



# NCN8024RGEVB

## Test Procedure

See Figure 2.

## Initial Setups (Figure 2)

The initial setups given here are recommended before starting measurements on the board.

- Set the CMDVCC/in the OFF Position (High)
- Set CLKDIV1 and CLKDIV2 into Low Position (Lowest Frequency Fclk)
- Set 5V/3Vbar into a 5V Position
- As a Precaution, Turn the 1 kΩ Potentiometer to Obtain a Resistor Output Value of 1 kΩ, and then Connect the Jumper

## DC Power Supplies

Two power supplies are used to bias the demo board.  $V_{DDP}$  is the input voltage of the DC-DC converter.  $V_{DD}$  is the “digital” power supply which biases the input stages of the NCN8024 device (control and signal inputs).

$V_{DD}$  and  $V_{DDP}$  must be connected to the board for a correct operation.

- Connect the  $V_{DD}$  Power Supply Using the 2 Pin Male Connector J1
- Connect the  $V_{DDP}$  Power Supply Using the 2 Pin Male Connector J2
- Power up  $V_{DDP}$  in the Range 4.85 V–5.5 V
- Power up  $V_{DD}$  in the Range 2.7 V–5.5 V

## Clock Frequency

CLKDIV1 and CLKDIV2 select the frequency divider according to the Table 2.

**Table 2. CLOCK FREQUENCY**

CLKDIV1	CLKDIV2	Divider
1	0	DIV 1/1
1	1	DIV 1/2
0	1	DIV 1/4
0	0	DIV 1/8

## Card Presence

The socket we use is a normally open, so CDR-PRES/ has been chosen; nevertheless the CRD\_PRES and CRD\_PRES/ test points can also be used for signaling the presence of a card and starting up the circuit.

## Start the Measurement

To start the measurements, set the board as it follows:

- Set CLKDIV1 and CLKDIV2 to Select the Correct Frequency
- Set 5V/3Vbar to Select the Correct Output Voltage
- Jumpers:
  - ♦ 1 kΩ Potentiometer Jumper: Not Connected to Start Measurement
- Finally, Toggle/CMDVCC from High to Low to Start the Device (Activation Sequence Run)

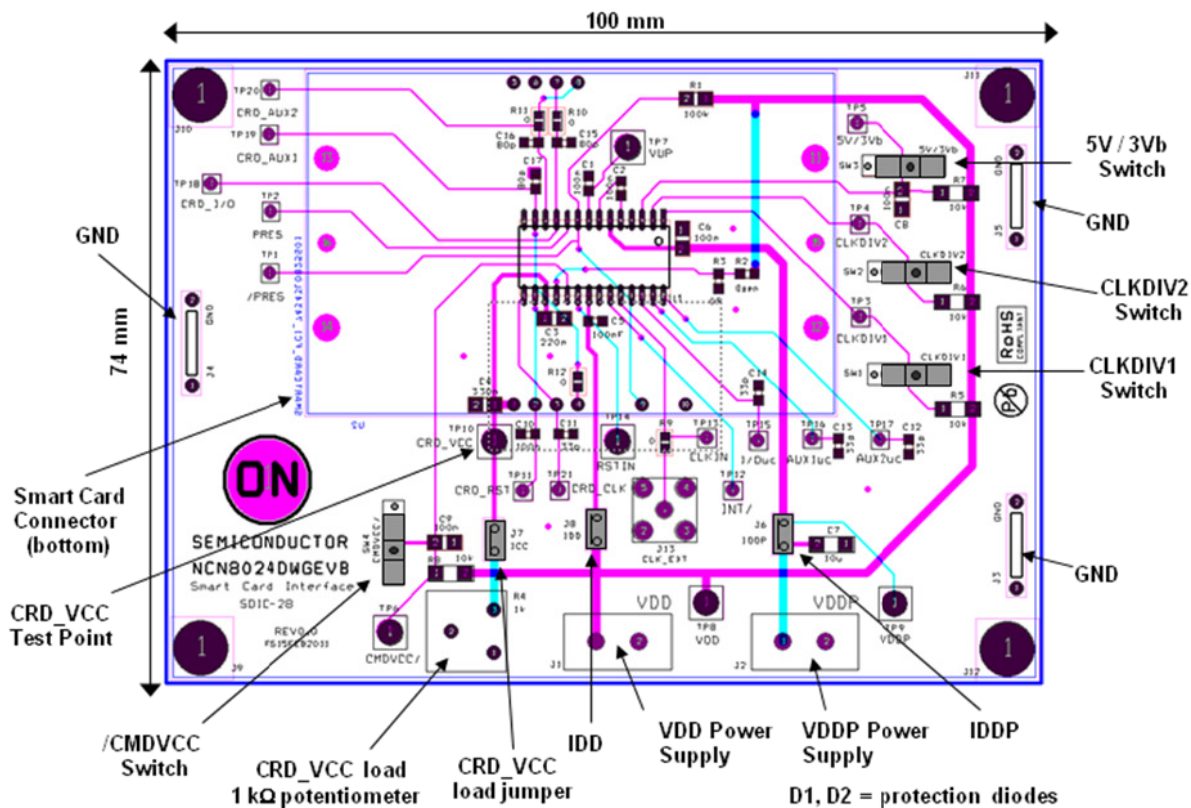


Figure 2. SOIC-28 Board Description

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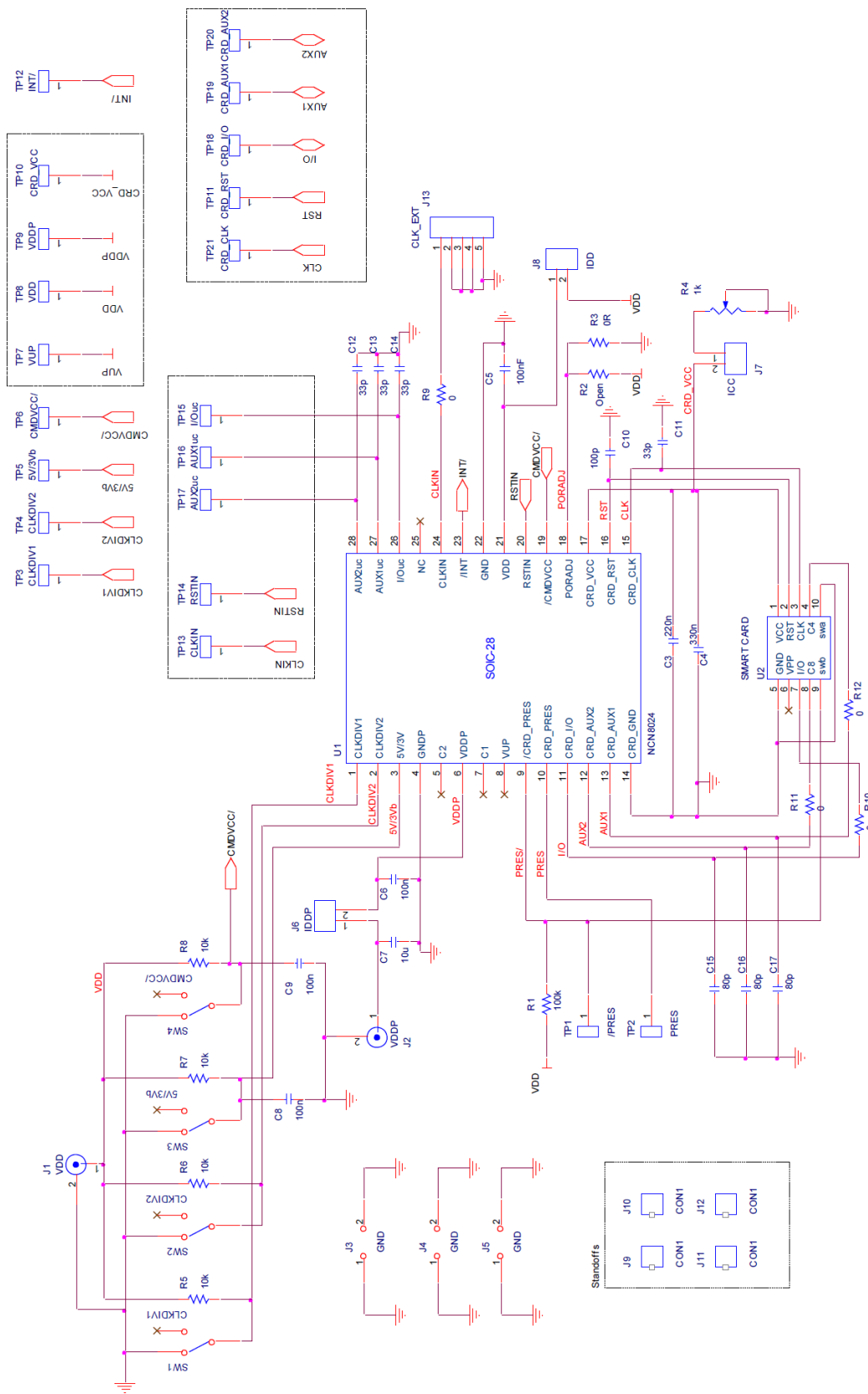


Figure 3. Schematic

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**Table 3. BILL OF MATERIAL (BOM)**

Designator	Qty	Description	Value	Footprint	Manufacturer	Part Number
C1, C2	2	CAP CER .1 $\mu$ F 16 V 10% X7R 0603	100 nF	SM/C_0603H	Do Not Populate	Do Not Populate
C3	1	CAP CER .22 $\mu$ F 16 V X7R 10% 0805	220 nF	SM/C_0805H	TDK	C2012X7R1C224K
C4	1	CAP CER .33 $\mu$ F 16 V X7R 10% 0805	330 nF	SM/C_0805H	TDK	C2012X7R1C334K/1.25
C5, C6	2	CAP CER .1 $\mu$ F 25 V 10% X7R 0805	100 nF	SM/C_0805H	Murata	GRM21BR71E104KA01L
C7	1	CAP CER 10 $\mu$ F 6.3 V X5R 10% 1206	10 $\mu$ F	SM/C_1206H	TDK	C3216X5R0J106K/1.60
C8, C9	2	CAP CER .1 $\mu$ F 25 V 10% X7R 0805	100 nF	SM/C_0805H	Murata	GRM21BR71E104KA01L
C10	1	Do Not Populate	-	SM/C_0603H	Do Not Populate	Do Not Populate
C11, C12, C13, C14	4	Do Not Populate	-	SM/C_0603H	Do Not Populate	Do Not Populate
C15, C16, C17	3	Do Not Populate	-	SM/C_0603H	Do Not Populate	Do Not Populate
R1	1	RES 100 k $\Omega$ 1/4 W 5% 0805 SMD	100 k $\Omega$	SM/C_0805H	Rohm Semiconductor	ESR10EZPJ104
R2	1	Do Not Populate	-	SM/C_0603H	Do Not Populate	Do Not Populate
R3, R9, R10, R11, R12	5	RES 0.0 $\Omega$ 1/10 W 0603 SMD	0	SM/C_0603H	Stackpole Electronics Inc	RMCF0603ZTOR00
R4	1	Single Turn Cermet Trimmer 1 k $\Omega$ , 0.5 W, 10%, 63M100R	1 k $\Omega$	CERMET-72PT	Bourns	3386F-1-102TLF
R5, R6, R7, R8	4	RES 10 k $\Omega$ 1/4 W 5% 1206 SMD	10 k $\Omega$	SM/C_1206H	Rohm Semiconductor	MCR18EZPJ103
SW1, SW2, SW3, SW4	4	PCB Slide Switches	-	INTER3-2,54	EAO	09.03290.01
TP1-TP5, TP11-TP13, TP15-TP21	15	CLKDIV1/2, 5 V/3 Vb, INT/, I/OUC, AUX1UC, AUX2UC, CLKIN, CRD_AUX1, _AUX2, _I/O, _CLK, _RST, _PRES, PRES, Clip Test Point Hole Diameter 1.0 mm	-	TP_1	Keystone	5000
TP6, TP7, TP8, TP9, TP10, TP14	6	/CMDVCC, VUP, VDD, VDDP, CRD_VCC, RSTIN, Clip Test Point Hole Diameter 1.6 mm	-	TP_1.6MMHOLE_KEYS TONE_5010	Keystone	5010
J1, J2	2	VDD, VDDP, 2 Pins, Male Connector, 5.08 mm Step	-	MSTBA2-5.08MM	Phoenix Contact	MSTBA2.52G5.08
J3, J4, J5	3	Ground: Strap, Brass, Diameter 1.0 mm, Pitch 10.16 mm, Height 9.9 mm	-	GND_STRP	HARWIN	D3082-46
J6, J7, J8	3	IDD, IDDP, ICC, Breakable Single Row, Header (2 Pins)	-	CON2-2.54	TYCO Amp	5-826629-0
J9, J10, J11, J12	4	Standoff Nut	-	Standoff Hole	Keystone	1903C
J9, J10, J11, J12	4	Standoff Screw	-	Standoff Hole	Keystone	4814K-ND
J13	1	SMB Connector	-	SMB/V	Amphenol Connex	142138
U1	1	NCN8024R Smart Card Interface	-	SOIC-28	ON Semiconductor	NCN8024RDWR2G
U2	1	Smart Card Socket	-	SmartCard_ FCI_74343L0825S01	FCI	7434L0825S01LF

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