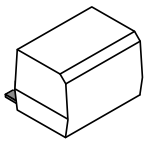
H N I I
3.3 V / 5 V L I G
O

FOD8001

Description

The FOD8001 is a 3.3 V / 5 V high−speed logic gate optocoupler, which supports isolated communications allowing digital signals to communicate between systems without conducting ground loops or

www.onsemi.com



SOIC8
CASE 751DZ

MARKING DIAGRAM

1. ON = ON Semiconductor Logo
2. 8001 = Device Number
3. X = One−Digit Year Code, e.g. ‘8’
4. YY = Two Digit Work Week Ranging from ‘01’ to ‘53’
5. S1 = Assembly Package Code

ORDERING INFORMATION

See detailed ordering and shipping information on page 8 of this data sheet.

I	LED	V_O
HIGH	OFF	HIGH
LOW	ON	LOW

ELECTRICAL CHARACTERISTICS (Apply over all recommended conditions, typical value is measured at V_{DD1} = V_{DD2} = +3.3 V, V

TYPICAL PERFORMANCE CURVES

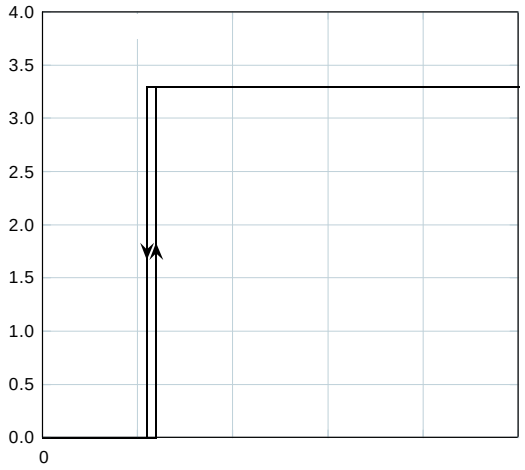


Figure 2. Typical Output Voltage vs. Input Voltage

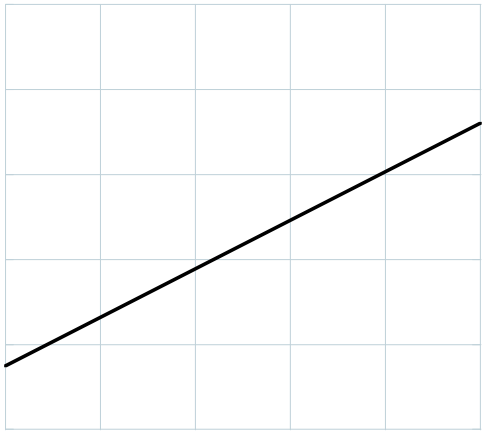


Figure 3. Input Voltage Switching Threshold vs. Input Supply Voltage

Figure 4. Propagation Delay vs. Ambient Temperature

Figure 5. Pulse Width Distortion vs. Ambient Temperature

Figure 6. Typical Rise Time vs. Ambient Temperature

Figure 7. Typical Fall Time vs. Ambient Temperature

TYPICAL PERFORMANCE CURVES (Continued)

Figure 8. Typical Propagation Delay vs. Output Load Capacitance

Figure 9. Typical Width Distortion vs. Output Load Capacitance

Figure 10. Typical Rise Time vs. Output Load Capacitance

Figure 11. Typical Fall Time vs. Output Load Capacitance

TEST CIRCUITS

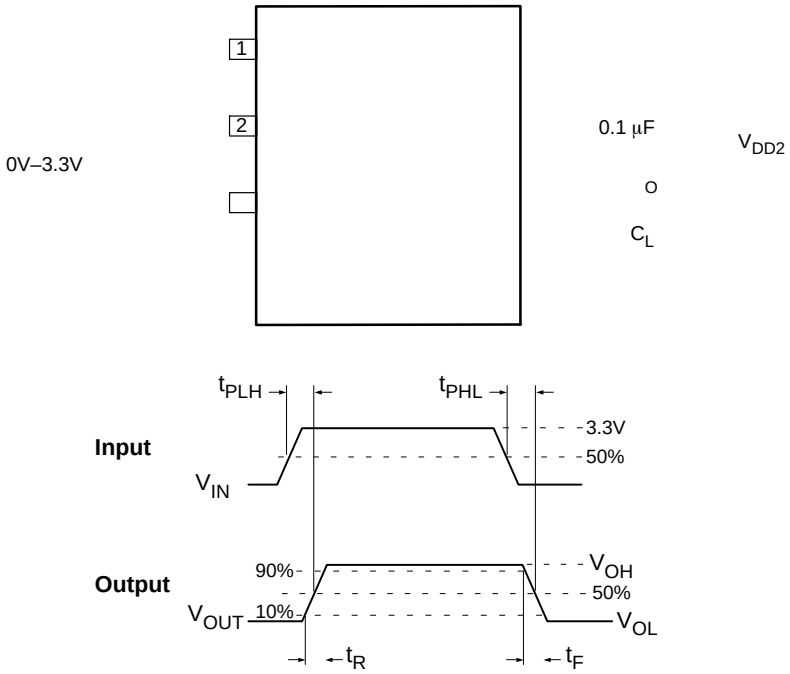


Figure 14. Test Circuit for Propagation Delay and Rise Time, Fall Time

APPLICATION INFORMATION

Noise is defined as any unwanted signal that degrades or interferes with the operation of a system or circuit. Input−output noise rejection is a key characteristic of an optocoupler, and the performance specification for this noise rejection is called, “Common Mode Transient Immunity or Common Mode Rejection, CMR”. The CMR test configuration is presented in high speed optocoupler datasheets, which tests the optocoupler to a specified rate of interfering signal (dv/dt), at a specified peak voltage (Vcm).

This defined noise signal is applied to the test device while the coupler is a stable logic high or logic low state. This test procedure evaluates the interface device in a constant or static logic state. This type of CMR can be referred to as “**Static CMR**”. ON Semiconductor high speed optocouplers, which use an optically transparent, electrically conductive shield, and offer active totem pole logic output have static CMR in excess of 50 kV/μs at peak amplitudes of 1.5 kV to 2.0 kV.

Dynamic Common Mode Rejection

The noise susceptibility of an interface while it is actively transferring data is a common requirement in serial data communication. However, the static CMR specification is not adequate in quantifying the electrical noise susceptibility for optocouplers used in isolating high speed data transfer.

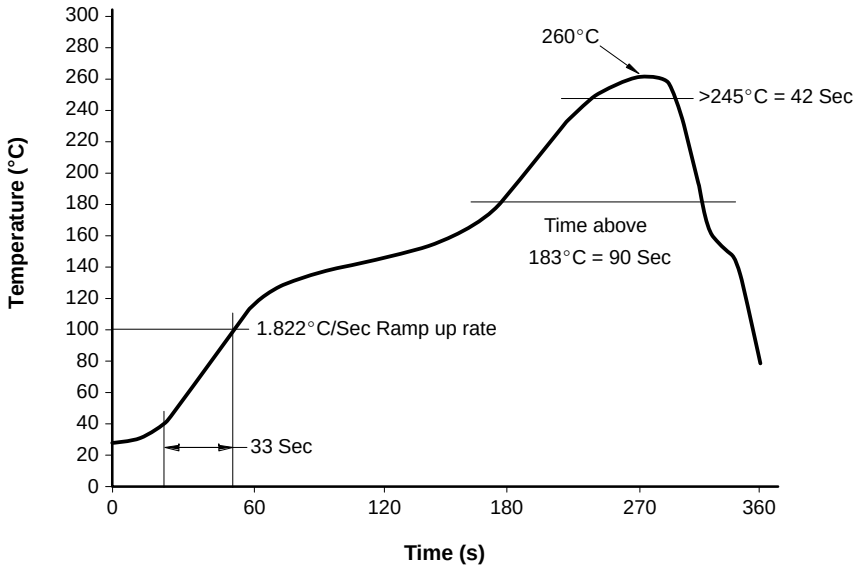
A serial data communication network’s noise performance is usually quantified as the number of bit errors per second or as a ratio of the number of bits transmitted in

ORDERING INFORMATION

Option	Order Entry Identifier	Package	Packing Method†
No Suffix	FOD8001	SOIC8 (Pb−Free)*	Tube (50 Units per Tube)
R2	FOD8001R2	SOIC8 (Pb−Free)*	Tape and Reel (2,500 Units per Reel)

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.
*All packages are lead free per JEDEC: J−STD−020B standard.

REFLOW PROFILE



SOIC8
CASE 751DZ
ISSUE O

DATE 30 SEP 2016