

**CG2176X3-EVAL**

**Evaluation Board**

- Description
- Insertion Loss of Through Board
- Assembly Drawing

## **Description:**

The CG2176X3-EVAL is evaluation board for CEL's CG2176X3 GaAs MMIC switch.

A DC blocking capacitor is required at all RF ports. On this board, an 8pF capacitor is used in accordance with the condition specified in the data sheet. The chosen capacitance value is optimized over the entire specified frequency range. For a narrow band application or an application where the operation frequency is outside the specified frequency range, the user may select a different capacitance value. Generally, the performance of the switch circuit is not sensitive, to a certain extent, to the DC blocking capacitance.

A 1000pF capacitor is used for DC bypass on all control lines. The user can make an adjustment on its value according to the specific application requirements.

## **DC and RF Connections**

All ports for DC and RF connections are labeled on the board. For the complete pin-out description, refer to the data sheet.

## **Board Material:**

The board material is 20 mil thick Duroid 6002. Its dielectric constant is 2.94.

## **Switch Logic Table:**

The following is the logic table for switch states.

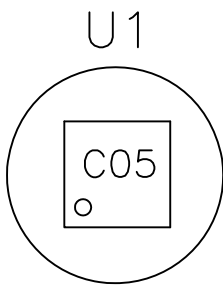
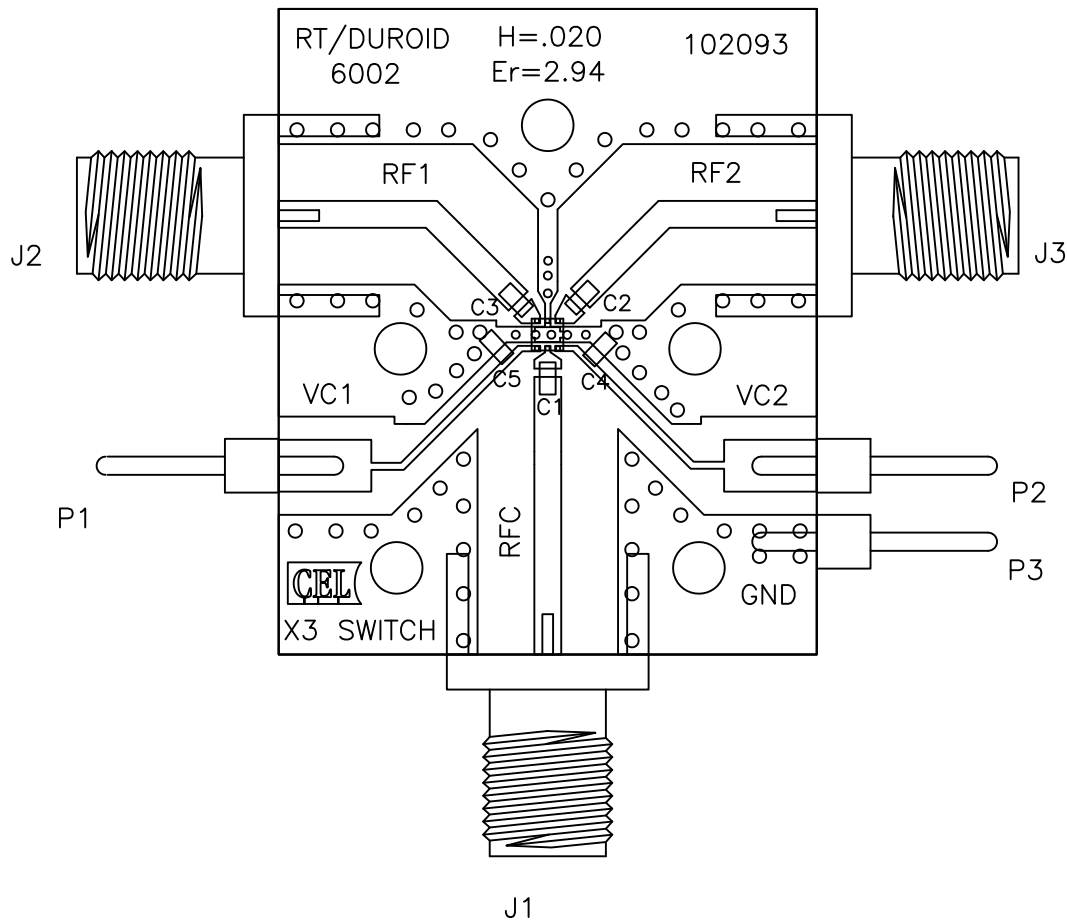
VC1	VC2	RFC – RF1	RFC – RF2
H	L	ON	OFF
L	H	OFF	ON

## **Insertion Loss of Through Board:**

The measured insertion loss of the evaluation board is a combination effect of the switch, RF connectors, board traces and series DC blocking capacitors. Since the insertion loss of the switch is generally small, the board loss should be subtracted from the measurement for more accurate evaluation of the switch performance. The table below lists the through-board loss at various frequencies.

INPUT FREQUENCY (GHz)	BOARD LOSS (dB)
1.0	0.07
2.5	0.13
4.9	0.24
5.8	0.30
6.0	0.32

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED



QTY	PART NUMBER OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	MATERIAL/SPECIFICATION	ITEM NO.
2	GRM1885C1H102JA01B+A01	C4,C5	0603 1000pF CAP MURATA	6
3	GRM1885C1H8R0DZ01B+C01	C1,C2,C3	0603 8.0pF CAP MURATA	5
3	2340-6111 TG	P1,P2,P3	PIN HEADER 3M	4
3	142-0711-821	J1,J2,J3	SMA FEMALE CONNECTOR	3
1	CG2176X3	U1	CEL GaAs Switch	2
1	CL-102093	DRAWING	COMPONENT LAYOUT DRAWING	1

PARTS LIST

		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES
		DECIMALS .XXX± .01
		ANGULAR ± 1°
		.XXX± .005
		DO NOT SCALE DRAWING
		MATERIAL
		FINISH
NEXT ASSY	USED ON	
APPLICATION		

APPROVALS	
Drawing by: M. Dong	2016/12/13
Designed by: M. Dong	2016/12/13
Checked by:	
Project Engineer:	
Quality Control:	

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TITLE:  
**CG2176X3-EVAL ASSEMBLY DRAWING**

SIZE <b>C</b>	FSCM NO.	DWG NO. <b>AD-102093</b>	REV —
SCALE NONE	RELEASE DATE	PROTOTYPE	SHEET 1 OF 1