



ELECTRONICS, INC.

44 FARRAND STREET  
BLOOMFIELD, NJ 07003  
(973) 748-5089  
http://www.nteinc.com

## 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  $\pm 12V$  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, $R_{IN}$ .....	$\pm 30V$
Output Voltage (Note 2), $T_{OUT}$ .....	$\pm 15V$
Output Voltage, $R_{OUT}$ .....	-0.3V to ( $V_{CC} + 0.3V$ )
Driver/Receiver Output Short Circuited to GND .....	Continuous
Continuous Power Dissipation ( $T_A = +70^\circ C$ ), $P_D$ .....	842mW
Dreate Above $+70^\circ C$ .....	10.53mW/ $^\circ C$
Operating Temperature Range, $T_{opr}$ .....	$0^\circ$ to $+70^\circ C$
Storage Temperature Range, $T_{stg}$ .....	$-65^\circ$ to $+160^\circ C$
Lead Temperature (During Soldering, 10sec), $T_L$ .....	$+300^\circ C$

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:** ( $V_{CC} = +5V \pm 10\%$ ,  $T_A = 0^\circ$  to  $+70^\circ C$ ,  $C1-C4 = 1.0.\mu F$  unless otherwise specified)

Parameter	Test Conditions	Min	Typ	Max	Unit
Output Voltage Swing	All transmitter output loaded with $3k\Omega$ to GND	$\pm 5.0$	$\pm 7.3$	-	V
$V_{CC}$ Power Supply Current	No load, $T_A = +25^\circ C$	-	5	10	mA
Input Logic Threshold, High	$T_{IN}$	2.0	-	-	V
Logic Pull-Up Current	$T_{IN} = 0$	-	1.5	200	$\mu A$
Output Leakage Current	$V_{CC} = 0V$ , $V_{OUT} = \pm 15V$	-	$\pm 0.01$	$\pm 10$	$\mu A$
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	$T_A = +25^\circ C$ , $V_{CC} = 5V$	3	5	7	$k\Omega$
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	$0V \leq V_{OUT} \leq V_{CC}$	-	0.05	$\pm 10$	$\mu A$
Transition Region Slew Rate	$C_L = 50pF$ to $2500pF$ , $R_L = 3k\Omega$ to $7k\Omega$ , $V_{CC} = 5V$ , $T_A = +25^\circ C$ , measured from $+3V$ to $-3V$ or $-3V$ to $+3V$	-	4	30	V/ $\mu s$
Propagation Delay (normal operation)	RS-232 IN to TTL/CMOS OUT, $C_L = 150pF$	-	0.5	10	$\mu s$
Transmitter Output Resistance	$V_{CC} = V+ = V- = 0V$ , $V_{OUT} = \pm 2V$	300	-	-	$\Omega$
Transmitter Output Short-Circuit Current		-	$\pm 10$	-	mA

### Pin Connection Diagram



