

CG2164X3-EVAL

Evaluation Board

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- 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:

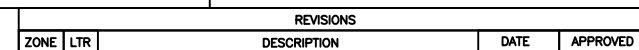
The following is the logic table for the switch states.

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



1	TF-101520		TEST CIRCUIT BLOCK	7
2	GRM1885C1H02JA01D	C5,C6	0603 1000pF CAP MURATA	6
4	GRM1885C1H9R0DZ01B+C01	C1-C4	0603 8.0pF CAP MURATA	5
4	2340-6111 TG	P1,P2,P3,P4	PIN HEADER 3M	3
4	5308-2CC	J1,J2,J3,J4	SMA FEMALE CONNECTOR TENSOLITE	4
1	CG2164X3	U1	CEL GAAS SWITCH	2
1	CL-101864	DRAWING	COMPONENT LAYOUT DRAWING	1
QTY	PART NUMBER OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	MATERIAL/SPECIFICATION	ITEM NO.

				PARTS LIST			
		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES		APPROVALS		 CALIFORNIA EASTERN LABS 4590 PATRICK HENRY DR. SANTA CLARA CA. 95054	
		DECIMALS ANGULAR .XX± .01 ± 1° .XXX± .005		Drawing by: M Dong 2/2/2017		TITLE: CG2164X3-EVAL ASSEMBLY DRAWING	
		DO NOT SCALE DRAWING		Designed by: M Dong 2/2/2017			
		MATERIAL		Checked by:			
				Project Engineer:		SIZE	
						FSCM NO.	
						DWG NO.	
						C AD-102097	
						SCALE NONE	
						RELEASE DATE PROTOTYPE	
						SHEET 1 OF 1	
NEXT ASSY		USED ON					
APPLICATION							