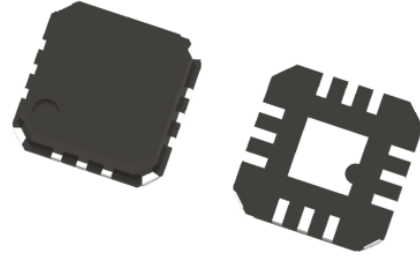# Eudyna

Eudyna Devices Inc.

Preliminary HS/M69SPDT312

Single Pole Double Throw
GaAs PHEMT Switch 0.1 – 6 GHz

FEATURES

- **Low Insertion Loss: 0.55 dB at 2.4 GHz**
  : 0.75 dB at 5.9 GHz
- **High Isolation** **: 25 dB at 2.4 GHz**
  : 22 dB at 5.9 GHz
- **GaAs PHEMT technology**
- **Miniature QFN-12 Plastic Package**

3.0 mm x 3.0 mm x 0.9mm

Lead Free Package

APPLICATIONS

- **WLAN 802.11a,b,g / WiMAX 802.16d**
  T/R Switching

DESCRIPTION

HS/M69SPDT312 is a single-pole double-throw (SPDT) GaAs PHEMT switch designed WLAN and WiMAX transmit / receive switching applicattion. HS/M69SPDT312 is ideally suited for applications where low profile and small size are critical. It also features high linearity, low control voltage, low insertion loss, and high isolation. The device is in low-cost miniature 12-lead 3.0mm x 3.0mm package.
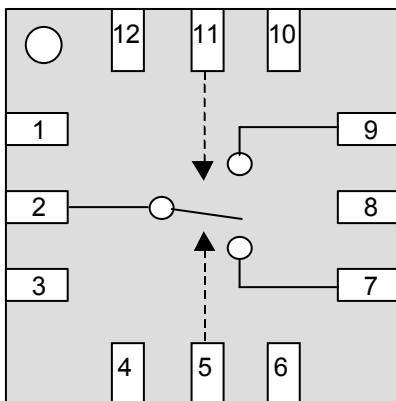
Function Block Diagram (Top View)

Pin No.	Pin Name	Description
1	GND	Ground
2	RFC	RF Common Port
3	GND	Ground
4	GND	Ground
5	V1	Control 1
6	GND	Ground
7	RF1	RF port 1
8	GND	Ground
9	RF2	RF port 2
10	GND	Ground
11	V2	Control 2
12	GND	Ground

Pin Configuration

1

ARGET SPECIFICATIONS

ABSOLUTE MAXIMUM RATINGS (Ambient Temperature Ta=25°C)

Parameter	Symbol	Rating	Unit
DC Input Voltage	V1, V2	+6	V
Input Power	Pin	+36	dBm
Storage Temperature	Tstg	-40 to +85	°C
Operating Case Temperature	Top	-40 to +85	°C

ELECTRICAL SPECIFICATIONS (Case Temperature Tc=25°C)

Parameter	Symbol	Condition/comments	Min	Typ	Max	Unit
Frequency range	F		0.1		6.0	GHz
Insertion Loss	I.L.	2.3 – 3.9 GHz	-	0.55	0.75	dB
		5.1 – 5.9 GHz	-	0.75	0.95	
Isolation	ISO	2.3 – 3.9 GHz	-	25	-	dB
		5.1 – 5.9 GHz	-	22	-	
Return Loss	RL	2.3 – 3.9 GHz	-	20	-	dB
		5.1 – 5.9 GHz		20		
Control Voltage V1 V2	Vhigh	High	2.5	2.8	3.3	V
	Vlow	Low	-0.2	0	+0.2	
Input P0.1dB	P0.1dB	Vhigh=2.8V, Vlow=0V	-	34	-	dBm
Control Current	Icontrol	Vhigh=2.8V, Vlow=0V	-	15	-	uA

(Unless otherwise specified Zsource=Zload=50Ω System, Tc=25°C)

TRUTH TABLE

V1	V2	ANT – RF1	ANT – RF2
High	Low	ON	OFF
Low	High	OFF	ON

Typical Performance Curves
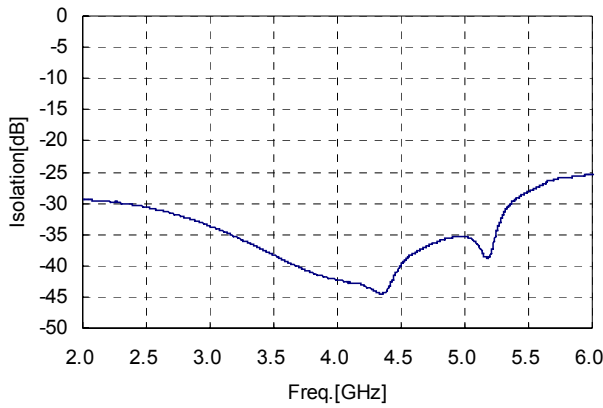
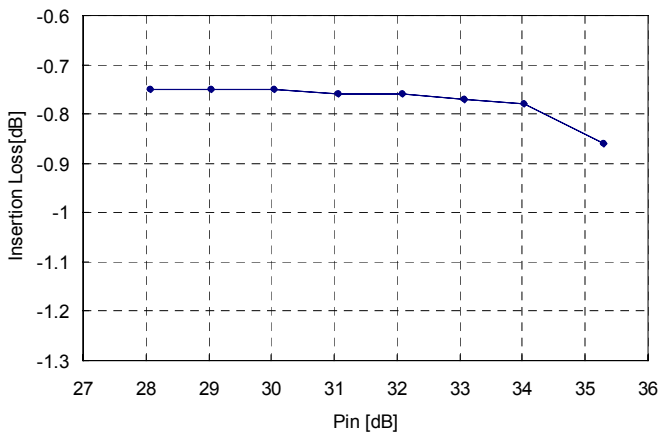### Insertion Loss vs Frequency
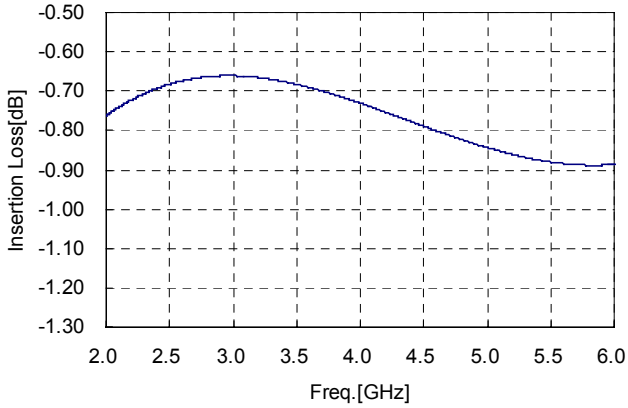
Return Loss vs Frequency
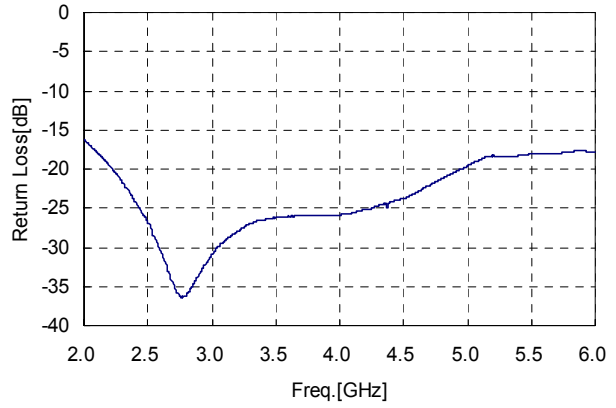
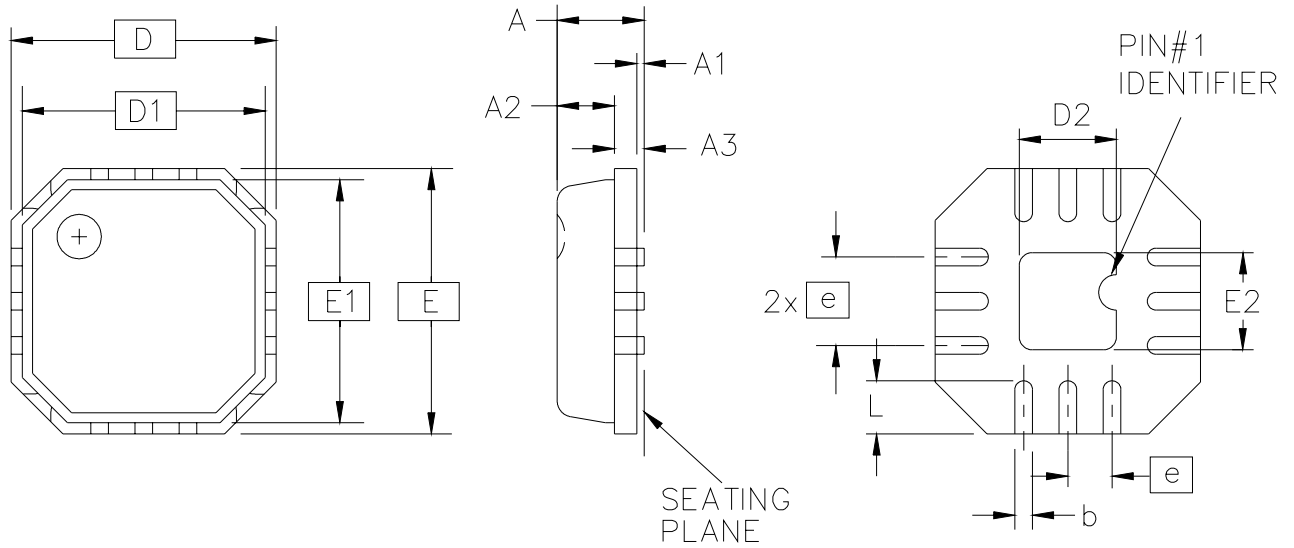
Isolation (RFC to RF1, RF2) vs Frequency

P0.1dB

Freq.=1.9GHz,Vcont=2.8V

Specifications are subject to change without notice.

PACKAGE DIMENSIONS

Dimension	Measurement (mm)		
Symbol	Min	Nom	Max
A	-	0.85	0.90
A1	0.00	0.01	0.05
A2	-	0.65	0.70
A3	0.20 REF		
b	0.18	0.23	0.30
D	3.00 BSC		
D1	2.75 BSC		
D2	1.15	1.30	1.45
E	3.00 BSC		
E1	2.75 BSC		
E2	1.15	1.30	1.45
e	0.50 BSC		
L	0.50	0.60	0.75