

DATA SHEET

AS229-350, AS229-350LF: GaAs IC SPDT Nonreflective Switch 300 kHz–6 GHz

Features

- Low DC power consumption
- High isolation, nonreflective
- Broadband 300 kHz–6 GHz
- Excellent intermodulation products
- Small, low-cost plastic package
- Available lead (Pb)-free and RoHS-compliant MSL-1 @ 260 °C per JEDEC J-STD-020

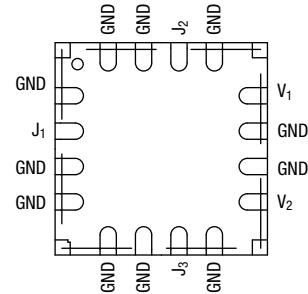
Description

The AS229-350 is an IC FET SPDT switch in a low-cost plastic package. It features nonreflective matching at each output, and broadband performance, with very low DC power consumption. This switch can be used in many analog and digital wireless communication systems.

NEW Skyworks offers lead (Pb)-free, RoHS (Restriction of Hazardous Substances)-compliant packaging.



Pin Out (Top View)



Exposed paddle should be grounded.

Electrical Specifications at 25 °C

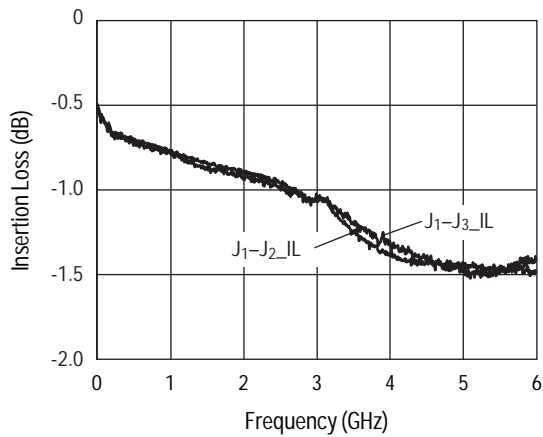
Parameter ⁽¹⁾	Frequency	Min.	Typ.	Max.	Unit
Insertion loss ⁽²⁾	300 kHz–1 GHz		0.8	1.0	dB
	300 kHz–2 GHz		0.9	1.2	dB
	300 kHz–4 GHz		1.4	1.5	dB
	300 kHz–6 GHz		1.8	2.0	dB
Isolation	300 kHz–1 GHz	51	55		dB
	300 kHz–2 GHz	47	50		dB
	300 kHz–4 GHz	35	40		dB
	300 kHz–6 GHz	20	25		dB
Return loss	300 kHz–1 GHz		20		dB
	300 kHz–2 GHz		20		dB
	300 kHz–4 GHz		10		dB
	300 kHz–6 GHz		12		dB

1. All measurements made in a 50 Ω system, unless otherwise specified.
 2. Insertion loss changes by 0.003 dB/°C.

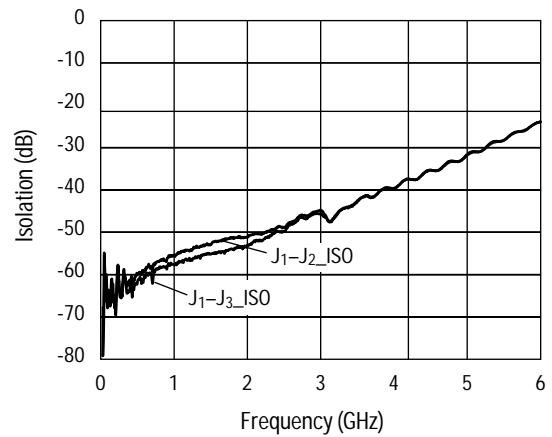
Operating Characteristics at 25 °C

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	$T_{RISE} = 1 \text{ ns}$, BW = 500 MHz			15		mV
Input power for 1 dB compression		0.5–6 GHz		24		dBm
		0.05 GHz		16		dBm
Intermodulation intercept point (IP3)	For two-tone input power 13 dBm	0.5–6 GHz		46		dBm
Thermal resistance				25		°C/W
Control voltages	$V_{LOW} = 0 \text{ to } -0.2 \text{ V @ } 20 \text{ } \mu\text{A max.}$ $V_{HIGH} = -5 \text{ V @ } 50 \text{ } \mu\text{A to } -8 \text{ V @ } 200 \text{ } \mu\text{A max.}$					

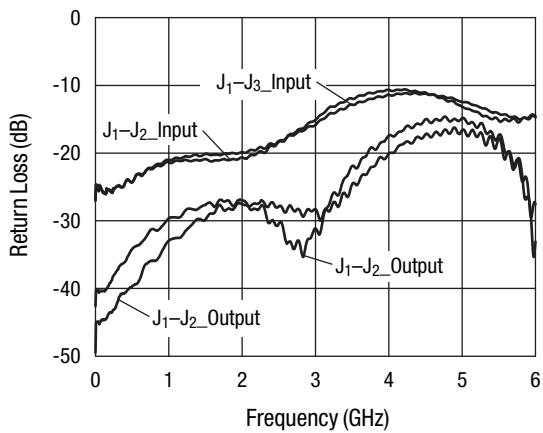
Typical Performance Data



Insertion Loss vs. Frequency



Isolation vs. Frequency



Return Loss vs. Frequency

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 +85 °C
Storage temperature (T _{ST})	-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.

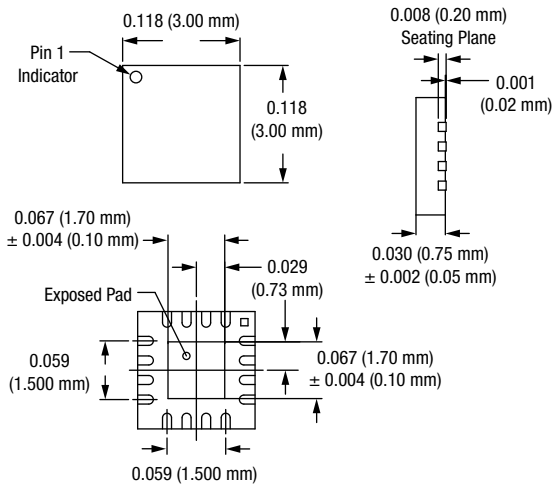
CAUTION: Although this device is designed to be as robust as possible, ESD (Electrostatic Discharge) can damage this device. This device must be protected at all times from ESD. Static charges may easily produce potentials of several kilovolts on the human body or equipment, which can discharge without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

Truth Table

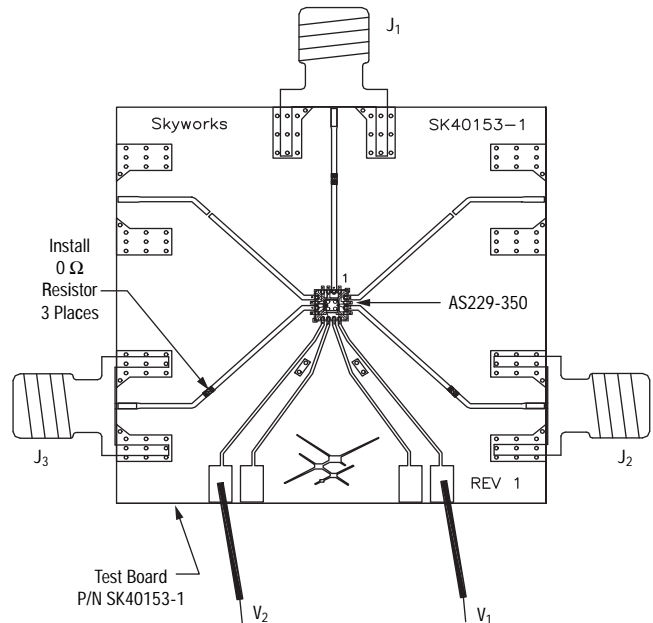
V ₁	V ₂	J ₁ -J ₂	J ₁ -J ₃
-5	0	Isolation	Insertion Loss
0	-5	Insertion Loss	Isolation

All other conditions not recommended.

-350 (QFN 3 x 3)



Evaluation PCB



Recommended Solder Reflow Profiles

Refer to the [“Recommended Solder Reflow Profile”](#) Application Note.

Tape and Reel Information

Refer to the [“Discrete Devices and IC Switch/Attenuators Tape and Reel Package Orientation”](#) Application Note.

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