

## Feature

Pass Bands: 2.7GHz ~ 3GHz, 2.95GHz ~ 3.25GHz, 3.25GHz ~ 3.5GHz;

Insertion Loss in pass bands:  $\leq 8$ dB

Isolation between pass bands:  $\geq 30$ dB

Size: 5x5x0.15mm

## Description

This device is a FET switch filter bank MMIC based on GaAs processing. Adopt +5V/0V logic control, switching time is less than 30ns typ. It has low loss, excellent isolation, and high integration.

The metallization processing of thru-holes on the plate ensures good grounding. Extra grounding measures aren't required, which is easy for application. The back metallization is suitable for eutectic sintering or conductive adhesive sticking processes.

## Absolute Rating

Control Voltage	-1V~+5V
Input Power	27dBm
Storage Temperature	-65~+150°C
Operating Temperature	-55~+125°C

## Electrical Specifications 1 ( $T_A = +25^\circ\text{C}$ )

Spec.	Pass band 1	Pass band 2	Unit
Freq. Range	2.75~3	2.95~3.25	GHz
Insertion Loss	$\leq 8$	$\leq 8$	dB
Rejection	$\geq 35\text{dBc}@2.4\text{GHz}$	$\geq 35\text{dBc}@2.65\text{GHz}$	dBc
	$\geq 30\text{dBc}@3.3\text{GHz}$	$\geq 28\text{dBc}@3.55\text{GHz}$	dBc
VSWR	$\leq 1.8$		—

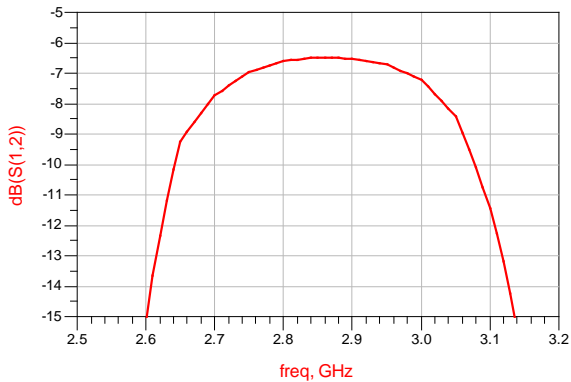
## Electrical Specifications 2 ( $T_A = +25^\circ\text{C}$ )

Spec.	Pass band 3	Pass band 4	Unit
Freq. Range	3.25~3.5	-	GHz
Insertion Loss	$\leq 8$	-	dB
Rejection	$\geq 35\text{dBc}@2.9\text{GHz}$	-	dBc
	$\geq 25\text{dBc}@3.8\text{GHz}$	-	dBc
VSWR	$\leq 1.8$		—

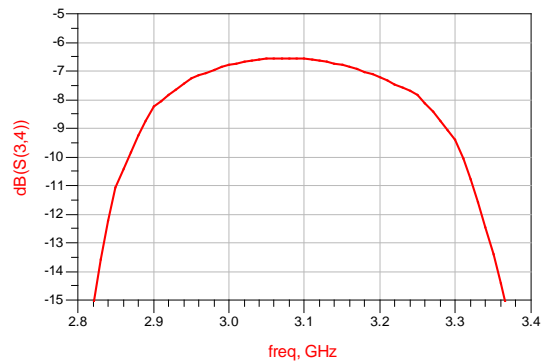
S2P file name: PDSBF4-2R7\_3R5-5D7.s2p

## Typical Test Curves

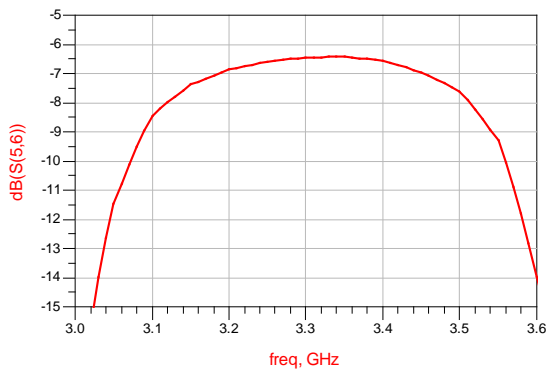
Pass band 1 Insertion Loss VS Frequency ( $T_A=25^\circ\text{C}$ )



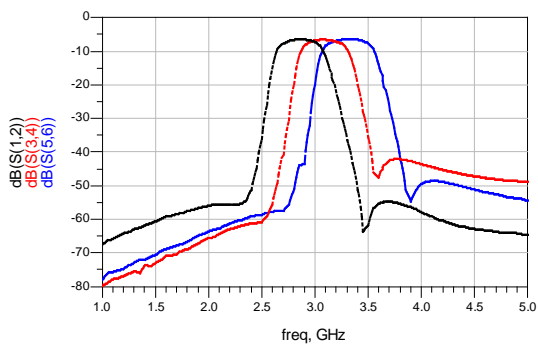
Pass band 2 Insertion Loss VS Frequency ( $T_A=25^\circ\text{C}$ )



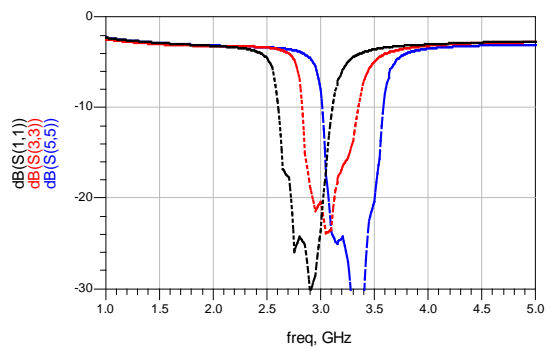
Pass band 3 Insertion Loss VS Frequency ( $T_A=25^\circ\text{C}$ )



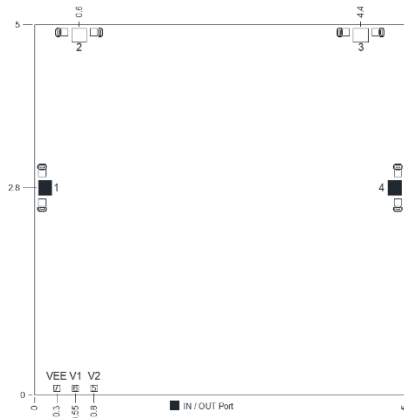
Insertion Loss VS Frequency ( $T_A=25^\circ\text{C}$ )



Return Loss VS Frequency ( $T_A=25^\circ\text{C}$ )



## Mechanical Specification



## Truth Table

Control Voltage (VEE=+5V)		Pass bands
V1	V2	
0	0	Pass Band 1
1	0	Pass Band 2
0	1	Pass Band 3
1	1	-
Status: Low (0) 0V; High (1) +5V		

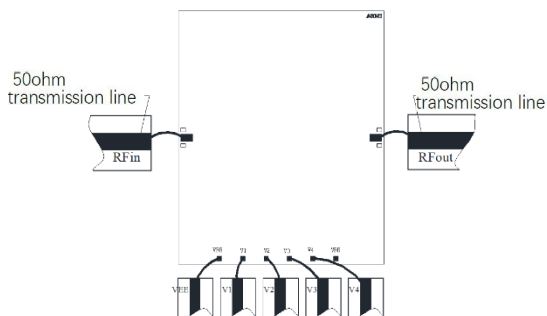
## PINS Definitions

Pin No.	Symbol	Description
1	RFin	RF Input
2, 3	—	RF Output
4	RFout	RF Output
5	V2	Control ports
6	V1	Control ports
7	VEE	Power Supply ports

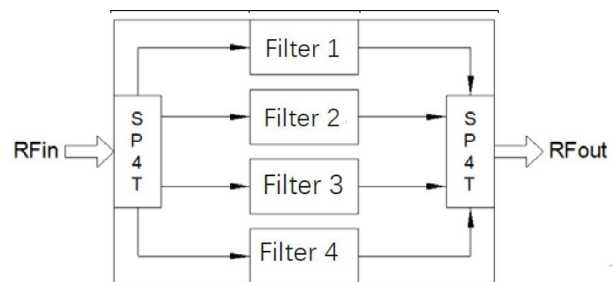
Notes:

1. Dimensions are um. Tolerance:  $\pm 0.05\text{mm}$
2. Die thickness is 0.1mm
3. Typical bond pad is 100um \*100um, which is 50um away from chip edge.
4. The bottom of the device is gold plated, should be grounded.

## Recommended Assembly Diagrams



## Functional Diagram



## Application Notes:

1. The chip is back-metallized and can be die-mounted with AuSn eutectic preforms or with electrically conductive epoxy.
2. The die should be assembled on carriers like Kovar or Mu-Cu which have same Coefficient of thermal expansion. ( $5.8 \times 10^{-6}/^\circ\text{C}$ ) with GaAs.
3. Recommend using  $\Phi 25\mu\text{m}$  Au wire for bonding, whose length is around 200um.
4. Sinter by AuSn (80/20), which doesn't exceed  $300^\circ\text{C}$  within 30 seconds max.
4. Handle the chips in a clean environment. DO NOT attempt to clean the chip using liquid cleaning systems.
5. Handle the chip along the edges with a vacuum collet or with a sharp pair of bent tweezers.
6. The device is sensitive to ESD. ESD protection is required during storage and usage.
7. If you have any questions, please contact us.