

NCS2200AGEVB

NCS2200A UDFN6 Package Evaluation Board User's Manual



ON Semiconductor®

<http://onsemi.com>

EVAL BOARD USER'S MANUAL

Description

This document describes the NCS2200A 6 pin UDFN package evaluation board. It should be used in conjunction with the data sheet which contains full technical details on the device specification and operation. This evaluation board is offered as a convenience for the customers interested in performing their own engineering characterization and performance assessment. The evaluation board provides a 50 Ω controlled impedance environment. The evaluation board is designed to facilitate a quick evaluation of the device.

This evaluation board manual contains:

- Information on NCS2200A Evaluation Board
- Bill of Materials

Board Lay-up

The evaluation boards are implemented in two layers. The first layer is the primary signal traces and the device. The FR4 dielectric material is placed between the first and second layer. The second layer is the 1.0 oz copper ground plane, with portion of the ground plane cutout for power.

Board Design

The evaluation board was designed to be flexible (See Figure 3).

- Inputs
 - Inputs have place holders for termination resistors to ground if input signal requires termination
- Outputs
 - Outputs have a place holder for loads. It can either be loaded with resistor or capacitor or both or none at all.
- Power Supply
 - It can be operated with either single power supply or dual power supply
 - For single power supply – Jumper the V_{EE} and GND together
 - For dual power supply – Do not jumper the V_{EE} and GND
 - Both V_{CC} and V_{EE} have power supply decoupling capacitors

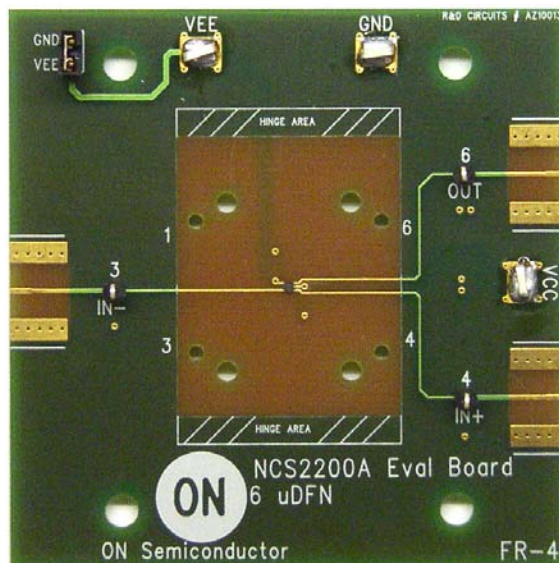


Figure 1. Evaluation Board Photo

NCS2200AGEVB

| LAMINATION DIAGRAM | | | | | |
|-------------------------------|------------|------------------|----------------------|----------------|-------------|
| LAYER NUMBER | LAYER NAME | COPPER THICKNESS | DIELECTRIC THICKNESS | LAYER MATERIAL | TRACE WIDTH |
| 1 | TOP | 1/2 OZ. | | | .0175 |
| 2 | GND | 1/2 OZ. | ADJUST | FR-4 | |
| FINISHED PCB THICKNESS TO BE: | | 0.082 +/- 0.006 | | | |

Figure 2. Evaluation Board Lay-up

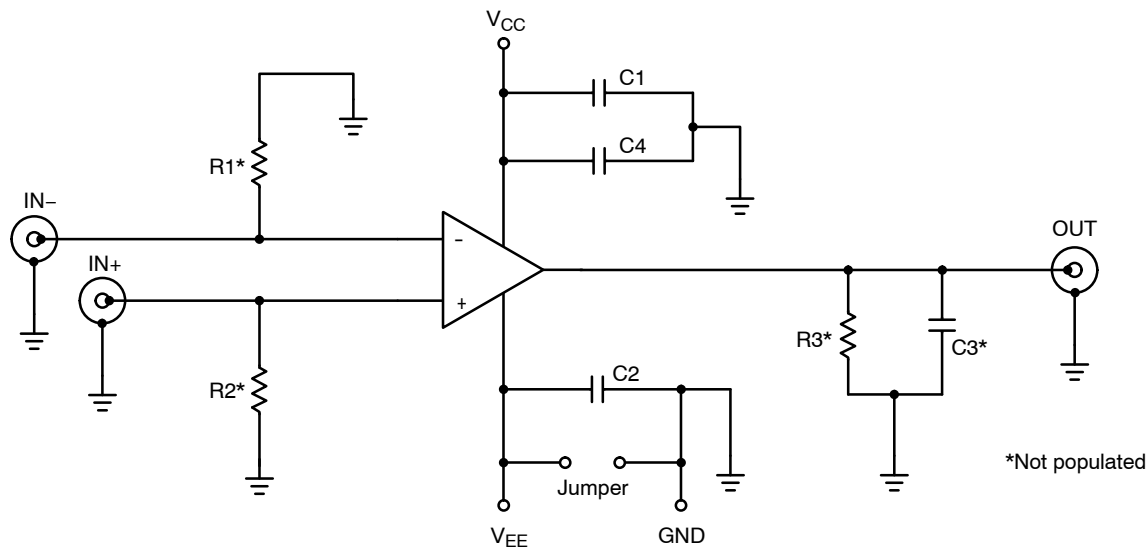
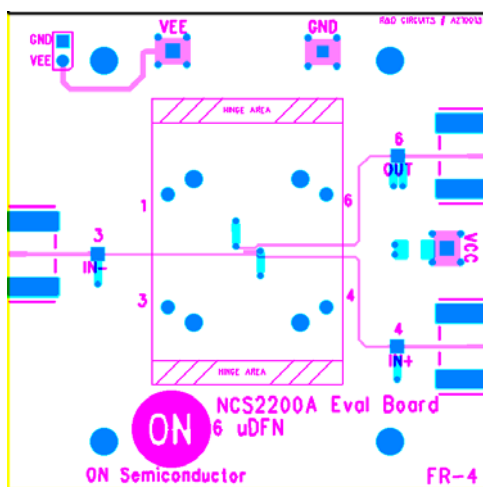
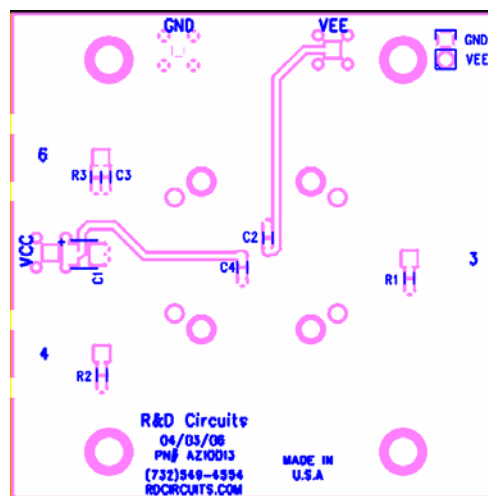


Figure 3. Evaluation Board Schematic



Top View



Bottom View

Figure 4. Evaluation Board Layout

NCS2200AGEVB

Table 1. BILL OF MATERIALS FOR NCS2200A

| Item | Qty | Ref Des | Value | Package | Description | MFG | Part Number |
|------|-----|---|-------------|---------|---|-----------------------------|------------------------|
| 1 | 1 | C1 | 10 μ F | | Capacitor | Kemet | T491C106K025AS |
| 2 | 2 | C2, C4 | 0.1 μ F | 0603 | Capacitor | TDK Corp | C1608X7R1H104K |
| 3 | 1 | JMP | | | Jumper Shorting Tin | Sullins Electronics Corp | STC02SYAN |
| 4 | 1 | JMP | | | Jumper Header | Sullins Electronics Corp | PTC36SABN |
| 5 | 3 | V _{CC} , V _{EE} , GND | | | Surface Mount Test Clip | Keystone | 5016 |
| 6 | 3 | IN ₋ , IN ₊ , OUT | | | Through Test Point (Optional: SMA Connector) | Keystone (Johnson Comp.) | 5000 (142-0701-801) |
| 7 | 1 | DUT | | UDFN8 | NCS2220A UDFN8 | ON Semi | NCS2220AMUT1G |
| 8 | 1 | | | | NCS2220A Eval Board | ON Semi | NCS2220AEVB |

Parts Not Installed

| | | | | | | | |
|----|---|------------|--|------|-----------|--|--|
| 9 | 1 | C3 | | 0603 | Capacitor | | |
| 10 | 3 | R1, R2, R3 | | 0603 | Resistor | | |

NCS2200A EVALUATION BOARD TEST PROCEDURE


NCS2200A is a single low power comparator. The test is simply to power up the device and make sure the device is functional.

Test Condition for NCS2200A

- Test the board at the following power supply voltage and temperature
 - ♦ Voltage: 0.85 V, 3 V, 6 V
 - ♦ Temperature: Room

Test Procedure for NCS2200A

- Power up the device.
 - ♦ Place a jumper to short GND and VEE.
 - ♦ Short one of the inputs to ground, short the other input to Vcc.
 - ♦ Read the power supply current and verify that it is according to the data sheet specification.
- Functionality Test
 - ♦ Short negative input to ground and short positive input to Vcc, the output voltage should be Vcc.
 - ♦ Short negative input to Vcc and short positive input to ground, the output voltage should be ground.

ON Semiconductor and  are registered trademarks of Semiconductor Components Industries, LLC (SCILLC). SCILLC reserves the right to make changes without further notice to any products herein. SCILLC makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does SCILLC 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. "Typical" parameters which may be provided in SCILLC data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. SCILLC does not convey any license under its patent rights nor the rights of others. SCILLC products are not designed, intended, or authorized for use as components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or for any other application in which the failure of the SCILLC product could create a situation where personal injury or death may occur. Should Buyer purchase or use SCILLC products for any such unintended or unauthorized application, Buyer shall indemnify and hold SCILLC and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that SCILLC was negligent regarding the design or manufacture of the part. SCILLC is an Equal Opportunity/Affirmative Action Employer. This literature is subject to all applicable copyright laws and is not for resale in any manner.

PUBLICATION ORDERING INFORMATION

LITERATURE FULFILLMENT:

Literature Distribution Center for ON Semiconductor
P.O. Box 5163, Denver, Colorado 80217 USA
Phone: 303-675-2175 or 800-344-3860 Toll Free USA/Canada
Fax: 303-675-2176 or 800-344-3867 Toll Free USA/Canada
Email: orderlit@onsemi.com

N. American Technical Support: 800-282-9855 Toll Free
USA/Canada
Europe, Middle East and Africa Technical Support:
Phone: 421 33 790 2910
Japan Customer Focus Center
Phone: 81-3-5817-1050

ON Semiconductor Website: www.onsemi.com

Order Literature: <http://www.onsemi.com/orderlit>

For additional information, please contact your local Sales Representative