

GaAs IC SPST Switch Non-Reflective DC–2.5 GHz



AS159-12

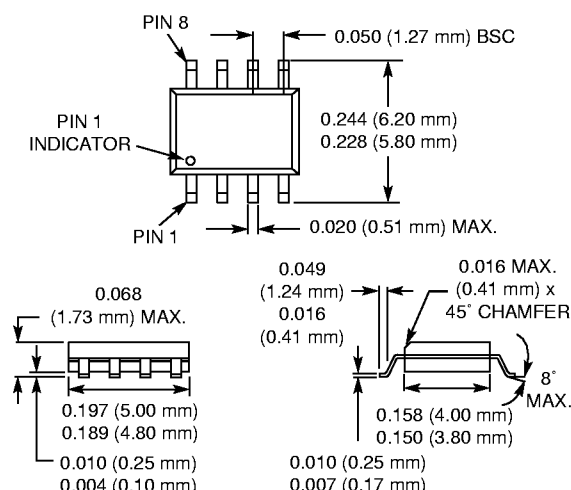
Features

- High Isolation (45 dB @ 0.9 GHz)
- Reflective Open, J₁ Port
- Non-Reflective, J₂ Port
- Low Cost SOIC-8 Plastic Package

Description

The AS159-12 is a non-reflective SPST switch designed for low cost, low power commercial applications. Ideal for use as building blocks for high isolation multi-throw switches.

SOIC-8



Electrical Specifications at 25°C (0, -5 V)

Parameter ¹	Frequency ²	Min.	Typ.	Max.	Unit
Insertion Loss ³	DC–0.5 GHz		0.8	1.0	dB
	DC–1.0 GHz		0.9	1.2	dB
	DC–2.5 GHz		1.0	1.4	dB
Isolation	DC–0.5 GHz	50	55		dB
	DC–1.0 GHz	45	47		dB
	DC–2.5 GHz	30	34		dB
VSWR ⁴	DC–1.0 GHz		1.3:1	1.5:1	
	DC–2.0 GHz		1.5:1	1.7:1	
	DC–2.5 GHz		1.8:1	2.0:1	

Operating Characteristics at 25°C (0, -5 V)

Parameter	Condition	Frequency	Min.	Typ.	Max.	Unit
Switching Characteristics ⁵	Rise, Fall (10/90% or 90/10% RF)			3		ns
	On, Off (50% CTL to 90/10% RF)			6		ns
	Video Feedthru			20		mV
Input Power for 1 dB Compression		0.5–2.0 GHz		+24		dBm
Intermodulation Intercept Point (IP3)	For Two-tone Input Power +13 dBm	0.5–2.0 GHz		+43		dBm
Control Voltages	V _{Low} = 0 to -0.2 V @ 20 µA Max. V _{High} = -5 V @ 20 µA to -9 V @ 200 µA Max.					

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

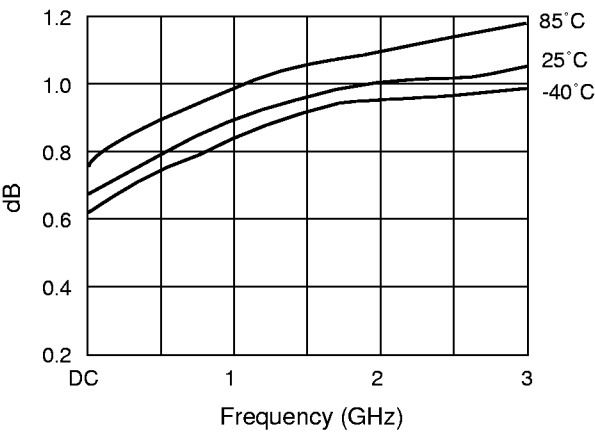
2. DC = 300 kHz.

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

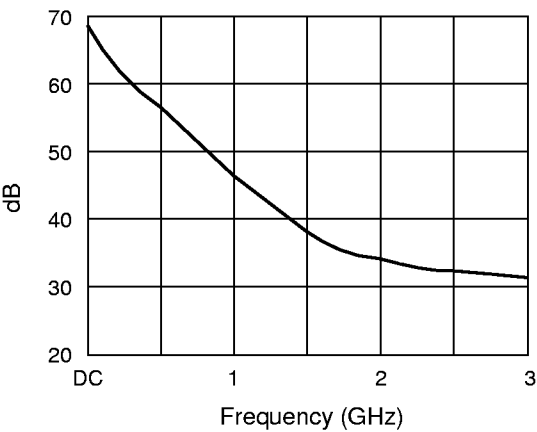
4. Insertion loss state and J₂ port.

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

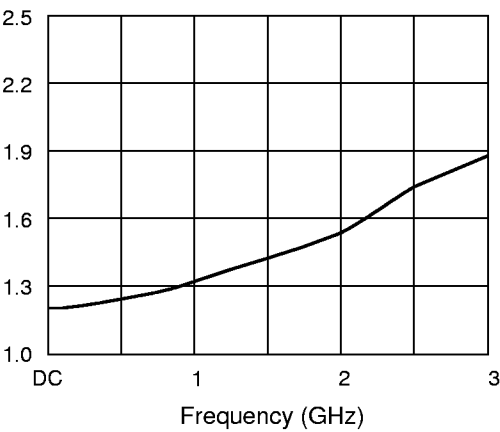
Typical Performance Data (0, -5 V)



Insertion Loss vs. Frequency



Isolation vs. Frequency



VSWR vs. Frequency

Truth Table

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

Absolute Maximum Ratings

Characteristic	Value
RF Input Power	2.5 W > 500 MHz 0/-8 V, 0.5 W @ 50 MHz 0/8 V
Control Voltage	+0.2 V, -10 V
Operating Temperature	-40° C to +85° C
Storage Temperature	-65° C to +150° C
Θ _{JC}	25° C/W

Note: Exceeding these parameters may cause irreversible damage.

Pin Out

