

Description

ZDH5411 is a PHEMT GaAs double-pole, doublethrow(DPDT) switch. ZDH5411 operates in the frequency range of 0.1GHz to 6GHz, provides high linearity performance, lowinsertion loss, and high isolation. Switching is controlled by two voltage inputs(V1 and v2)Depending on the logic voltage level applied to the control pins,the ANT1 and ANT2 pins connect to one of two switched RFoutputs(RX or TX)through a low insertion loss path whilemaintaining a high isolation path to the alternate port.

ZDH5411 is available in an 6-pin DFN1.5x1.5 package for excellent reliability and economy.

Applications

- Dual-band wireless LANS (802.11 a/b/g/n)
- Diversity antenna switching

Absolute Maximum Ratings

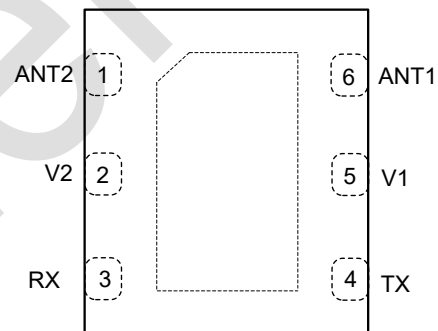
Parameters	Rating
Storage Temperature	-65°C~+150°C
Operation Temperature	-55°C~+125°C
Control Voltage (V1,V2)	6V
RF Input Power	32dBm

Features

- Typical control voltage 3V,
typical control current 5uA
- Low Insertion Loss: 1.0dB at 2.5GHz
- High isolation: 37dB at 2.5GHz
- Typical P1dB: 35dBm at 2.4GHz
- Typical output IP3: 50dBm @ PIN=20dBm
- DFN1.5x1.5-6PIN package



PIN Configuration (Top View)



PIN No.	Label	Description
1	ANT2	Antenna 2 RF port
2	V2	DC control voltage 2
3	RX	Receive RF port
4	TX	Transmit RF port
5	V1	DC control voltage 1
6	ANT1	Antenna 1 RF port

Electrical specification

Test conditions: V1、V2=0V and 3.0V, Temp= +25°C, Pin=0dBm, Freq: 0.1GHz~6GHz, 50Ω test system.

Parameters	Conditions	Min	Typical	Max	Unit
Insertion Loss (ANT1-RX)	10MHz	-	-1.0	-	dB
	500MHz		-0.6		
	1500MHz		-0.8		
	2500MHz		-1.0		
	3500MHz		-1.1		
	4500MHz		-1.2		
	5500MHz		-1.7		
	6000MHz		-1.5		
Insertion Loss (ANT1-TX)	10MHz	-	-1.0	-	dB
	500MHz		-0.6		
	1500MHz		-0.8		
	2500MHz		-1.1		
	3500MHz		-1.1		
	4500MHz		-1.3		
	5500MHz		-1.8		
	6000MHz		-1.7		
Insertion Loss (ANT2-RX)	10MHz	-	-1.0	-	dB
	500MHz		-0.6		
	1500MHz		-0.8		
	2500MHz		-1.1		
	3500MHz		-1.1		
	4500MHz		-1.2		
	5500MHz		-1.9		
	6000MHz		-1.7		
Insertion Loss (ANT2-TX)	10MHz	-	-1.0	-	dB
	500MHz		-0.6		
	1500MHz		-0.8		
	2500MHz		-1.1		
	3500MHz		-1.1		
	4500MHz		-1.1		
	5500MHz		-1.6		
	6000MHz		-1.6		

Electrical specification

Test conditions: V1、V2=0V and 3.0V, Temp= +25°C, Pin=0dBm, Freq: 0.1GHz~6GHz, 50Ω test system.

Parameters	Conditions	Min	Typical	Max	Unit
Isolation (ANT1-RX)	10MHz	-	-72	-	dB
	500MHz		-47		
	1500MHz		-47		
	2500MHz		-37		
	3500MHz		-29		
	4500MHz		-33		
	5500MHz		-41		
	6000MHz		-39		
Isolation (ANT1-TX)	10MHz	-	-68	-	dB
	500MHz		-43		
	1500MHz		-39		
	2500MHz		-32		
	3500MHz		-26		
	4500MHz		-30		
	5500MHz		-35		
	6000MHz		-37		
Isolation (ANT2-RX)	10MHz	-	-69	-	dB
	500MHz		-43		
	1500MHz		-38		
	2500MHz		-31		
	3500MHz		-25		
	4500MHz		-30		
	5500MHz		-35		
	6000MHz		-33		
Isolation (ANT2-TX)	10MHz	-	-71	-	dB
	500MHz		-48		
	1500MHz		-46		
	2500MHz		-36		
	3500MHz		-28		
	4500MHz		-31		
	5500MHz		-36		
	6000MHz		-37		

Electrical specification

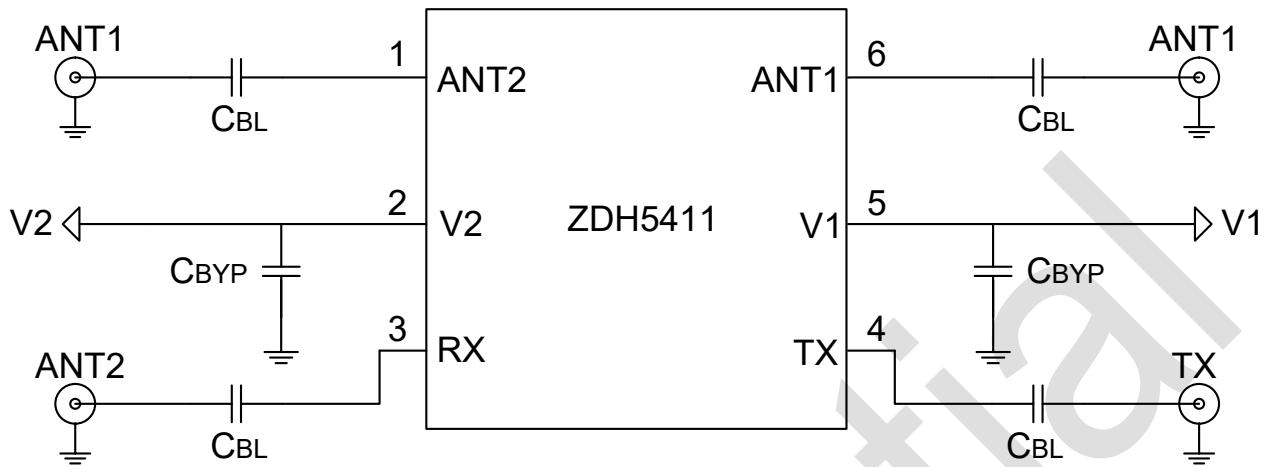
Test conditions: V1、V2=0V and 3.0V, Temp= +25°C, Pin=0dBm, Freq: 0.1GHz~6GHz, 50Ω test system.

Parameters	Conditions	Min	Typical	Max	Unit
Input Return Loss (ANT1-RX)	10MHz	-	-11	-	dB
	500MHz		-23		
	1500MHz		-22		
	2500MHz		-24		
	3500MHz		-19		
	4500MHz		-13		
	5500MHz		-12		
	6000MHz		-15		
Input Return Loss (ANT1-TX)	10MHz	-	-11	-	dB
	500MHz		-22		
	1500MHz		-20		
	2500MHz		-23		
	3500MHz		-17		
	4500MHz		-11		
	5500MHz		-10		
	6000MHz		-13		
Input Return Loss (ANT2-RX)	10MHz	-	-11	-	dB
	500MHz		-24		
	1500MHz		-22		
	2500MHz		-24		
	3500MHz		-19		
	4500MHz		-12		
	5500MHz		-10		
	6000MHz		-11		
Input Return Loss (ANT2-TX)	10MHz	-	-11	-	dB
	500MHz		-24		
	1500MHz		-24		
	2500MHz		-28		
	3500MHz		-24		
	4500MHz		-14		
	5500MHz		-12		
	6000MHz		-14		

Electrical specification

Test conditions: V1、V2=0V and 3.0V, Temp= +25°C, Pin=0dBm, Freq: 0.1GHz~6GHz, 50Ω test system.

Parameters	Conditions	Min	Typical	Max	Unit
Output Return Loss (ANT1-RX)	10MHz	-	-11	-	dB
	500MHz		-24		
	1500MHz		-22		
	2500MHz		-29		
	3500MHz		-25		
	4500MHz		-13		
	5500MHz		-14		
	6000MHz		-14		
Output Return Loss (ANT1-TX)	10MHz	-	-11	-	dB
	500MHz		-23		
	1500MHz		-20		
	2500MHz		-23		
	3500MHz		-22		
	4500MHz		-13		
	5500MHz		-11		
	6000MHz		-13		
Output Return Loss (ANT2-RX)	10MHz	-	-11	-	dB
	500MHz		-23		
	1500MHz		-22		
	2500MHz		-24		
	3500MHz		-25		
	4500MHz		-13		
	5500MHz		-10		
	6000MHz		-12		
Output Return Loss (ANT2-TX)	10MHz	-	-11	-	dB
	500MHz		-23		
	1500MHz		-21		
	2500MHz		-27		
	3500MHz		-31		
	4500MHz		-16		
	5500MHz		-12		
	6000MHz		-14		
P1dB	2400MHz	-	35	-	dBm
OIP3	2450MHz, Tone=10dBm	-	51	-	dBm
Switching Time	ON	-	55	-	ns
	OFF	-	55	-	

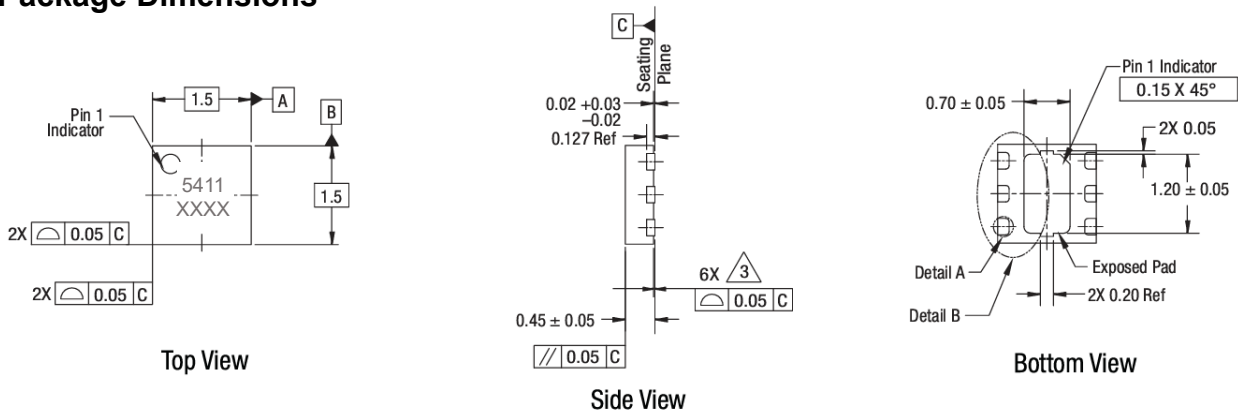
Typical Application Circuit (0.1GHz~6GHz)


Component	Value	Size	Manufacturer	Characteristic
CBL	47pF	0402	Murata GRM Series	DC blocking capacitor
CBYP	10pF	0402	Murata GRM Series	Decoupling capacitor

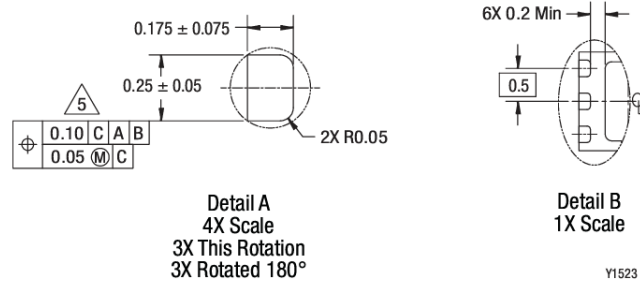
Truth Table

V1	V2	ANT1 to TX	ANT1 to RX	ANT2 to TX	ANT2 to RX
High	Low	Isolation state	Insertion loss state	Insertion loss state	Isolation state
Low	High	Insertion loss state	Isolation state	Isolation state	Insertion loss state

注：“High”：高电平= +1.8V~+5V；“Low”：低电平 = 0~+1.0V。

Package Dimensions

Notes:

1. Dimensions and tolerances according to ASME Y14.5M-1994.
2. Dimensions are in millimeters.
3. Coplanarity applies to the exposed heat sink slug as well as the terminals.
4. Plating requirement per source control drawing (SCD) 2504.
5. Dimension applies to metallized terminal, not measured in the radius area.


Order Informations

Part NO.	Marking	Package
ZDH5411	5411	DFN1.5x1.5-6