

Features

Freq: DC~18GHz
 Insertion Loss: 3.5 dB
 Isolation: 45 dB
 Supply Voltage: -5V
 Control Voltage: 0/-5V
 Chip Size: 1.4mm×1.25mm×0.1mm

General Description

The HG146K is a reflective GaAs pHEMT SP4T switch chip. Covering DC to 18 GHz, this switch offers isolation of 45 dB and low insertion loss of 3.5 dB. This switch operates using a negative control voltage of 0/-5V, and requires -5V bias supply.

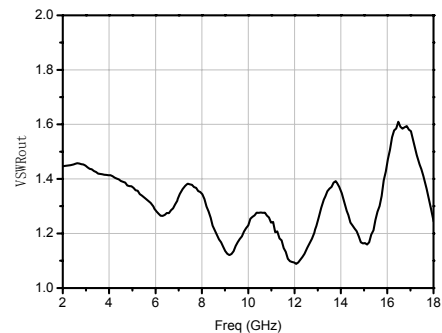
Electrical Specifications($T_A=25^\circ\text{C}$, $V_{dd} = -5\text{V}$)

Parameter	Min.	Typ.	Max.
Frequency Range(GHz)	DC~18		
Input VSWR	-	1.6	-
Output VSWR	-	1.4	-
Insertion Loss(dB)	-	3.5	-
Isolation(dB)	-	45	-

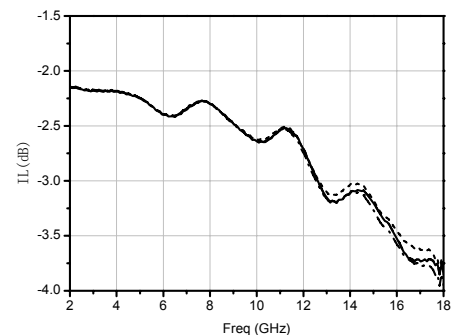
Truth Table

SW2	SW1	RFC-RF1	RFC-RF2	RFC-RF3	RFC-RF4
0V	0V	OFF	OFF	OFF	ON
0V	-5V	OFF	OFF	ON	OFF
-5V	0V	OFF	ON	OFF	OFF
-5V	-5V	ON	OFF	OFF	OFF

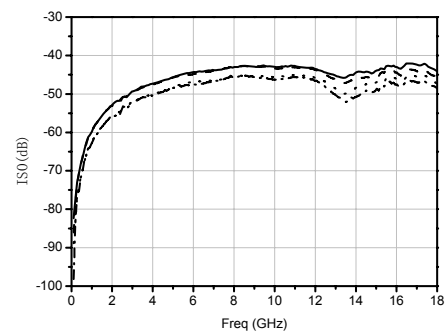
Output VSWR



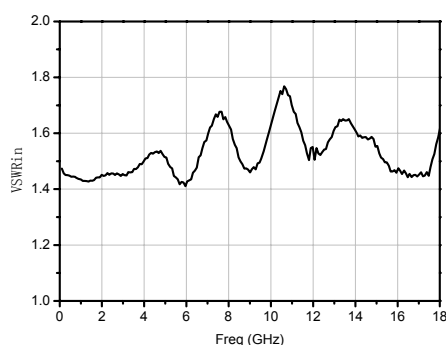
Insertion Loss



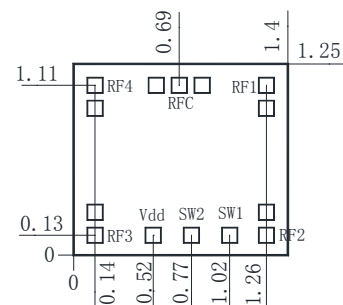
Isolation



Input VSWR



Outline Drawing (mm)



Absolute Maximum Ratings

Supply Voltage	-5.5V	
RF Input Power	+27dBm	
Control Voltage	Low Level: 0 ~ -0.5V	High Level: -4 ~ -5V
Operating Temperature	-55℃ ~ 125℃	
Storage Temperature	-65℃ ~ 150℃	

Notes:

1. The chip should be stored in a dry and nitrogen environment, and used in a clean environment.
2. GaAs material is brittle, can not touch the surface of the chip, must be careful when using.
3. The chip is welding with conductive adhesive or alloy (alloy temperature should not exceed 300℃, and no more than 30 sec.), and should make it fully grounded.
4. The chip microwave port and substrate gap is not exceeding 0.05mm, with $\Phi 25\mu\text{m}$ double gold wire bonding, suggested length of gold wire 250~400 μm .
5. Chip microwave port without DC blocking capacitor.
6. The chip is sensitive to static electricity, and should be protected against static electricity during storage and use.