

## Features

Off-Chip Capacitive Isolation to Achieve Reliable High Voltage Insulation

DTI (Distance Through Insulation): 0.5 mm

Maximum Working Insulation Voltage: 2000 V<sub>peak</sub>

Bi-directional Communication

100 kV/μs Minimum Common Mode Rejection

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

Output Enable Function (Primary and Secondary side)

NCID9401, NCID9411, NCID9400, NCID9410

# NCID9401, NCID9411, NCID9400, NCID9410

## PIN CONFIGURATION

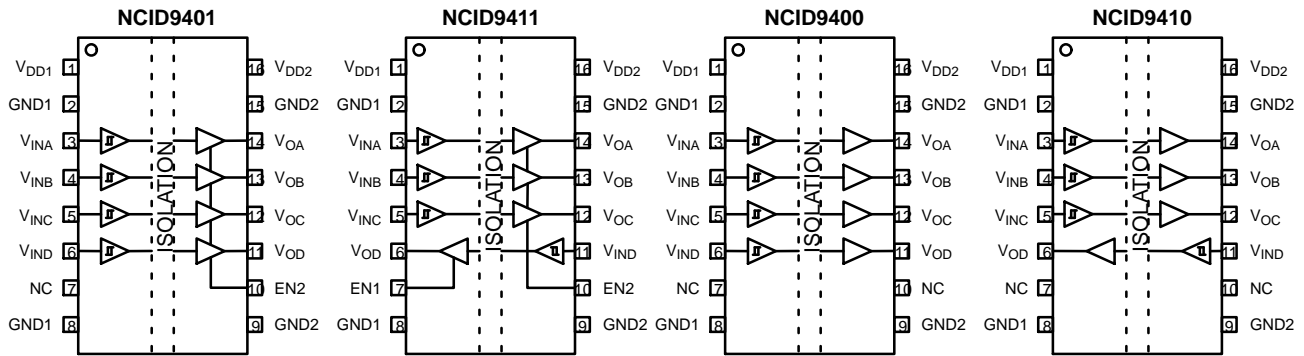


Figure 2. Pin and Channel Configuration

### PIN DEFINITION

Name	Pin No. NCID9401	Pin No. NCID9411	Pin No. NCID9400	Pin No. NCID9410	Description
V <sub>DD1</sub>	1	1	1	1	Power Supply, Side 1
GND1	2	2	2	2	Ground Connection for V <sub>DD1</sub>
V <sub>INA</sub>	3	3	3	3	Input, Channel A
V <sub>INB</sub>	4	4	4	4	Input, Channel B
V <sub>INC</sub>	5	5	5	5	Input, Channel C
V <sub>IND</sub>	6	11	6	11	Input, Channel D
EN1	–	7	–	–	Output Enable 1
NC	7	–	7	7	No Connect
GND1	8	8	8	8	Ground Connection for V <sub>DD1</sub>
GND2	9	9	9	9	Ground Connection for V <sub>DD2</sub>
NC	–	–	10	10	No Connect
EN2	10	10	–	–	Output Enable 2
V <sub>OD</sub>	11	6	11	6	Output, Channel D
V <sub>OC</sub>	12	12	12	12	Output, Channel C
V <sub>OB</sub>	13	13	13	13	Output, Channel B
V <sub>OA</sub>	14	14	14	14	Output, Channel A
GND2	15	15	15	15	Ground Connection for V <sub>DD2</sub>
V <sub>DD2</sub>	16	16	16	16	Power Supply, Side 2

NCID9401, NCID9411, NCID9400, NCID9410

# NCID9401, NCID9411, NCID9400, NCID9410

## ABSOLUTE MAXIMUM RATINGS ( $T_A = 25\text{ C}$ unless otherwise specified)

Symbol	Parameter	Value	Unit
$T_{STG}$	Storage Temperature	-55 to +150	C
$T_{OPR}$	Operating Temperature	-40 to +125	C
$T_J$	Junction Temperature	-40 to +150	C
$T_{SOL}$	Lead Solder Temperature (Refer to Reflow Temperature Profile)	260 for 10 s	C
$V_{DD}$	Supply Voltage ( $V_{DDx}$ )	-0.5 to 6	V
V	Voltage ( $V_{INx}$ , $V_{Ox}$ , $ENx$ )	-0.5 to 6	V





# NCID9401, NCID9411, NCID9400, NCID9410

## SWITCHING CHARACTERISTICS – NCID9411/NCID9410

Apply over all recommended conditions,  $T_A = -40\text{ C}$  to  $+125\text{ C}$  unless otherwise specified. All typical values are measured at  $T_A = 25\text{ C}$ .

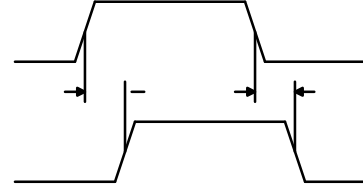
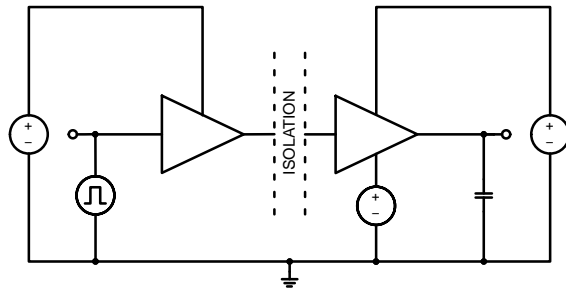
Symbol	Parameter	Ch	Conditions	Min	Typ	Max	Unit	Figure
$t_{PHL}$	Propagation Delay to Logic Low Output (Note 8)	A, B, C	$V_{DD} = 5\text{ V}$ , $C_L = 15\text{ pF}$					





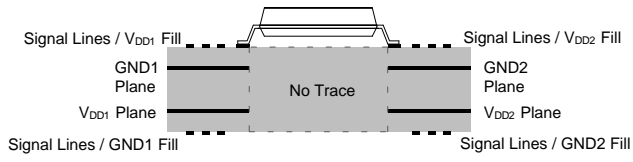


TEST CIRCUITS





# NCID9401, NCID9411, NCID9400, NCID9410

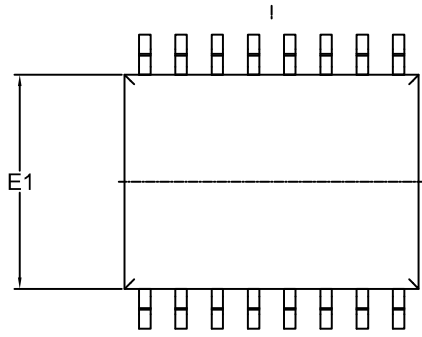


**Figure 20. 4-Layer PCB for Digital Isolator**



**Figure 21. Placement of Bypass Capacitors**

SOIC16 W



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