

**DATA SHEET**

# AS218-000: PHEMT GaAs IC High-Power Transfer Switch 0.1–6 GHz

## Applications

- WLAN 802.11a, b, g diversity

## Features

- Operating frequency 0.1–6 GHz
- Positive low voltage control (0/3 V operation)
- Low insertion loss
- Lead (Pb)-free, RoHS-compliant, and Green

## Description

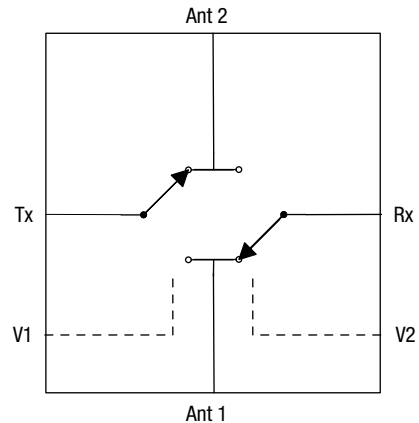
The AS218-000 is a broadband transfer switch designed to combine T/R and antenna diversity switching functions on a single IC. The device is designed to handle high power and maintain high linearity at low control voltages. This low-cost switch is ideal for Wi-Fi systems and is capable of covering both the 2.4 and 5 GHz bands.

**NEW**



Skyworks Green™ products are RoHS (Restriction of Hazardous Substances)-compliant, conform to the EIA/EICTA/JEITA Joint Industry Guide (JIG) Level A guidelines, are halogen free according to IEC-61249-2-21, and contain <1,000 ppm antimony trioxide in polymeric materials.

## Pin Out (Top View)



DC blocking caps required on RF lines for positive voltage operation.

## Electrical Specifications at 25 °C (0, 3 V)

**T = 25 °C, Z<sub>0</sub> = 50 Ω, unless otherwise noted**

Parameter <sup>(1)</sup>	Condition	Frequency	Min.	Typ.	Max.	Unit
Insertion loss <sup>(2, 4)</sup>	Ant 1, Ant 2 to Tx, Rx	0.10–6.00 GHz		1.6	1.8	dB
		2.40–2.50 GHz		1.2	1.4	dB
		5.15–5.85 GHz		1.4	1.6	dB
Isolation	Ant 1, Ant 2 to Tx, Rx	0.10–6.00 GHz	17	19		dB
		2.40–2.50 GHz	32	37		dB
		5.15–5.85 GHz	17	19		dB
Return loss <sup>(3)</sup>	Ant 1, Ant 2 to Tx, Rx	0.10–6.00 GHz		10		dB
		2.40–2.50 GHz		15		dB
		5.15–5.85 GHz		20		dB

1. All measurements made in a 50 Ω system.

2. Insertion loss changes by 0.003 dB/C.

3. Return loss for insertion loss state.

4. Tx and Rx paths can be used interchangeably.

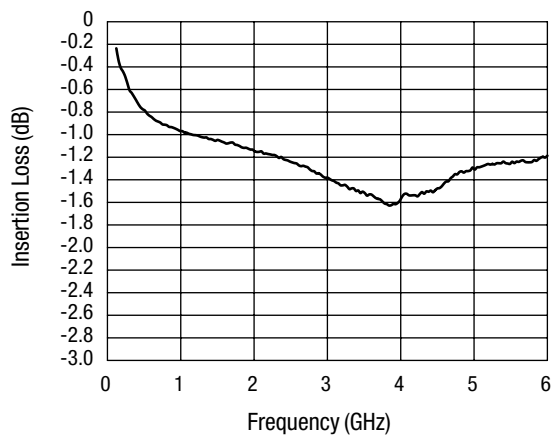
### Operating Characteristics at 25 °C (0, 3 V)

T = 25 °C, Z<sub>0</sub> = 50 Ω, unless otherwise noted

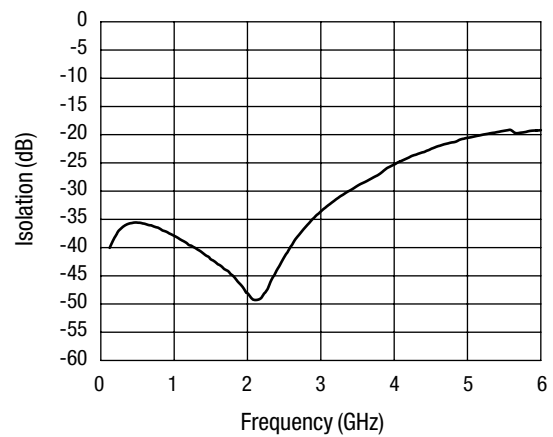
Parameter	Condition	Frequency	Min.	Typ.	Max.	Unit
2nd and 3rd harmonic	23 dBm input @ 0,3 V	2–6 GHz		-63		dBc
P <sub>1</sub> dB		2–6 GHz		33		dBm
IIP3	20 dBm per tone	2–3 GHz		54		dBm
	22 dBm per tone	5–6 GHz		47		dBm
Control voltages	V <sub>LOW</sub> = 0–0.2 V @ 20 μA max. V <sub>HIGH</sub> = 3–5 V @ 200 μA max.					

### Typical Performance Data (0, 3 V)

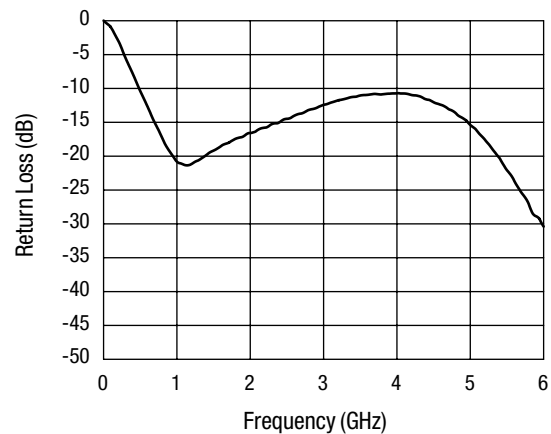
T = 25 °C, Z<sub>0</sub> = 50 Ω, unless otherwise noted



**Insertion Loss vs. Frequency**



**Isolation vs. Frequency**



**Return Loss vs. Frequency**

### Absolute Maximum Ratings

Characteristic	Value
RF input power	35 dBm >500 MHz 0/7 V control
Control voltage	-0.2 V, +8 V
Operating temperature	-40 °C to +85 °C
Storage temperature	-65 °C to +150 °C

Performance is guaranteed only under the conditions listed in the specifications table and is not guaranteed under the full range(s) described by the Absolute Maximum specifications. Exceeding any of the absolute maximum/minimum specifications may result in permanent damage to the device and will void the warranty.

**CAUTION:** Although this device is designed to be as robust as possible, ESD (Electrostatic Discharge) can damage this device. This device must be protected at all times from ESD. Static charges may easily produce potentials of several kilovolts on the human body or equipment, which can discharge without detection. Industry-standard ESD precautions must be employed at all times.

### Truth Table

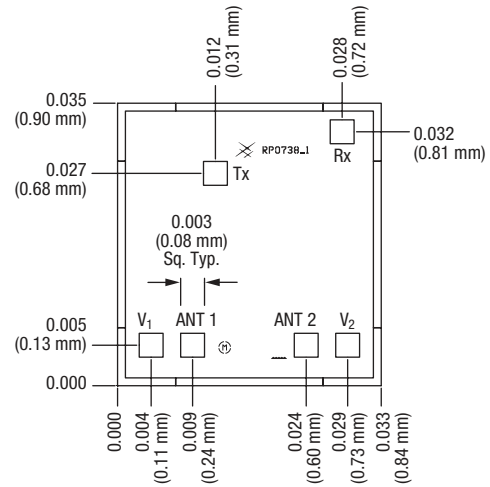
V <sub>1</sub>	V <sub>2</sub>	Insertion Loss Path
0	1	Ant 1 to Tx, Ant 2 to Rx
1	0	Ant 2 to Tx, Ant 1 to Rx

All other conditions not recommended.

"1" = 3 to 5 V.

"0" = 0 to 0.2 V.

### Outline Drawing



Chip thickness 0.008 ± 0.001 (0.203 ± 0.025).  
 Bond pad dimensions: 0.028 (0.07 mm square).  
 Bond pad metallization: gold.  
 Backside metallization: none.  
 Dimensions in inches (mm).

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