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NTE7232
Integrated Circuit
2^{12} CMOS LSI Decoder for Remote Control Systems

Description:

The NTE7232 is a 2^{12} CMOS LSI decoder in an 18–Lead DIP type package for use in remote control system applications. For proper operation, the NTE7232 should be paired with the NTE7233 encoder or similar device with the same number of addresses and data format.

The NTE7232 decoder receives serial addresses and data from a programmed 2^{12} encoder that is transmitted by a carrier using an RF or an IR transmission medium. They compare the serial input data three times continuously with their local addresses. If no rror or unmatched codes are found, the input data codes are decoded and then transferred to the output pins. The VT pin also goes high to indicate a valid transmission.

The NTE7232 is capable of decoding informations that consist of N bits of address and 12–N bits of data and is arranged to provide 8 address bits and 4 data bits.

Features:

- Operating Voltage: 2.4V to 12V
- Low Power and High Noise Immunity CMOS Technology
- Low Standby Current
- Capable of Decoding 12 Bits of Information
- Binary Address Setting
- Received Codes are Checked 3 Times
- 8 Address Bits and 4 Data Bits
- Built–In Oscillator Needs Only 5% Resistor
- Valid Transmission Indicator
- Easy Interface with an RF or an IR Transmission Medium

Features:

- Burglar Alarm Systems
- Smoke and Fire Alarm Systems
- Garage Door Controllers
- Car Door Controllers
- Car Alarm Systems
- Security Systems
- Cordless Telephones
- Other Remote Control Systems

Absolute Maximum Ratings: (Note 1)

Supply Voltage . . . . . –0.3V to 13V
Input Voltage . . . . . V_{SS}–0.3 to V_{DD}+0.3V
Operating Temperature Range, T_{opr} . . . . . –20° to +75°C
Storage Temperature Range, T_{stg} . . . . . –50° to +125°C

Note 1. These are stress ratings only. Stresses exceeding the range specified under “Absolute Maximum Ratings” may cause substantial damage to the device. Functional operation of this device at other conditions beyond those listed in this specification is not implied and prolonged exposure to extreme conditions may affect device reliability.

Electrical Characteristics: (V_{DD} = 5V, T_A = +25°C unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Operating Voltage	V_{DD}		2.4	5.0	12	V
Standby Current	I_{STB}	Oscillator Stops	–	0.1	1.0	A
		Oscillator Stops, V_{DD} = 12V	–	2	4	A
Operating Current	I_{DD}	No Load, f_{OSC} = 150kHz	–	200	400	A
Data Output Source Current (D8–D11)	I_D	V_{OH} = 4.5V	–1.0	–1.6	–	mA
Data Output Sink Current (D8–D11)	I_D	V_{OL} = 0.5V	1.0	1.6	–	mA
VT Output Source Current	I_{VT}	V_{OH} = 4.5V	–1.0	–1.6	–	mA
VT Output Sink Current	I_{VT}	V_{OL} = 0.5V	1.0	1.6	–	mA
“H” Input Voltage	V_{IH}		3.5	–	5.0	V
“L” Input Voltage	V_{IL}		0	–	1	V
Oscillator Frequency	f_{OSC}	R_{OSC} = 51k°	–	150	–	kHz

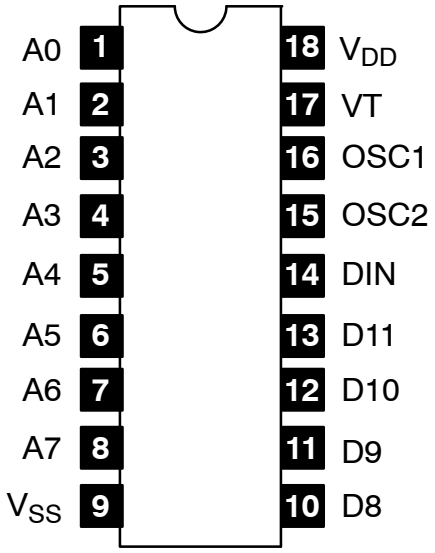
Functional Description:

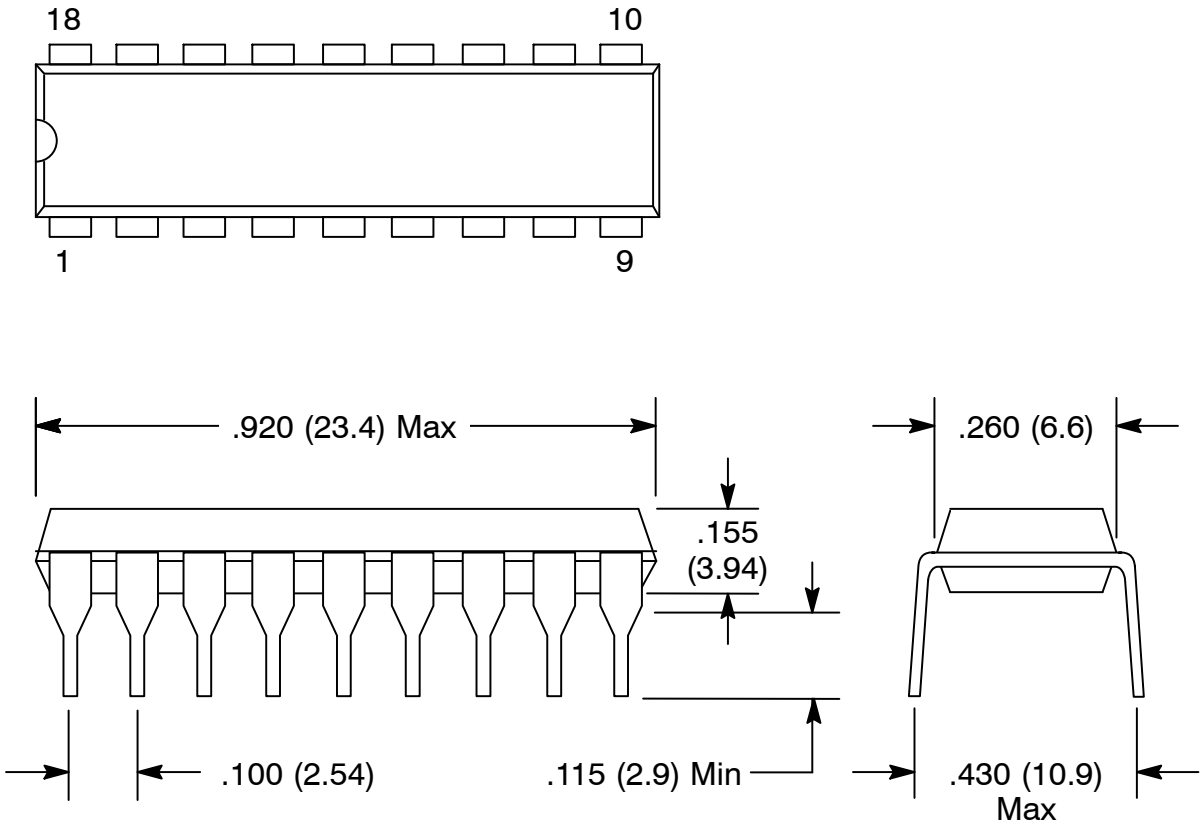
Operation

The NTE7232 decoder receives data that is transmitted by an encoder (NTE7233 or similar type) and interprets the first N bits of code period as addresses and the last 12–N bits as data, where N is the address code number. A signal on the DIN pin activates the oscillator which in turn decodes the incoming address and data. The decoder will then check the received address three times continuously. If the received address codes all match the contents of the decoder’s local address, the 12–N bits of data are decoded to activate the output pins and the VT pin is set high to indicate a valid transmission. This will last unless the address code is incorrect or no signal is received.

The output of the VT pin is high only when the transmission is valid. Otherwise it is always low.

Pin Connection Diagram




18
10
1
9
.920 (23.4) Max
.155
(3.94)
.260 (6.6)
.100 (2.54)
.115 (2.9) Min
.430 (10.9)
Max