

GaAs IC SPDT Switch Non-Reflective DC–6 GHz



AS229-348

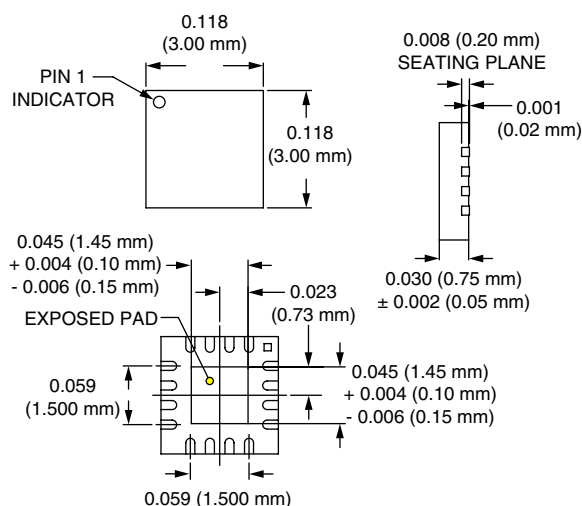
Features

- Low DC Power Consumption
- High Isolation, Non-Reflective
- Broadband DC–6 GHz
- Excellent Intermodulation Products
- Small Low Cost Plastic Package

Description

The AS229-348 is an IC FET SPDT switch in a low cost plastic package. It features non-reflective matching at each output, broadband performance, with very low DC power consumption. This switch can be used in many analog and digital wireless communication systems.

-348 (QFN 3 x 3)



Electrical Specifications at 25°C

Parameter ¹	Frequency ⁴	Min.	Typ.	Max.	Unit
Insertion Loss ²	DC–1.0 GHz		0.8	1.0	dB
	DC–2.0 GHz		0.9	1.2	dB
	DC–4.0 GHz		1.4	1.5	dB
	DC–6.0 GHz		1.8	2.0	dB
Isolation	DC–1.0 GHz	51	55		dB
	DC–2.0 GHz	47	50		dB
	DC–4.0 GHz	35	40		dB
	DC–6.0 GHz	20	25		dB
Return Loss	DC–1.0 GHz		20		dB
	DC–2.0 GHz		20		dB
	DC–4.0 GHz		10		dB
	DC–6.0 GHz		12		dB

Operating Characteristics at 25°C

Parameter	Condition	Frequency	Min.	Typ.	Max.	Unit
Switching Characteristics	Rise, Fall (10/90% or 90/10% RF)			3		ns
	On, Off (50% CTL to 90/10% RF)			6		ns
	Video Feedthru ³			15		mV
Input Power for 1 dB Compression		0.50–6 GHz		24		dBm
		0.05 GHz		16		dBm
Intermodulation Intercept Point (IP3)	For Two-tone Input Power 13 dBm	0.50–6 GHz		46		dBm
Control Voltages	$V_{Low} = 0 \text{ to } -0.2 \text{ V @ } 20 \mu\text{A Max.}$ $V_{High} = -5 \text{ V @ } 50 \mu\text{A to } -8 \text{ V @ } 200 \mu\text{A Max.}$					

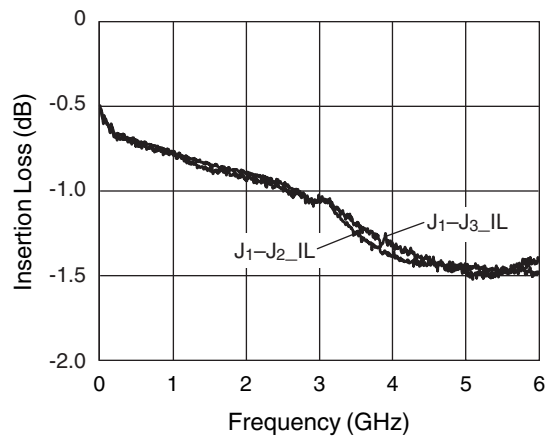
1. All measurements made in a 50 Ω system, unless otherwise specified.

2. Insertion loss changes by 0.003 dB/°C.

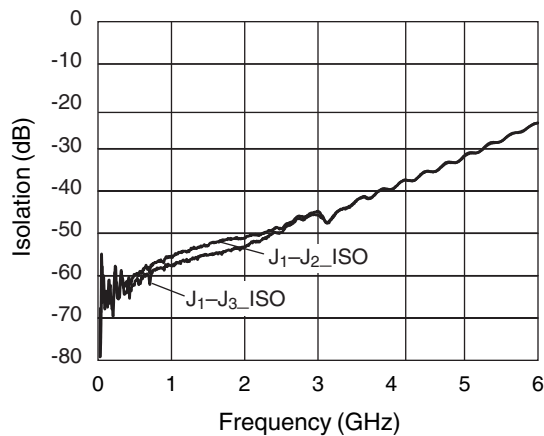
3. Video feedthru measured with 1 ns risetime pulse and 500 MHz bandwidth.

4. DC = 300 kHz.

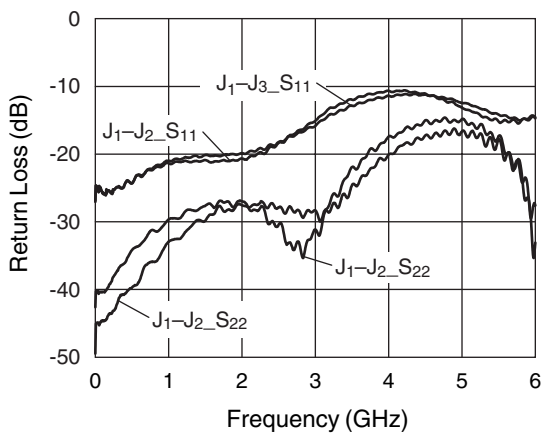
Typical Performance Data



Insertion Loss vs. Frequency



Isolation vs. Frequency

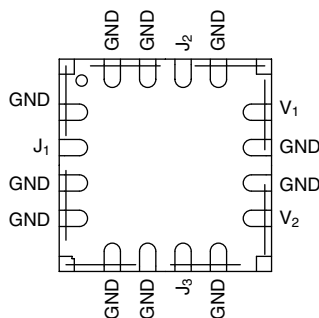


Return Loss vs. Frequency

Truth Table

V ₁	V ₂	J ₁ –J ₂	J ₁ –J ₃
-5	0	Isolation	Insertion Loss
0	-5	Insertion Loss	Isolation

Pin Out (Top View)



Exposed paddle should be grounded.

Absolute Maximum Ratings

Characteristic	Value
RF Input Power (RF In)	2 W Max. > 500 MHz 0/-8 V Control
Control Voltage (V _C)	-0.2 V, -10 V
Operating Temperature (T _{OP})	-40°C to +90°C
Storage Temperature (T _{ST})	-65°C to +150°C
Thermal Resistance (Θ _{JC})	25°C/W

Evaluation PCB

