

**CG2164X3-EVAL**

**Evaluation Board**

- Description
- Insertion Loss of Through Board
- Assembly Drawing

## **Description:**

The CG2164X3-EVAL is evaluation board for CEL's CG2164X3 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 best balanced for the performance 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 the switch states.

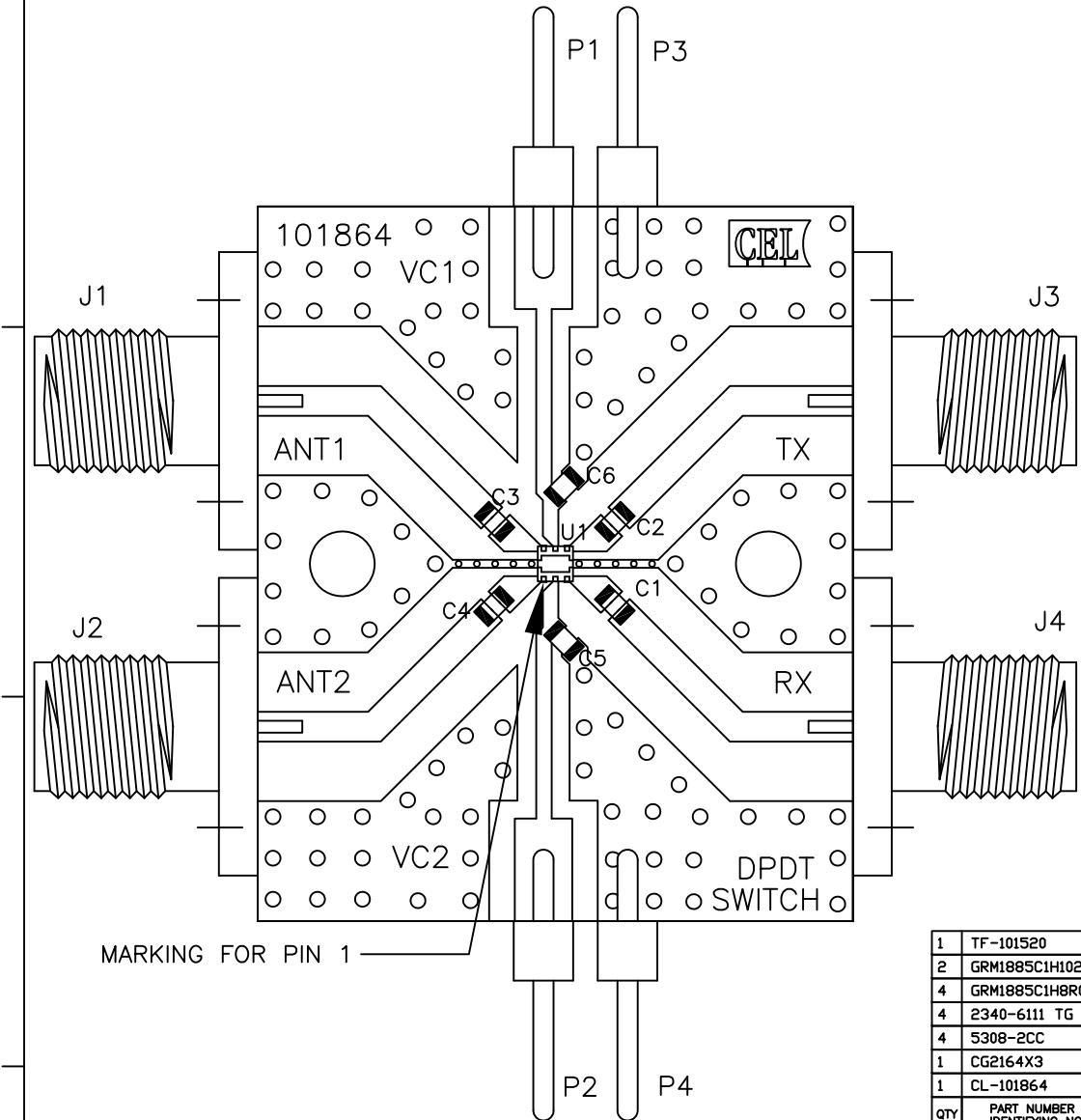
VC1	VC2	ANT1-TX	ANT1-RX	ANT2-TX	ANT2-RX
High	Low	OFF	ON	ON	OFF
Low	High	ON	OFF	OFF	ON

## **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



MARKING FOR PIN 1

QTY	PART NUMBER OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	MATERIAL/SPECIFICATION	ITEM NO.
1	TF-101520		TEST CIRCUIT BLOCK	7
2	GRM1885C1H102JA01D	C5,C6	0603 1000pF CAP MURATA	6
4	GRM1885C1H8R0DZ01B+C01	C1-C4	0603 8.0pF CAP MURATA	5
4	2340-6111 TG	P1,P2,P3,P4	PIN HEADER 3M	4
4	5308-2CC	J1,J2,J3,J4	SMA FEMALE CONNECTOR TENSOLITE	3
1	CG2164X3	U1	CEL GAAS SWITCH	2
1	CL-101864	DRAWING	COMPONENT LAYOUT DRAWING	1

PARTS LIST

NEXT ASSY	USED ON	FINISH	APPLICATION

UNLESS OTHERWISE SPECIFIED  
DIMENSIONS ARE IN INCHES  
TOLERANCES  
DECIMALS      ANGULAR  
.XX± .01           ± 1°  
.XXX± .005  
DO NOT SCALE DRAWING

APPROVALS	
Drawing by: M Dong	2/2/2017
Designed by: M Dong	2/2/2017
Checked by:	
Project Engineer:	
Quality Control:	

**CEL CALIFORNIA EASTERN LABS**  
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TITLE:  
**CG2164X3-EVAL  
ASSEMBLY DRAWING**

SIZE <b>C</b>	FSCM NO.	DWG NO. <b>AD-102097</b>	REV -
SCALE NONE	RELEASE DATE	PROTOTYPE	SHEET 1 OF 1