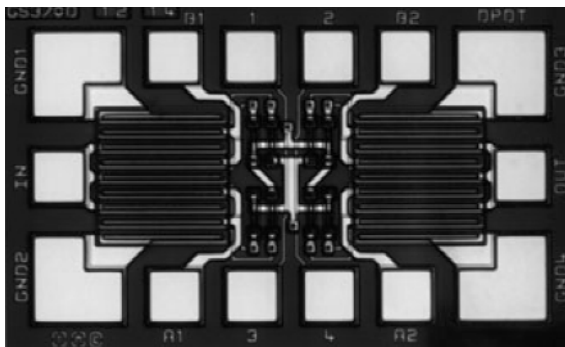


MMIC DPDT Reflective Switch, DC - 6GHz

The **P35-4245-000-200** is a high performance Gallium Arsenide double pole double throw broadband RF switch MMIC. It is suitable for use in broadband communications and instrumentation applications. A short circuit reflective termination is presented at the isolated output of the switch. The switch is controlled by the application of complimentary 0V/-5V or 0/-8V signals to the control lines in accordance with the truth table below.

This die is fabricated using Bookham Technology's 0.5 μm gate length MESFET process (S20) and is fully protected using Silicon Nitride passivation for excellent performance and reliability.



Features

- Broadband performance
- Low insertion loss; 0.5dB typ at 2GHz
- Ultra low DC power consumption
- Fast switching speed; 3ns typical

Electrical Performance

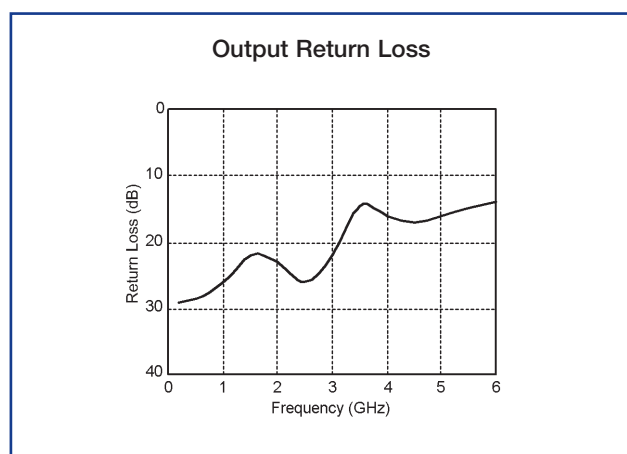
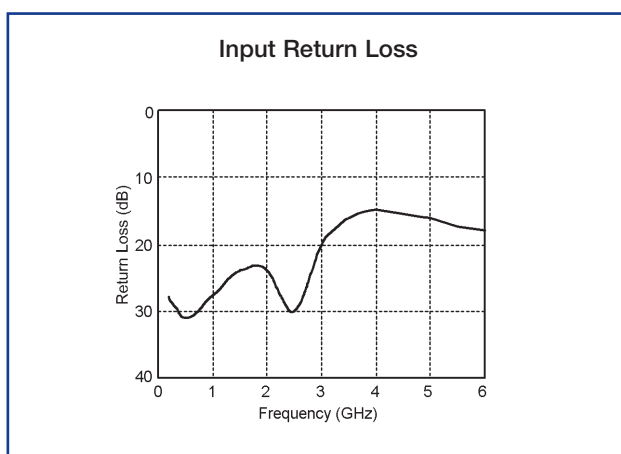
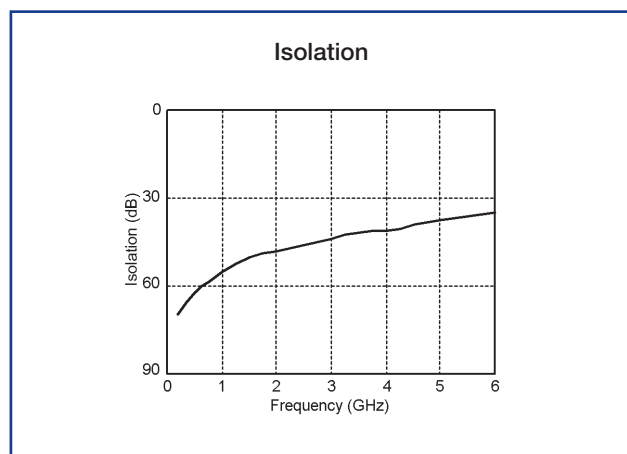
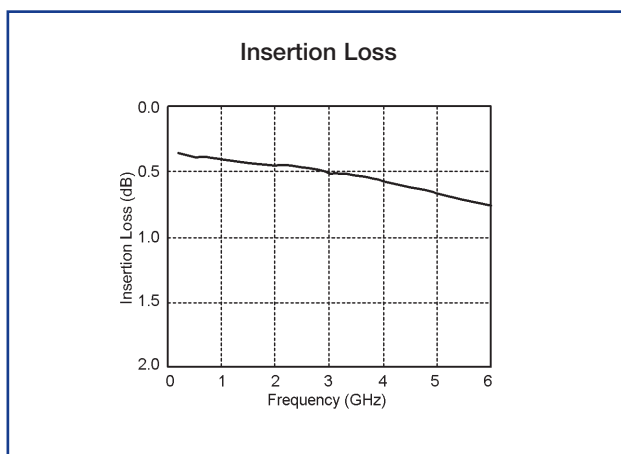
Ambient temperature = 22 ± 3 °C , $Z_o = 50$ ohms, Control voltages = 0V/-5V unless otherwise stated

Parameter	Conditions	Min	Typ	Max	Units
Insertion Loss ¹	DC - 3GHz	-	0.5	0.6	dB
	3 - 6GHz	-	0.8	0.9	dB
Isolation ²	DC - 3GHz	40	45	-	dB
	3 - 6GHz	30	35	-	dB
Input Return Loss ³	DC - 3GHz	20	25	-	dB
	3 - 6GHz	15	18	-	dB
Output Return Loss ³	DC - 3GHz	20	22	-	dB
	3 - 6GHz	12	14	-	dB
1dB power compression point	4 0/-5V Control; 50MHz	-	19.5	-	dBm
	0/-5V Control; 0.5 - 4GHz	-	25.5	-	dBm
	0/-8V Control; 50MHz	-	21.5	-	dBm
	0/-8V Control; 0.5 - 4GHz	-	28	-	dBm
Switching Speed	50% Control to 10%90%RF	-	3	-	ns

Notes

1. Insertion loss refers to each pole of the switch.
2. Isolation measured between RF IN & RF OUT (2 poles).
3. Return Loss measured in low loss switch state.
4. Input power at which insertion loss compresses by 1dB.

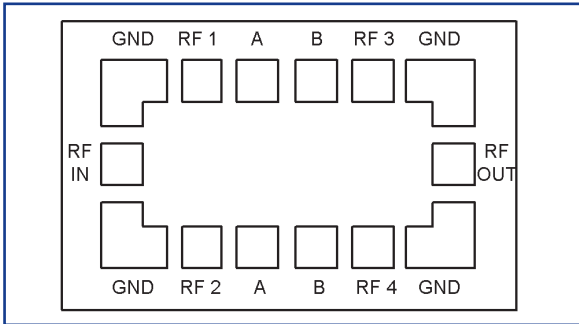
Typical Performance at 22° C



Absolute Maximum Ratings

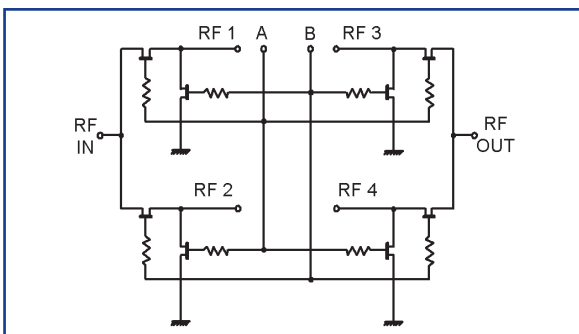
Max control voltage	-8V
Max I/P power	+30 dBm
Operating temperature	-60 °C to +125 °C
Storage temperature	-65 °C to +150 °C

Chip Outline

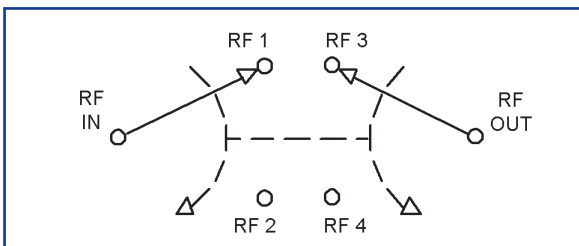


Die size: 0.99 x 0.64mm
 Minimum Bond pad size: 90 μm x 90 μm
 Die thickness: 200 μm

Electrical Schematic



Switching Schematic



Switching Truth Table

A	B	RF IN-RF1 RF3-RF OUT	RF IN-RF2 RF4-RF OUT
0V	-5V	Low Loss	Isolated
-5V	0V	Isolated	Low Loss

Handling, Mounting and Bonding

The back of the die 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 die 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 die 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. Note that there is a choice of control pads (A & B) to aid circuit layout.

Ordering Information

P35-4245-000-200



Thinking RF solutions

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Important Notice

Bookham Technology has a policy of continuous improvement. As a result certain parameters detailed on this flyer may be subject to change without notice. If you are interested in a particular product please request the product specification sheet, available from any RF sales representative.

