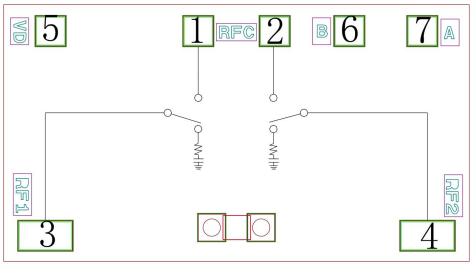
★1.Product Features

- Frequency range: DC~6 GHz
- Insertion loss: 1.2 dB
- Isolation: 55 dB
- Control voltage: 0/+5 V
- Switching time: 20 ns
- Chip size: 1.46 mm × 0.86 mm × 0.1 mm
- Replacement for: HMC336MS8

Functional Block Diagram



★2.Product Introduction

The TFSW446-H is an absorptive single-pole double-throw (SPDT) switch chip featuring small size, high isolation and no negative voltage requirement. Its dimensions are 1.46 mm × 0.86 mm × 0.1 mm. The chip operates from DC~6 GHz with a typical insertion loss of 1.2 dB and an isolation greater than 55 dB. The control voltage is 0/+5 V. It can replace the foreign model HMC336MS8.

The chip backside is metallized and is suitable for conductive adhesive die attachment or eutectic bonding. The chip adopts an on-chip metallized via-hole process to ensure good grounding, which makes it easy to use without additional grounding measures.

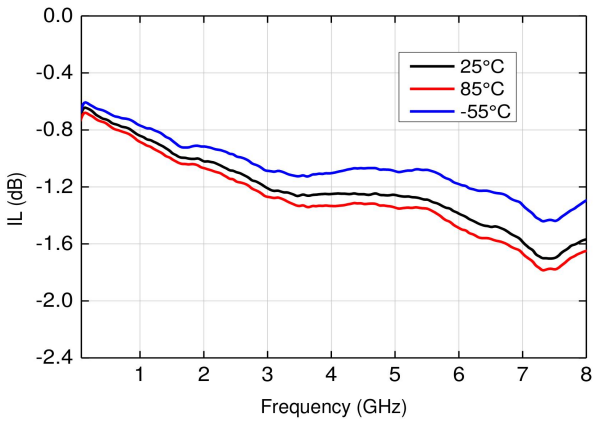
★3.Electrical Characteristics (TA=+25℃, 50Ω System)

Parameter	Symbol	Min	Typ	Max	Unit
Operating Frequency	Freq	DC*	—	6	GHz
Insertion Loss	IL	—	1.2	—	dB
Isolation	ISO	50	55	—	dB
Input Return Loss	RL_in	—	-20	—	dB
On-state Output Return Loss RF1~RF2	RL_out	—	-20	—	dB
Off-state Output Return Loss RF1~RF2	RL_out	—	-20	—	dB
Switching Time 10%RF to 90%RF	Ts	—	20	—	ns
* The DC blocking capacitors in the typical test curves are 630 pF.					

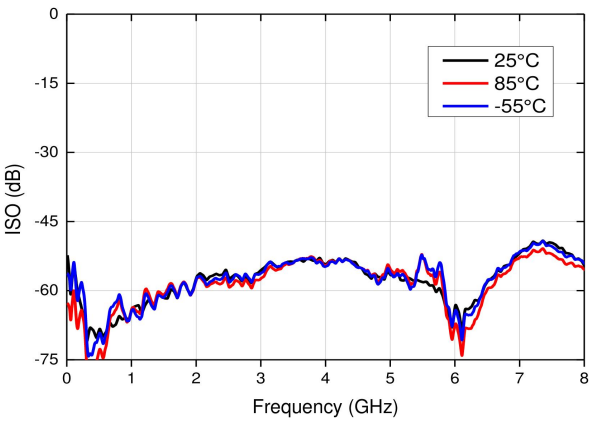
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★4.Typical Test Curve

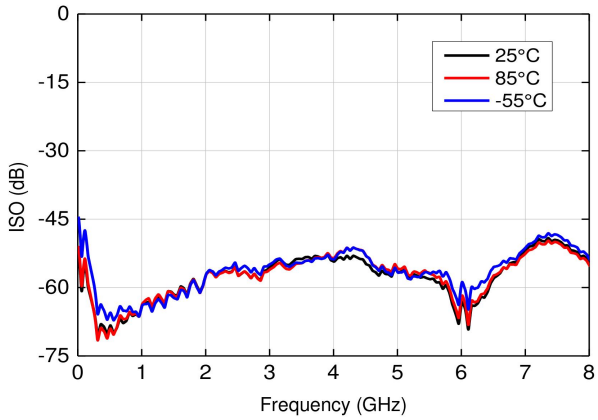
Insertion Loss vs. Frequency



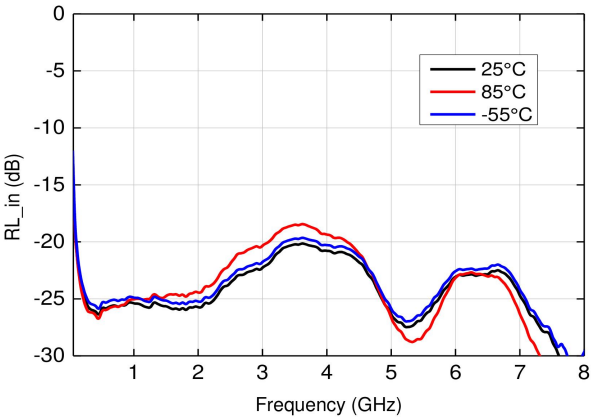
RF1 Isolation vs. Frequency



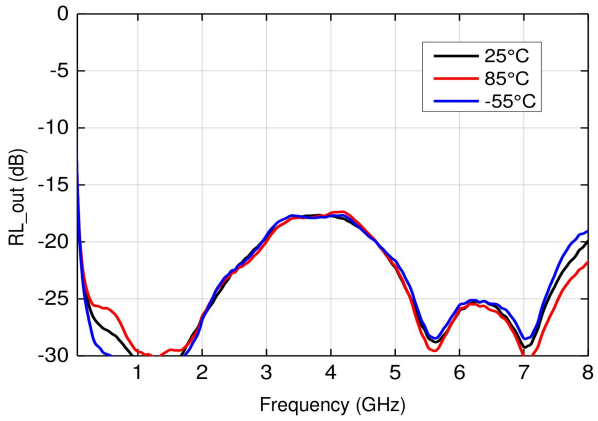
RF2 Isolation vs. Frequency



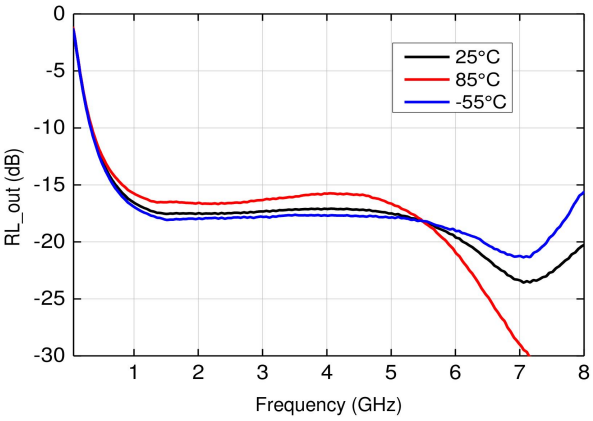
Input Return Loss vs. Frequency



On-state Output Return Loss vs. Frequency

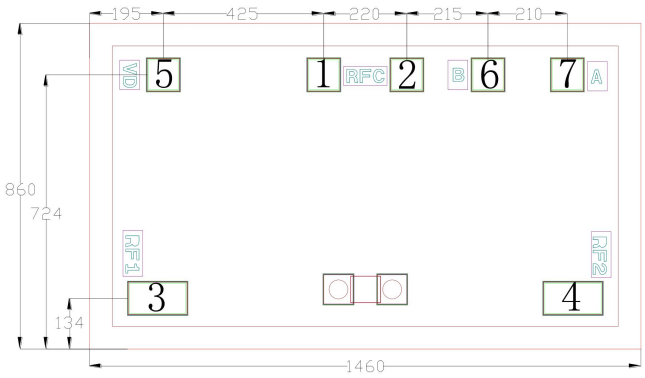


Off-state Output Return Loss vs. Frequency



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★5.Outline Dimensions



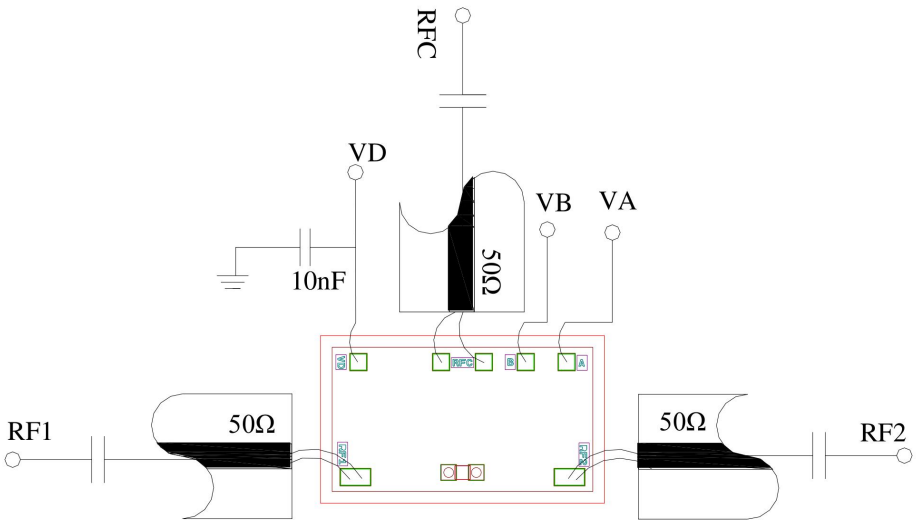
Notes:

1. Unit: μm
2. Chip backside is gold-plated for grounding.
3. RF1/RF2 pad size: 150 μm × 100 μm; RFC pad size: 100 μm × 100 μm.
4. VD/VA/VB pad size: 100 μm × 100 μm.

★6.Bonding Pressure Point Definition

Pressure Point Number	Function Definition	Function Description
1, 2	RFC	RF signal input port, external DC blocking capacitor required.
3	RF1	RF output port 1, external DC blocking capacitor required.
4	RF2	RF output port 2, external DC blocking capacitor required.
5	VD	DC supply port (+5 V).
6	VB	Control input port B.
7	VA	Control input port A.

★7.Suggested Assembly Drawing



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Operating Voltage

VD	IDD Typ.	IDD Max.
+5 V	1 mA	1 mA

Control Level

State	Level Range
Low	0 V ~ +2.3 V
High	+2.7 V ~ +5 V

Truth Table

Supply Voltage	Control Input		Switching State	
VD	VA	VB	RF1	RF2
+5 V	High	Low	OFF	On
+5 V	Low	High	On	OFF

★8.Precautions

Parameter	Limit Value
Input Power (Pin, 50Ω)	+30 dBm
Drain Voltage	+5.5 V
Storage Temperature	-65℃~+150℃
Operating Temperature	-55℃~+85℃
Sintering Temperature (30s, N_2 Protection)	300℃
Exceeding any of the above conditions may cause permanent damage to the chip.	



This product is sensitive to static electricity.

Please take precautions against static electricity during use.