

μPG2155TB-EVAL-A

Evaluation Board

- Description
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Description:

The uPG2155TB-EVAL-A evaluation board provides a quick and convenient means of evaluating the performance of the NEC uPG2155TB switch. In addition to the device, the board provides DC block capacitors, power supply bypass capacitors, and RF and DC connectors.

A DC block capacitor is required at all RF ports. On this board, two parallel capacitors of 22pF are used for this purpose. This configuration minimizes the mismatch effect associated with the serial capacitors over a wide frequency range. In a real application where the operation frequency range is relatively narrow, one DC block capacitor usually is sufficient. The user should select the appropriate capacitor value according to the operation frequencies and the type of capacitor selected. Generally the performance of the switch circuit is not sensitive, to a certain extent, to the value of DC block capacitors.

A 1000pF DC bypass capacitor is used on all control lines. For high speed applications the user may choose smaller capacitance or no capacitor at all.

DC supply connectors:

P1 is control voltage V_{cont1} , P2 is V_{cont2} and pins P3 and P4 are the ground. V_{cont1} and V_{cont2} should be connected to separate power supplies to provide the required control logic.

RF connectors:

As indicated on the board, J1 (OUT1) is connected to the RF2 port, J2 (OUT2) is connected to the RF3 port and J3 (RFIN) is connected to the RF1 port.

Information on Board Material:

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

Switch Logic Table:

The following table lists the logic table for switch states.

Vcont1	Vcont2	RF1 – RF2	RF1 – RF3
H	L	ON	OFF
L	H	OFF	ON

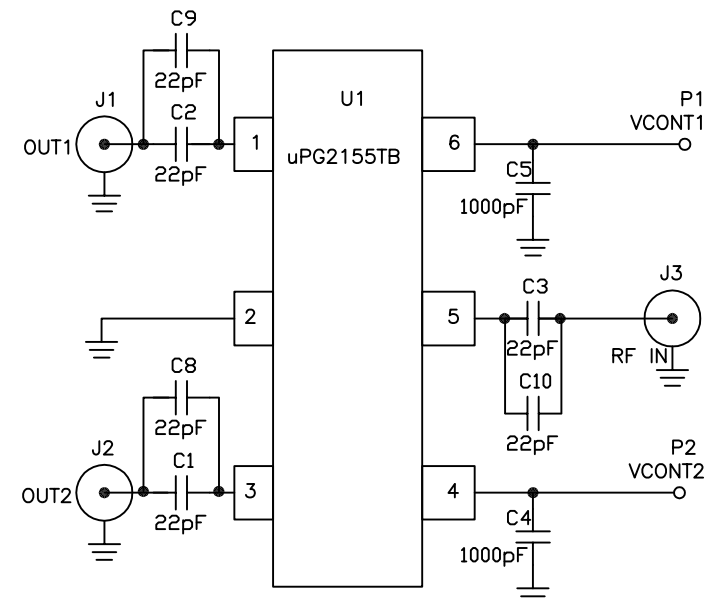
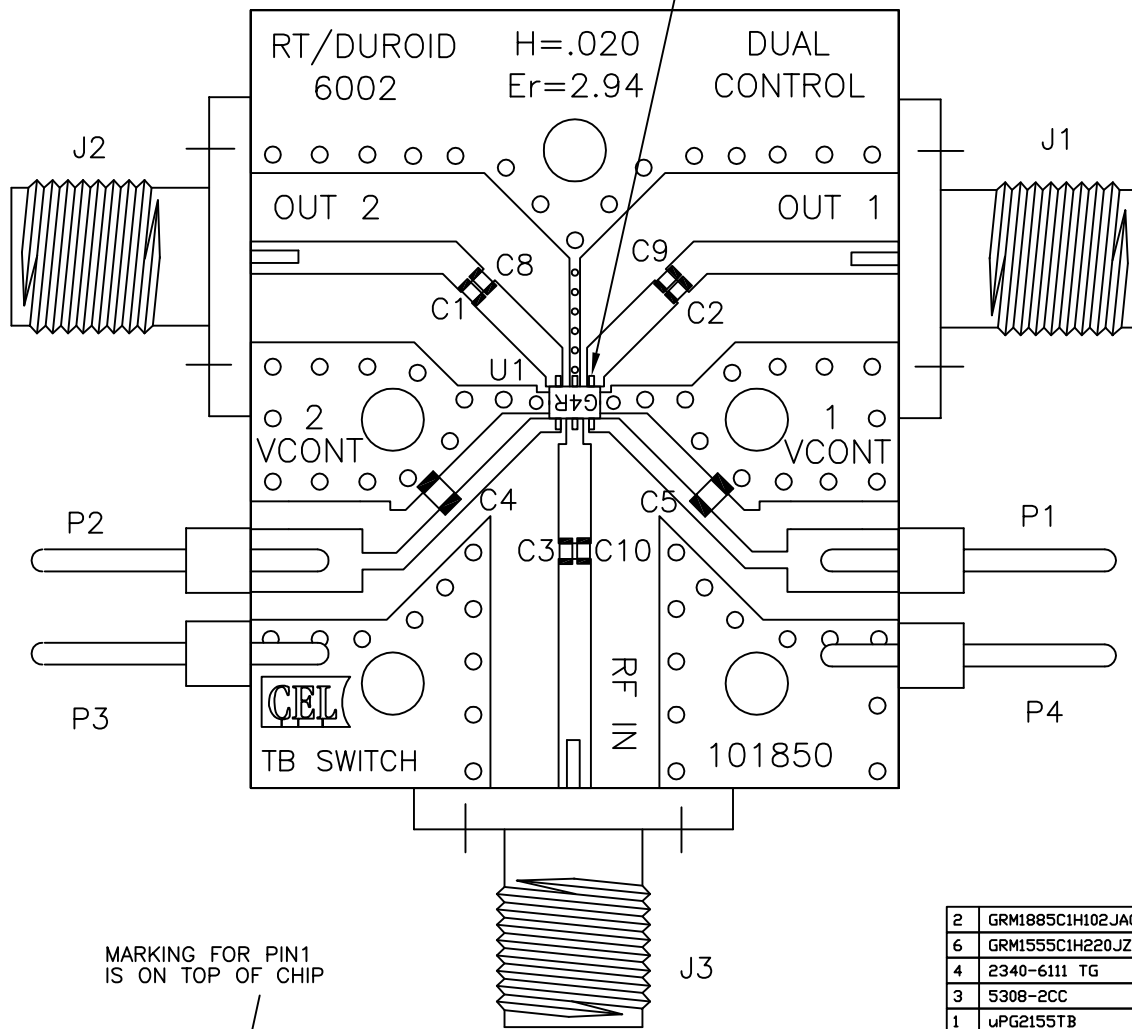
Insertion Loss of Through Board:

In assessing the insertion loss of the switch by measuring S21 of the evaluation board, it is necessary to take into account the loss through the connectors and PCB trace. To this end a through board was characterized to determine the board/connector loss. The table below lists the board loss at different frequencies.

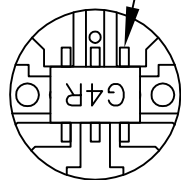
INPUT FREQUENCY (GHz)	BOARD LOSS (dB)
0.5	0.053
1.0	0.073
1.5	0.107
2.0	0.120
2.5	0.133
3.0	0.154

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED

MARKING FOR PIN 1



MARKING FOR PIN1 IS ON TOP OF CHIP



uPG2155TB

QTY	PART NUMBER OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	MATERIAL/SPECIFICATION	ITEM NO.
2	GRM1885C1H102JA01B+A01	C4,C5	0603 1000pF CAP MURATA	6
6	GRM1555C1H220JZ01B+C01	C1,C2,C3,C8,C9,C10	0402 22pF CAP MURATA	5
4	2340-6111 TG	P1,P2,P3,P4	PIN HEADER 3M	4
3	5308-2CC	J1,J2,J3	SMA FEMALE CONNECTOR TENSOLITE	3
1	uPG2155TB	U1	IC NEC uPG2155TB GaAs Switch	2
1	CL-101850	PCB	COMPONENT LAYOUT DRAWING	1

PARTS LIST

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES DECIMALS .XX± .01 .XXX± .005 ANGULAR ± 1° DO NOT SCALE DRAWING		APPROVALS Drawing by: Hugues de Saint Salvy 2005/01/28 Designed by: Hugues de Saint Salvy 2005/01/28 Checked by: Project Engineer: Quality Control:		4590 PATRICK HENRY DR. SANTA CLARA CA. 95054 TITLE: ASSEMBLY DRAWING uPG2155TB-EVAL-A	
MATERIAL FINISH NEXT ASSY USED ON APPLICATION		Project Engineer: Quality Control:		SIZE C FSCM NO. DWG NO. AD-101850	REV - SCALE NONE RELEASE DATE PROTOTYPE SHEET 1 OF 1