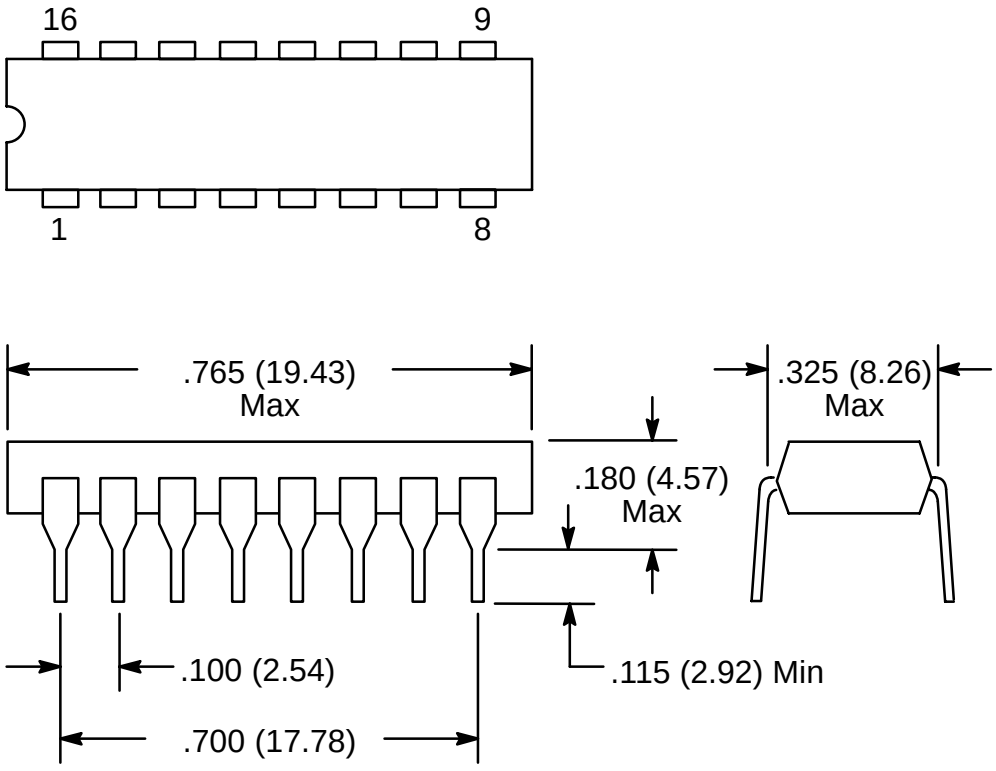
Note 2. Input voltage measured with T_{OUT} in high-impedance state, V_{CC} = 0V.

Electrical Characteristics: (V_{CC} = +5V ±10%, T_A = 0° to +70°C, C1-C4 = 1.0.µF unless otherwise specified)

Parameter	Test Conditions	Min	Typ	Max	Unit
Output Voltage Swing	All transmitter output loaded with 3kΩ to GND	±5.0	±7.3	-	V
V_{CC} Power Supply Current	No load, T_A = +25°C	-	5	10	mA
Input Logic Threshold, High	T_{IN}	2.0	-	-	V
Logic Pull-Up Current	T_{IN} = 0	-	1.5	200	µA
Output Leakage Current	V_{CC} = 0V, V_{OUT} = ±15V	-	±0.01	±10	µA
Receiver Input Voltage Operating Range		-30	-	+30	V
RS-232 Input Hysteresis	V_{CC} = 5V, No Hysteresis in Shutdown	0.2	0.5	1.0	V
RS-232 Input Resistance	T_A = +25°C, V_{CC} = 5V	3	5	7	kΩ
TTL/CMOS Output Voltage, Low	I_{OUT} = 3.2mA	-	-	0.4	V
TTL/CMOS Output Voltage, High	I_{OUT} = -1.0mA	3.5	V_{CC}-0.4	-	V
TTL/CMOS Output Short-Circuit Current	Sourcing, V_{OUT} = GND	-2	-10	-	mA
	Shrinking, V_{OUT} = V_{CC}	10	30	-	mA
TTL/CMOS Output Leakage Current	0V ≤ V_{OUT} ≤ V_{CC}	-	0.05	±10	µA
Transition Region Slew Rate	C_L = 50pF to 2500pF, R_L = 3kΩ to 7kΩ, V_{CC} = 5V, T_A = +25°C, measured from +3V to -3V or -3V to +3V	-	4	30	V/µs
Propagation Delay (normal operation)	RS-232 IN to TTL/CMOS OUT, C_L = 150pF	-	0.5	10	µs
Transmitter Output Resistance	V_{CC} = V+ = V- = 0V, V_{OUT} = ±2V	300	-	-	Ω
Transmitter Output Short-Circuit Current		-	±10	-	mA

Pin Connection Diagram




16
9
1
8
.765 (19.43)
Max
.325 (8.26)
Max
.180 (4.57)
Max
.100 (2.54)
.115 (2.92) Min
.700 (17.78)