

High Speed Dual-Channel, Bi-Directional Ceramic Digital Isolator

NCID9210 / NCID9216

Description

The NCID9210 and NCID9216 are galvanically isolated full duplex, bi directional, high speed dual channel digital isolators. These devices support isolated communications thereby allowing digital signals to communicate between systems without conducting ground loops or hazardous voltages.

They utilize **onsemi's** patented galvanic off chip capacitor isolation technology and optimized IC design to achieve high insulation and high noise immunity, characterized by high common mode rejection and power supply rejection specifications. The thick ceramic substrate yields capacitors with ~25 times the thickness of thin film on chip capacitors and coreless transformers. The result is a combination of the electrical performance benefits that digital isolators offer with the safety reliability of a >0.5 mm insulator barrier similar to what has historically been offered by optocouplers.

The device is housed in a 16 pin wide body small outline package.

Features

Off Chip Capacitive Isolation to Achieve Reliable High Voltage Insulation

DTI (Distance Through Insulation): 0.5 mm

Maximum Working Insulation Voltage: 2000 V_{peak}

Full Duplex, Bi directional Communication

100 kV/μs Minimum Common Mode Rejection

High Speed:

50 Mbit/s Data Rate (NRZ)

25 ns Maximum Propagation Delay

10 ns Maximum Pulse Width Distortion

8 mm Creepage and Clearance Distance to Achieve Reliable High Voltage Insulation.

Specifications Guaranteed Over 2.5 V to 5.5 V Supply Voltage and 40 C to 125 C Extended Temperature Range

Over Temperature Detection

NCIV Prefix for Automotive and Other Applications Requiring

Unique Site and Control Change Requirements; AEC Q100

Qualified and PPAP Capable (Pending)

Safety and Regulatory Approvals

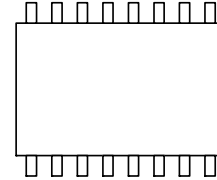
UL1577, 5000 V_{RMS} for 1 Minute

DIN EN/IEC 60747 17 (Pending)



SOIC16 W
 CASE 751EN

MARKING DIAGRAM



ORDERING INFORMATION

Typical Applications

Isolated PWM Control

Industrial Fieldbus Communications

Microprocessor System Interface (SPI, I²C, etc.)

Programmable Logic Control

Isolated Data Acquisition System

Voltage Level Translator

NCID9210 / NCID9216

PIN CONFIGURATION

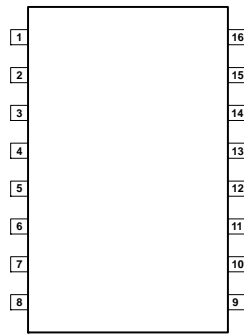


Figure 1. Pin and Channel Configuration

NCID9210 / NCID9216

PIN DEFINITIONS

TRUTH TABLE

V _{INX}	V _{DDI}	V _{DDO}	V _{Ox}	Comment

SAFETY AND INSULATION RATINGS

Symbol	Parameter	Min	Typ	Max	Unit

NCID9210 / NCID9216

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
		-	
		-	
		-	
		-	
		-	

RECOMMENDED OPERATING CONDITIONS

Symbol	Parameter	Min	Max	Unit
		-		
-				
		-	-	
		-		

μ μ

SUPPLY CURRENT CHARACTERISTICS

—

SWITCHING CHARACTERISTICS

-

TEST CIRCUITS



Figure 9. V_{IN} to V_O Propagation Delay Test Circuit and Waveform

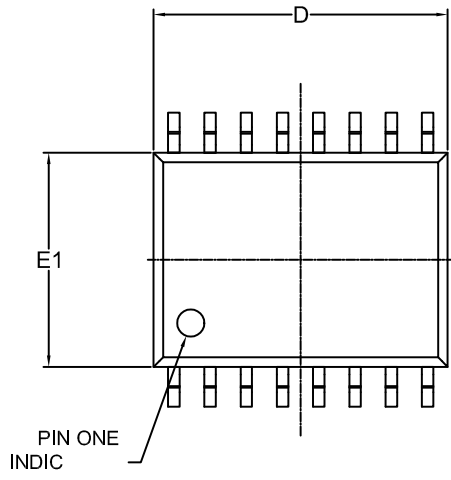


NCID9210 / NCID9216

ORDERING INFORMATION

Part Number	Grade	Package	Shipping

SOIC16 W



onsemi, **onsemi**, and other names, marks, and brands are registered and/or common law trademarks of Semiconductor Components Industries, LLC dba "**onsemi**" or its affiliates and/or subsidiaries in the United States and/or other countries. **onsemi** owns the rights to a number of patents, trademarks, copyrights, trade secrets, and other intellectual property. A listing of **onsemi**'s product/patent coverage may be accessed at www.onsemi.com/site/pdf/Patent-Marking.pdf. **onsemi** reserves the right to make changes at any time to any products or information herein, without notice. The information herein is provided "as-is" and **onsemi** makes no warranty, representation or guarantee regarding the accuracy of the information, product features, availability, functionality, or suitability of its products for any particular purpose, nor does **onsemi** assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. Buyer is responsible for its products and applications using **onsemi**
