

APPROVAL SHEET

RF Switch Series – RoHS Compliance

SP8T GPIO Switch

Halogens Free Product

Any 2G/3G/4G Antenna Diversity For Receive System

P/N: RFASWDH2418BTF06

*Contents in this sheet are subject to change without prior notice.

Approval Sheet

FEATURES

- Low Insertion Loss : 0.5dB typ. @ 2.7GHz
- Low control voltage : 1.35 to 2.7 V
- Miniature footprint : 2.0 x 2.0 x 0.55 mm³
- High ESD tolerance of 1kV HBM at all pins
- **M**oisture **S**ensitive **L**evel 3 (MSL3)

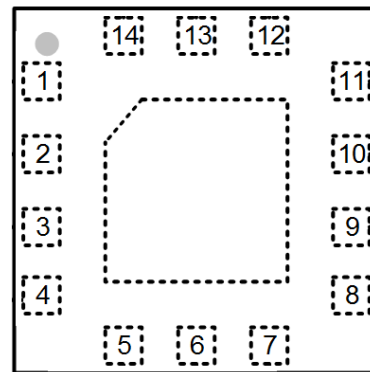
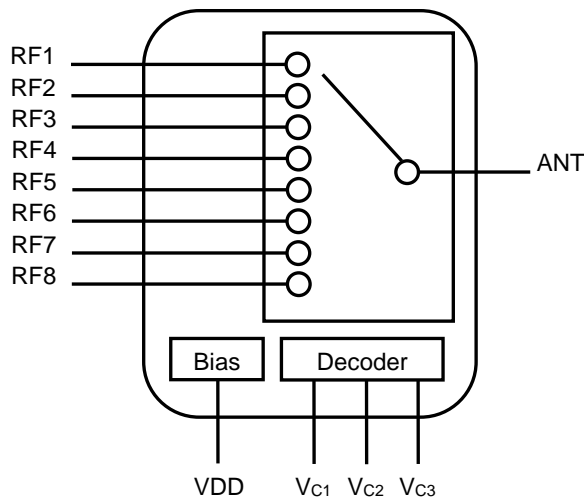
Description

- The RFASWDH2418BTF06 is a SOI (Silicon On Insulator) Single-Pole, Eight-Throw (SP8T) switch that operating at 0.1-2.7 GHz. The RFASWDH2418BTF06 is manufactured in a QFN-14 (2.0 x 2.0 x 0.55mm³) package.
- The RFASWDH2418BTF06 features very high isolation with very low DC power consumption.

Application

- Multi-mode 2G/3G, LTE application receive system.

Block Diagram and Pin Out (Top View)



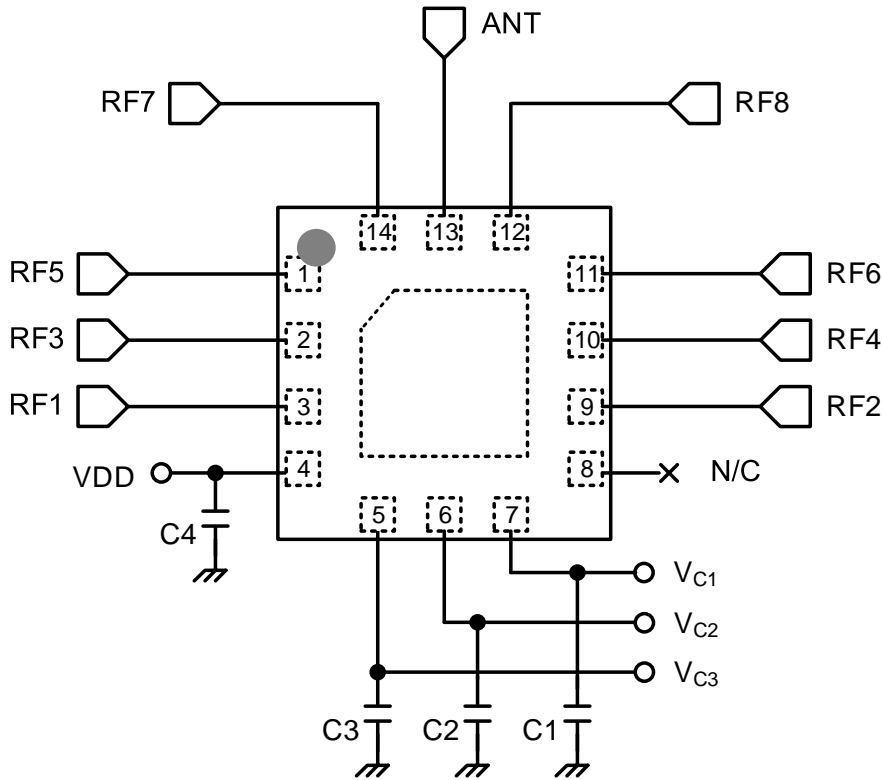
Pin Names and Descriptions

Pin	Name	Description	Pin	Name	Description
1	RF5	RF path 5	8	NC	Not connected
2	RF3	RF path 3	9	RF2	RF path 2
3	RF1	RF path 1	10	RF4	RF path 4
4	VDD	DC power supply	11	RF6	RF path 6
5	V _{c3}	DC control voltage 3	12	RF8	RF path 8
6	V _{c2}	DC control voltage 2	13	ANT	Antenna port
7	V _{c1}	DC control voltage 1	14	RF7	RF path 7

Note 1 : Bottom ground paddles must be connected to ground.

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Application Circuit



Note: No DC Blocking capacitors are required for all RF ports unless DC is biased externally.

Parts List

Parts No.	Value
C1-C4	1000 pF

Absolute Maximum Ratings

Parameter	Symbol	Minimum	Maximum	Units
RFx Input Power (f = 824 ~ 2690 MHz, 50Ω, CW)	PIN		+33	dBm
DC Supply Voltage	VDD	+2.5	+5.0	V
DC Control Voltage	V _{CTL}	-0.5	+3.0	V
Storage temperature	T _{STG}	-55	+150	°C
Operating temperature	T _{OP}	-40	+85	°C
HBM ESD Voltage, All Pins	V _{ESD} ¹	-	+1000	V

Note 1 : Human Body Model ESD Voltage, Class 1C

Exceeding absolute maximum ratings may cause permanent damage. Operation between operating range maximum and absolute maximum for extended periods may reduce reliability.

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Electrical Specifications

(Top= 25°C, VDD=2.8V, V_{CTL}=0/1.8V, Characteristic Impedance Z₀= 50 Ω, Unless Otherwise Noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Units
RF Specifications						
Operating frequency	f		0.1		2.7	GHz
Insertion Loss (ANT port to RF1/2/3/4/5/6/7/8 port)	IL	0.1 ~ 1.0GHz		0.30	0.40	dB
		1.0 ~ 2.0GHz		0.45	0.60	dB
		2.0 ~ 2.7GHz		0.50	0.80	dB
Isolation (ANT port to RF1/2/3/4/5/6 port)	Iso	0.1 ~ 1.0GHz	34	44		dB
		1.0 ~ 2.0GHz	27	35		dB
		2.0 ~ 2.7GHz	25	30		dB
Isolation (ANT port to RF7/8 port)	Iso	0.1 ~ 1.0GHz	27	29		dB
		1.0 ~ 2.0GHz	21	23		dB
		2.0 ~ 2.7GHz	18	20		dB
On state match	VSWR	0.1 ~ 2.7GHz		1.22	1.67	-
RFx Harmonics	2f ₀	PIN = +25dBm, f = 0.1 to 2.7GHz		85		dBc
	3f ₀	PIN = +25dBm, f = 0.1 to 2.7GHz		90		dBc
3 rd Order Input Intercept Point	IIP3	PIN = +25dBm, f = 2.0GHz, Δf = 1MHz		60		dBm
DC Specification (Decoder)						
Supply Voltage	VDD		2.5	2.7	5.0	V
Supply Current	I _{DD}	VDD=2.8V		76	85	μA
Control Voltage(High)	V _{CTL}		1.35	1.8	2.7	V
Control Voltage(Low)	V _{CTL}		0		0.4	V
Control Current	I _{CTL}	V _{CTL} =1.8V		0.5	1.0	μA
Switching Specification						
Switching speed	T _{SW}	50% V _{CTL} to 90/10% RF		1.75	2.2	μs

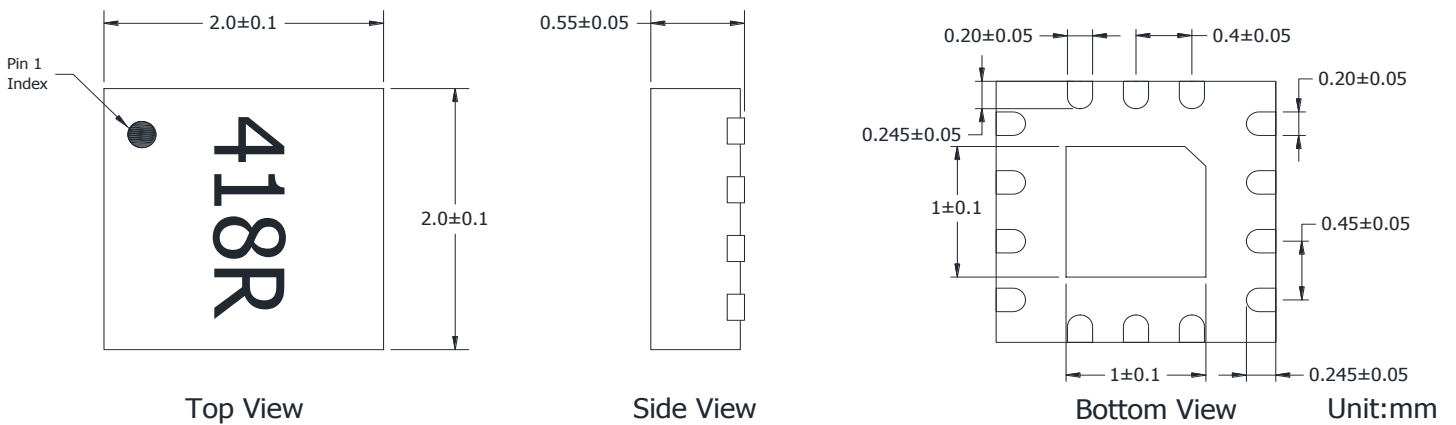
Note : All measurements made in a 50Ω system with 0/+1.8V control voltages, unless otherwise specified.

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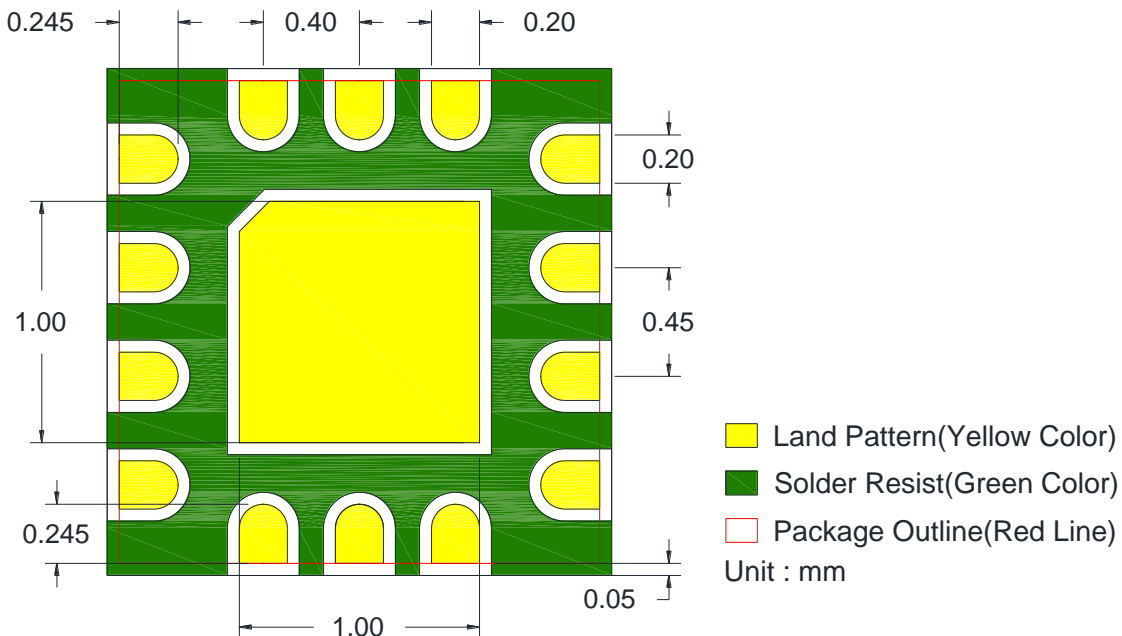
Logic Table for Switch On-Path (High=1.8V ,Low= 0V)

V _{C1}	V _{C2}	V _{C3}	RF1	RF2	RF3	RF4	RF5	RF6	RF7	RF8
0	0	0	On	Off	Off	Off	Off	Off	Off	Off
0	0	1	Off	On	Off	Off	Off	Off	Off	Off
0	1	0	Off	Off	On	Off	Off	Off	Off	Off
0	1	1	Off	Off	Off	On	Off	Off	Off	Off
1	0	0	Off	Off	Off	Off	On	Off	Off	Off
1	0	1	Off	Off	Off	Off	Off	On	Off	Off
1	1	0	Off	Off	Off	Off	Off	Off	On	Off
1	1	1	Off	Off	Off	Off	Off	Off	Off	On

Package Dimensions



Solder Land Pattern



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Reliability test

TEST	PROCEDURE / TEST METHOD	REQUIREMENT
Solderability JIS C 0050-4.6 JESD22-B102D	*Solder bath temperature : 255 ± 5°C *Immersion time : 5 ± 0.5 sec Solder : Sn3Ag0.5Cu for lead-free	At least 95% of a surface of each terminal electrode must be covered by fresh solder.
High temperature JIS C 0021	*Temperature : 90°C±2°C *Test duration : 1000+24/-0 hours Measurement to be made after keeping at room temperature for 24±2 hrs	No mechanical damage. Electrical specification shall satisfy the descriptions in electrical characteristics under the operational temperature range within -30 ~ 90°C.
Low temperature JIS C 0020	*Temperature : -30°C±2°C *Test duration : 1000+24/-0 hours Measurement to be made after keeping at room temperature for 24±2 hrs	No mechanical damage. Electrical specification shall satisfy the descriptions in electrical characteristics under the operational temperature range within -30 ~ 90°C.
Temperature cycle JIS C 0025	1. 30±3 minutes at -30±3°C, 2. 10~15 minutes at room temperature, 3. 30±3 minutes at +90±3°C, 4. 10~15 minutes at room temperature, Total 100 continuous cycles Measurement to be made after keeping at room temperature for 24±2 hrs	No mechanical damage. Electrical specification shall satisfy the descriptions in electrical characteristics under the operational temperature range within -30 ~ 90°C.
High temperature operation life (HTOL)	*Temperature : 90°C *VDD = 4.8V *Time : 1000+24/-0 hrs. Measurement to be made after keeping at room temperature for 24±2 hrs	No mechanical damage. Electrical specification shall satisfy the descriptions in electrical characteristics under the operational temperature range within -30 ~ 90°C.

Soldering condition

Typical examples of soldering processes that provide reliable joints without any damage are given in Figure 11.

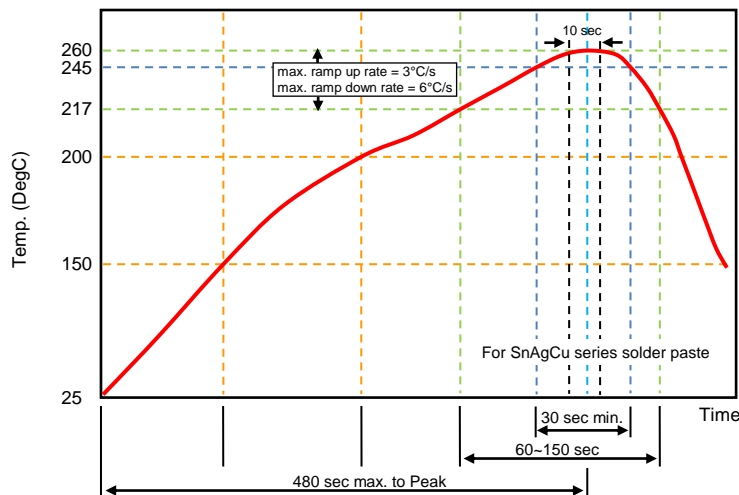


Figure 11. Infrared soldering profile

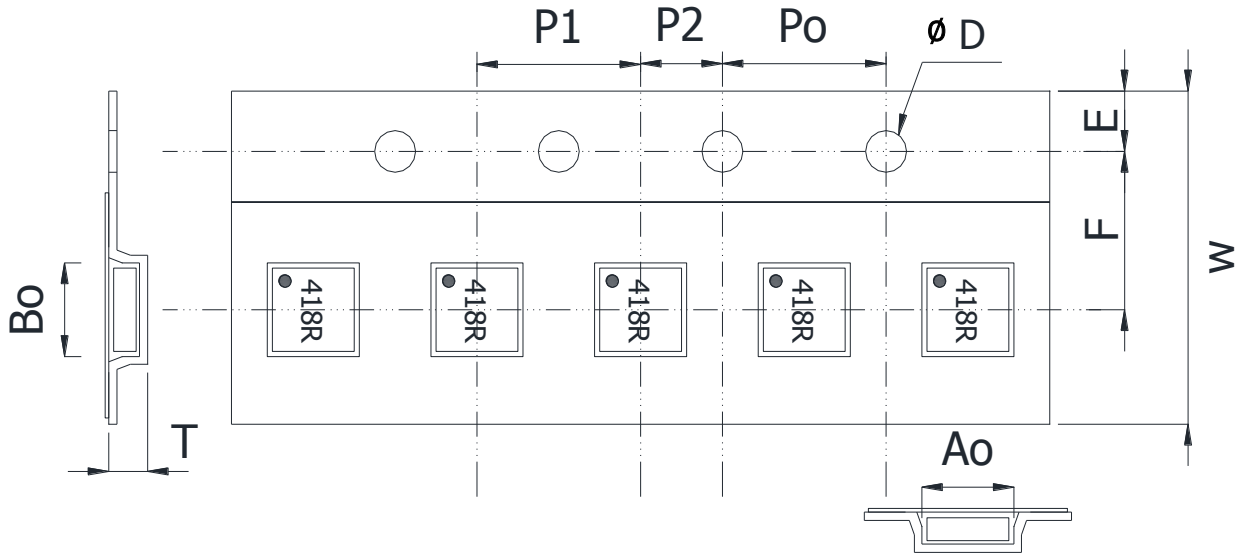
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Ordering code

RF	ASW	D	H2418B	T
RF module RF: Walsin RF Switch Device	Module type ASW: Antenna Switch	Application D: SP8T	Design Code	Packing T: Taping

Minimum Ordering Quantity: 3000 pcs per reel.

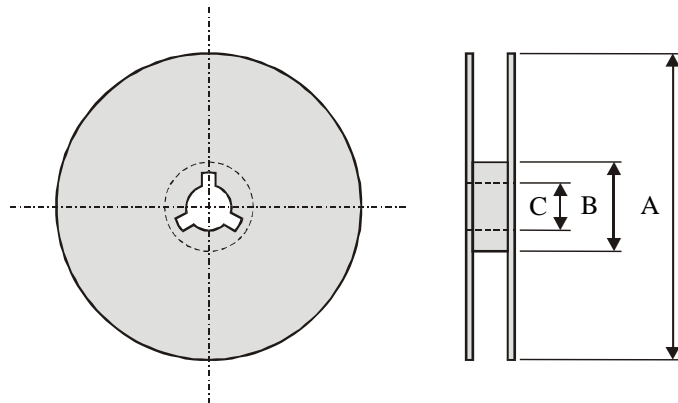
Packaging



Plastic Tape specifications (unit :mm)

Index	Ao	Bo	φD	T	W
Dimension (mm)	2.25 ± 0.10	2.25 ± 0.10	1.55 ± 0.05	0.75 ± 0.10	8.0 ± 0.30
Index	E	F	Po	P1	P2
Dimension (mm)	1.75 ± 0.10	3.50 ± 0.10	4.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.05

Reel dimensions



Index	A	B	C
Dimension (mm)	Φ178.0	Φ60.0	Φ13.2

Taping Quantity : 3000 pieces per 7" reel

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Caution of handling

Limitation of Applications

Please contact us before using our products for the applications listed below which require especially high reliability for the prevention of defects, which might directly cause damage to the third party's life, body or property.

- (1) Aircraft equipment
- (2) Aerospace equipment
- (3) Undersea equipment
- (4) Medical equipment
- (5) Disaster prevention / crime prevention equipment
- (6) Traffic signal equipment
- (7) Transportation equipment (vehicles, trains, ships, etc.)
- (8) Applications of similar complexity and /or reliability requirements to the applications listed in the above.

Storage condition

- (1) Products should be used in 6 months from the day of WALSIN outgoing inspection, which can be confirmed.
- (2) Storage environment condition.
 - Products should be storage in the warehouse on the following conditions.
 - Temperature : -10 to +40°C
 - Humidity : 30 to 70% relative humidity
 - Don't keep products in corrosive gases such as sulfur. Chlorine gas or acid or it may cause oxidization of electrode, resulting in poor solderability.
 - Products should be storage on the palette for the prevention of the influence from humidity, dust and son on.
 - Products should be storage in the warehouse without heat shock, vibration, direct sunlight and so on.
 - Products should be storage under the airtight packaged condition.

单击下面可查看定价，库存，交付和生命周期等信息

[>>Walsin Technology\(华新科技\(华科\)\)](#)