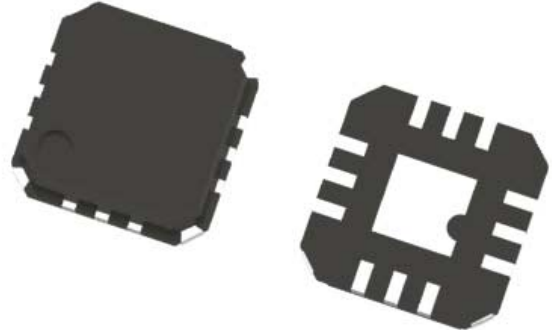


## FEATURES

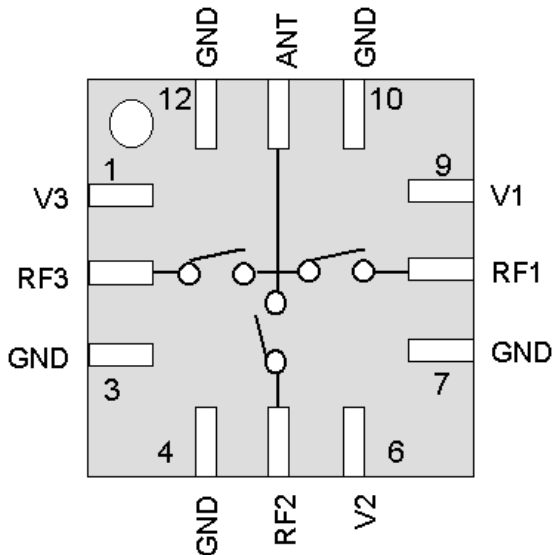
- Low Insertion Loss: 0.5 dB at 2GHz
- Low Voltage Operation 2.8V
- Low Harmonics 70dBc at +34 dBm
- Miniature QFN-12 Plastic Package
- GaAs PHEMT technology



3.0mm x 3.0mm x 0.9mm  
Lead Free Package

## DESCRIPTION

FMM5309ZU is a high power SP3T GaAs PHEMT switch designed for transmit / receive switching applications in the 0.5 GHz to 2.5 GHz range. FMM5309ZU is ideally suited for applications where high linearity, low control voltage, low insertion loss, high isolation, small size and low cost are required. Typical applications are for UMTS, GSM and CDMA handset systems. The device is in low-cost miniature QFN 12-lead 3x3mm package.



**Pin Configuration**  
(Top View)

PIN No.	PIN Name	Description
1	V3	Control 3
2	RF3	RF Port 3
3	GND	RF Ground
4	GND	RF Ground
5	RF2	RF Port 2
6	V2	Control 2
7	GND	RF Ground
8	RF1	RF Port 1
9	V1	Control 1
10	GND	RF Ground
11	ANT	Antenna Port
12	GND	RF Ground
13	GND (paddle)	RF Ground

**Pin Function Table**



Eudyna Devices Inc.

# FMM5309ZU

Single Pole Three Throw  
GaAs PHEMT High Power Switch 0.5 - 2.5 GHz

## TARGET SPECIFICATION

### Absolute Maximum Ratings (Ambient Temperature Ta=25°C)

Parameter	Symbol	Rating	Unit
DC Input Voltage	V1, V2, V3	+5	V
Input Power	Pin	+38	dBm
Storage Temperature	Tstg	-40 to +85	°C
Operating Case Temperature	Top	-20 to +70	°C

### Electrical Specifications (Case Temperature Tc=25°C)

Parameter	Symbol	Condition/comments	Min	Typ	Max	Unit
Frequency range	F		0.5		2.5	GHz
Control Voltage for V1,V2, and V3	Vhigh Vlow	High Low	2.6 -0.2	2.8 0	3.2 +0.2	V
Control Current (per line)	Icontrol	0.9 GHz, 34 dBm, Vhigh =2.8V		20	40	uA
Input P1dB	P1dB	0.9 GHz, 2.8/0V		38		dBm
2 <sup>nd</sup> Harmonic	2HD	0.9 GHz, Pin=+34 dBm Vhigh=2.8V, Vlow=0V		70		dBc
3 <sup>rd</sup> Harmonic	3HD			70		dBc
Insertion Loss	I.L.	0.5 - 1.0 GHz 0.5 - 2.0 GHz		0.40 0.50	0.60 0.70	dB
Isolation	ISO	0.5 - 1.0 GHz 0.5 - 2.0 GHz		26 20		dB
Return Loss	RL	0.5 - 2.0 GHz		20		dB
Switching Speed	Ton Toff	50% Vcontrol to 90% RF 50% Vcontrol to 10% RF		100 100		nsec

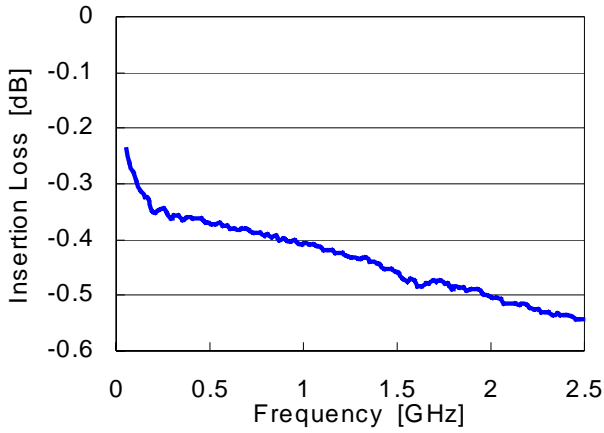
(Unless otherwise specified Zsource=Zload=50Ω System)

### Truth Table

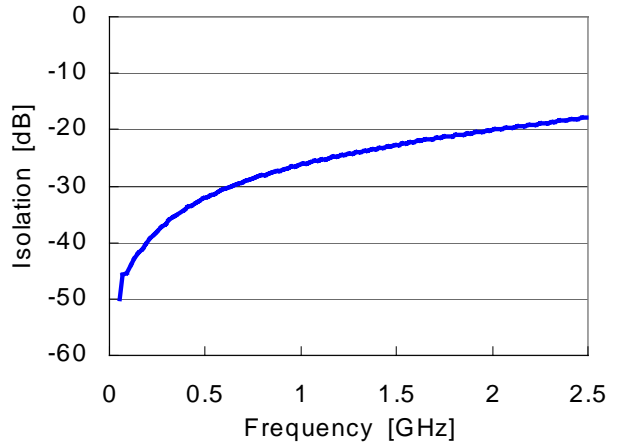
V1	V2	V3	RF1-RFC	RF2-RFC	RF3-RFC
HIGH	LOW	LOW	ON	OFF	OFF
LOW	HIGH	LOW	OFF	ON	OFF
LOW	LOW	HIGH	OFF	OFF	ON

## Typical Performance Curves

Insertion Loss vs. Frequency

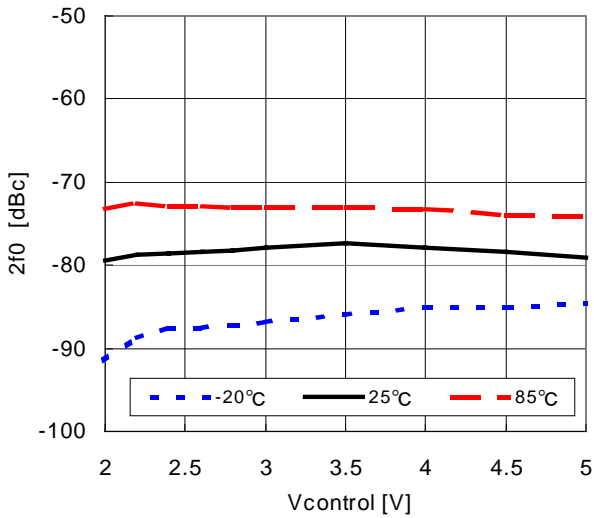


Isolation vs. Frequency



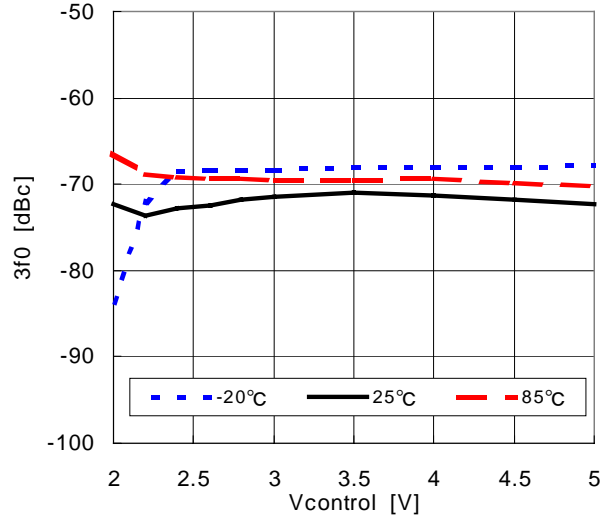
2<sup>nd</sup> Harmonics vs. Vcontrol

Pin = 34 dBm, 900 MHz

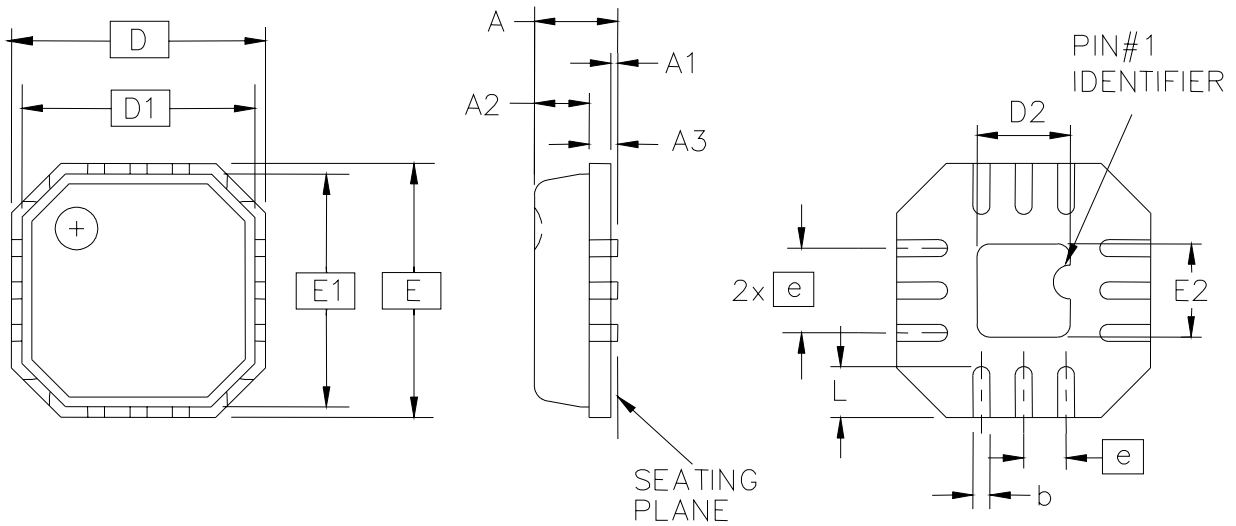


3<sup>rd</sup> Harmonics vs. Vcontrol

Pin = 34 dBm, 900 MHz



## Package Dimension



Dimension Symbol	Measurement (mm)		
	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

### NOTE

This document contains preliminary information, and it is subject to change without notice.