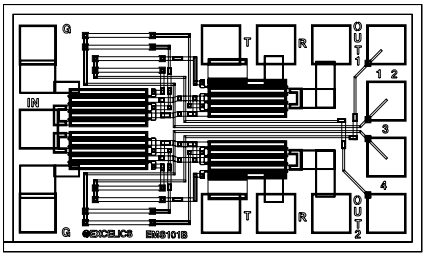
EMS101-C

DC-6GHz GaAs MMIC SPDT SWITCH

FEATURES

- **BROADBAND PERFORMANCE**
- **HIGH ISOLATION**
- **LOW INSERTION LOSS**
- **LOW DC POWER CONSUMPTION**
- **FAST SWITCHING SPEED**
- **SI3N4 PASSIVATION**
- **ADVANCED EPITAXIAL HETEROJUNCTION PROFILE PROVIDES HIGH RELIABILITY**



Caution! ESD sensitive device.

DESCRIPTION

The EMS101-C is a GaAs IC single pole double throw broadband RF switch chip. It can be used for broadband communications and instrument application. The RF outputs can be terminated with 50ohm load or short circuit. The switch is controlled by 0V/-5V signals to the control lines in accordance with the truth tables below.

ELECTRICAL CHARACTERISTICS (T_a = 25 ^{O}C)

SYMBOL	PARAMETERS/TEST CONDITIONS	MIN	TYP	MAX	UNIT
F	Operating frequency Range	DC		6	GHz
P1dB	Input Power at 1dB Gain compression 0/-5V Control; 50MHz 0/-5V Control; 2GHz		 17 27		dBm
Ls	Insertion Loss DC-3GHz 3-6GHz		 0.9 1.2	 1.4 1.8	dB
ISO	Isolation DC-3GHz 3-6GHz	 33 30	 38 32		dB
RL in	Input Return Loss DC-3GHz 3-6GHz	 16 10	 19 15		dB
RL out	Output Return Loss DC-3GHz 3-6GHz	 18 11	 21 16		dB
T	Switching Speed (50% control to 10%/90%RF)		3	8	nS
IP3	Third Order Intercept		46		dBm

Notes:
1. All measurements made in a 50ohm system.
2. P1dB measured input power at which insertion loss compressed by 1 dB.
3. Return Loss measured in low loss switch state

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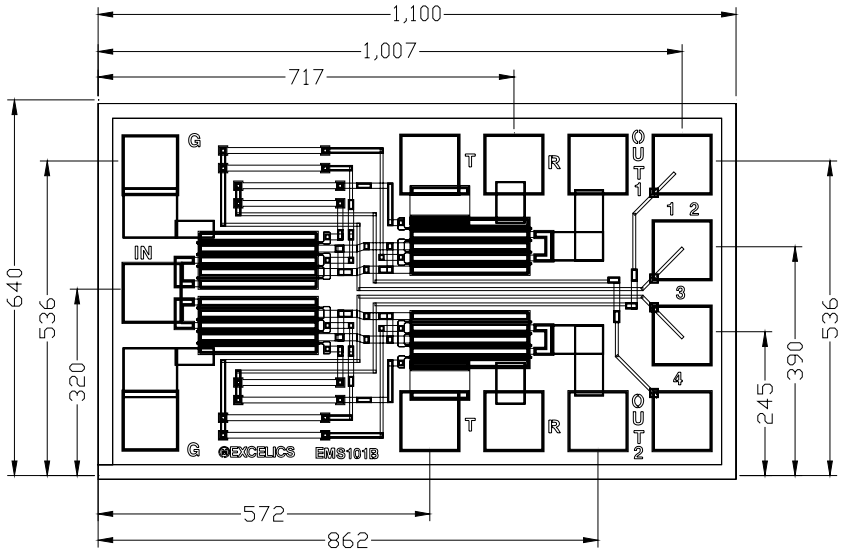
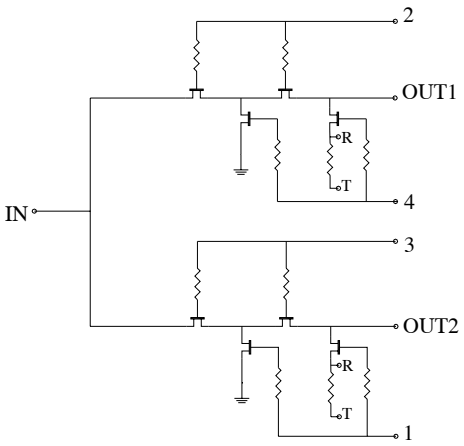
Chip Outline



Dimensions indicated in um.

All bonding pads are 100umx100um.

Electrical Schematic



Ground R: Reflective
Ground T: Terminated

Switching Truth Table

1&2	3&4	IN-OUT1	IN-OUT2
0V	-5V	Low loss	Isolated
-5V	0V	Isolated	Low loss

Absolute maximum Rating

RF input power	31dBm
Operating temperature	-40°C to +85°C
Storage temperature	-65°C to 150°C

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2. A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.