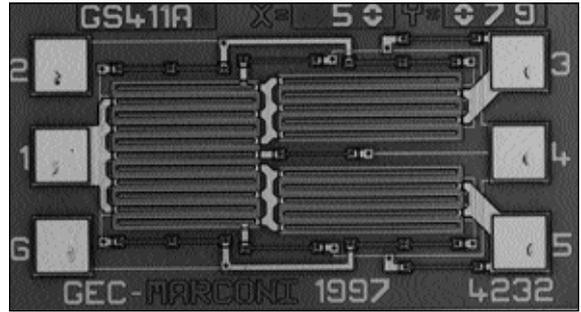


GaAs MMIC SPDT Reflective Switch, DC - 6GHz



Features

- Broadband performance
- Low insertion loss; 1.0dB typ at 3GHz
- Ultra low DC power consumption
- Fast switching speed; 3ns typical
- Positive or negative voltage operation
- High compression point; 34dBm typ.

Description

The P35-4232-000-200 is a high power Gallium Arsenide single pole double throw broadband RF switch MMIC. It is suitable for use in broadband communications and instrumentation applications. A high impedance reflective termination is presented at the isolated output of the switch. Control is effected by the application of complimentary 0V/-5V or 0/-8V signals to the control lines in accordance with the truth table. Alternatively, positive control voltages may be used if the Vref terminal is connected to the positive supply and decoupled to a good RF ground. In this case DC blocking capacitors should be used in series with the input and output RF connections.

This die is fabricated using MOC's 0.5 μ m gate length MESFET process (S20) and is fully protected using Silicon Nitride passivation for excellent performance and reliability. This device is also available packaged in a low-cost plastic package or higher performance ceramic package.

Electrical Performance

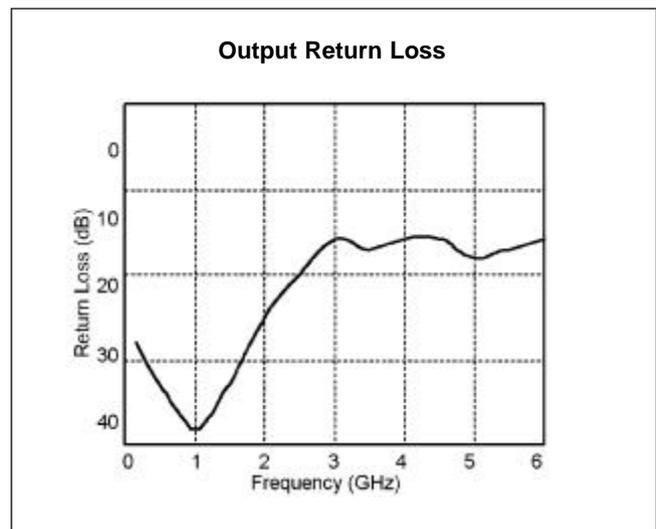
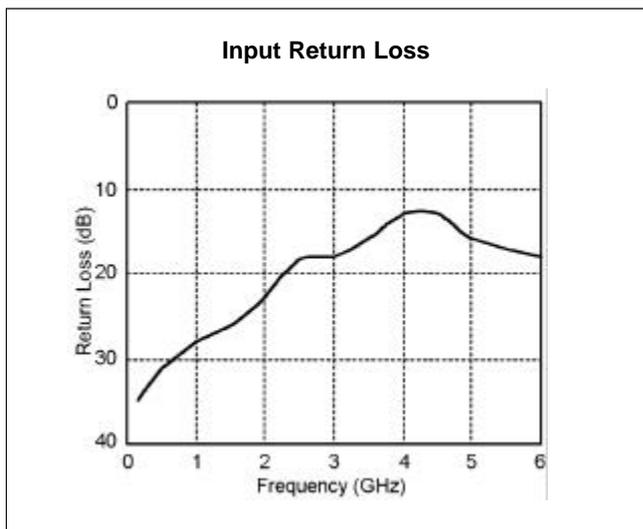
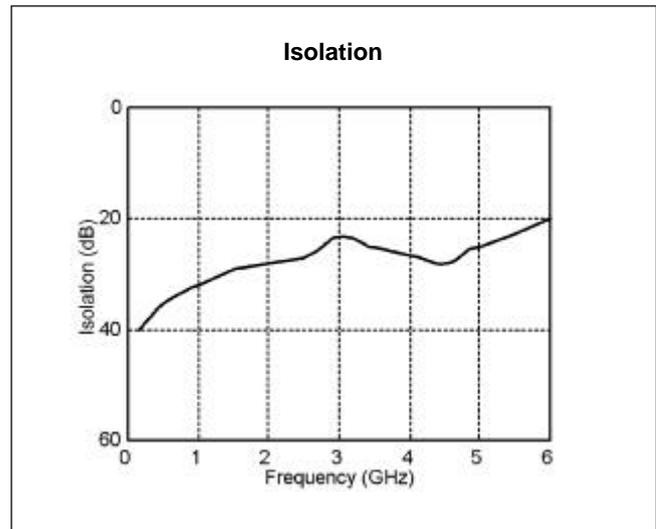
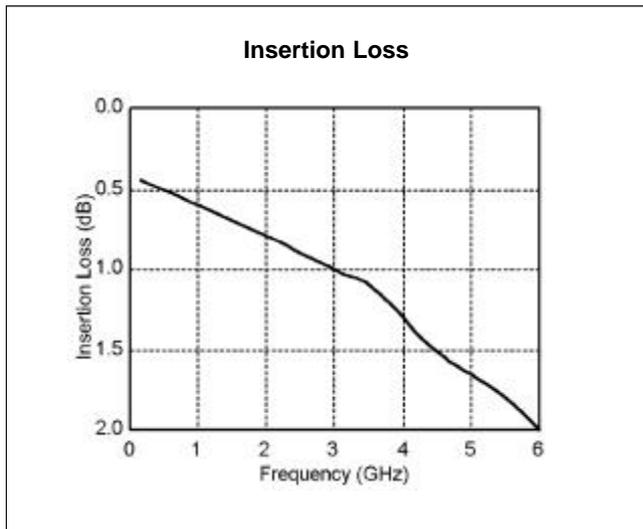
Ambient temperature = 22 \pm 3°C, Z_O = 50 Ω , Control voltages = 0V/-5V unless otherwise stated

Parameter	Conditions	Min	Typ	Max	Units
Parameter	Conditions	Min	Typ	Max	Units
Insertion Loss	DC - 3GHz	-	1.0	1.2	dB
	3 - 6GHz	-	2.0	2.5	dB
Isolation	DC - 3GHz	20	22	-	dB
	3 - 6GHz	17	20	-	dB
Input Return Loss ¹	DC - 3GHz	15	18	-	dB
	3 - 6GHz	10	12	-	dB
Output Return Loss ¹	DC - 3GHz	15	16	-	dB
	3 - 6GHz	10	15	-	dB
1dB power compression point ²	0/-5V Control; 2GHz	-	34	-	dBm
	0/-8V Control; 2GHz	-	35	-	dBm
Switching Speed	50% Control to 10%/90%RF	-	3	-	ns

Notes

1. Return Loss measured in low loss switch state.
2. Input power at which insertion loss compresses by 1dB.

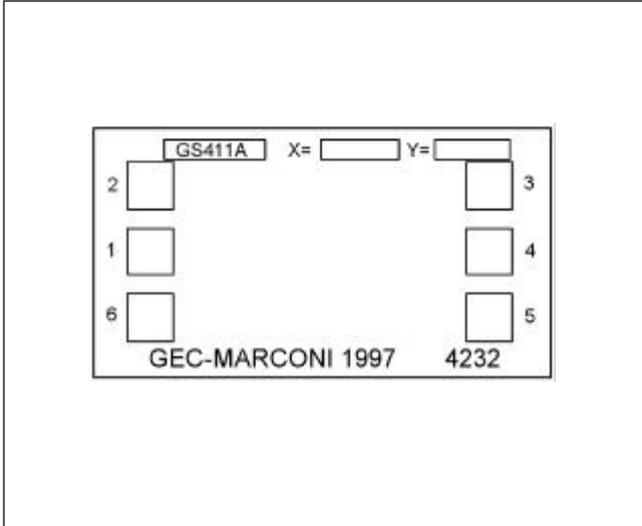
Typical Performance at 22°C



Absolute Maximum Ratings

Max Vref voltage	+8V
Max control voltage	Vref - 8V
Max I/P power	+33 dBm
Operating temperature	-60°C to +125°C
Storage temperature	-65°C to +150°C

Chip Outline

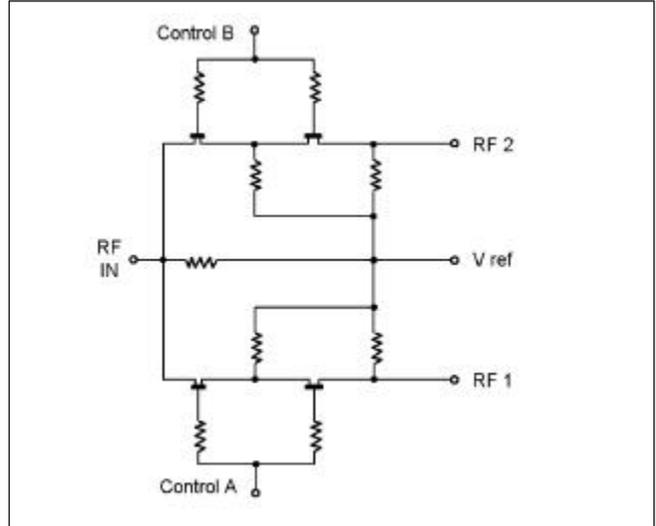


Die size	1.07 x 0.61mm
Bond pad size	100µm x 100µm
Die thickness:	210µm

Pin Details

Pin	Function
1	RF IN
2	Control B
3	RF2
4	Vref
5	RF1
6	Control A

Electrical Schematic



Switching Truth Table (Vref = 0V)

A	B	RF IN-RF1	RF IN-RF 2
0V	-5V	Low loss	Isolated
-5V	0V	Isolated	Low Loss

Switching Truth Table (Vref = 5V)

A	B	RF IN-RF1	RF IN-RF 2
5V	0V	Low loss	Isolated
0V	5V	Isolated	Low Loss

Chip Handling, Mounting and Bonding

The back of the chip is gold metallized and can be die-attached manually onto gold, eutectically with Au-Sn (80:20) or with low temperature conductive epoxy. The maximum allowable chip temperature is 310°C for 2 minutes. Bonds should be made onto the exposed gold pads with 17 or 25 microns pure gold, half-hard gold wire. Bonding should be achieved with the chip face at 225°C to 275°C with a heated thermosonic wedge (approx. 125°C) and a maximum force of 60 grams. Ball bonds may be used but care must be taken to ensure the ball size is compatible with the bonding pads shown. The length of the bond wires should be minimised to reduce parasitic inductance, particularly those to the RF and ground pads.

Ordering Information: P35-4232-000-200

The data and product specifications are subject to change without notice. These devices should not be used for device qualification and production without prior notice.

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The logo for Marconi, featuring the word "Marconi" in a stylized, cursive font with a horizontal line underneath.

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