

# GaAs IC SPDT Low Loss Switch Reflective DC–4 GHz



AS004L2-11

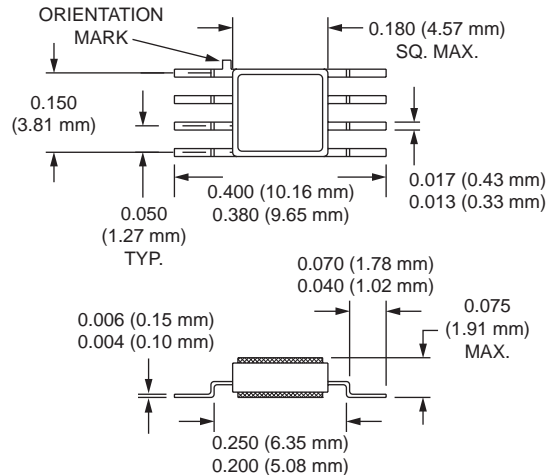
## Features

- Low DC Power Consumption
- Low Loss, Reflective, Short
- 8 Lead Hermetic Surface Mount Package
- Capable of Meeting MIL-STD Requirements<sup>6</sup>

## Description

The AS004L2-11 SPDT low loss reflective switch operates from DC–4 GHz. The chip has a single series FET in each arm for low loss performance. This switch should be used when requirements call for low insertion loss and medium isolation.

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## Electrical Specifications at 25°C

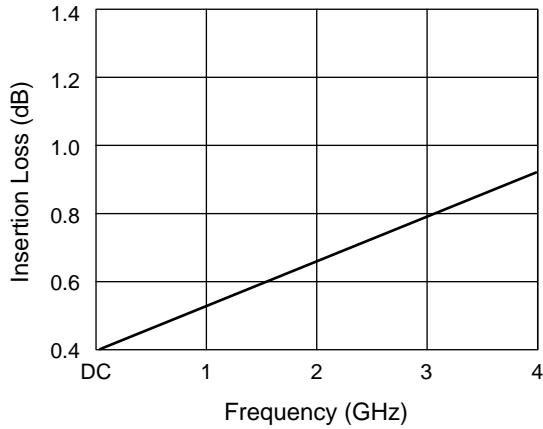
Parameter <sup>1</sup>	Frequency <sup>5</sup>	Min.	Typ.	Max.	Unit
Insertion Loss <sup>2</sup>	DC–1.0 GHz		0.5	0.7	dB
	DC–2.0 GHz		0.7	0.9	dB
	DC–4.0 GHz		0.9	1.2	dB
Isolation	DC–1.0 GHz	40	45		dB
	DC–2.0 GHz	34	38		dB
	DC–4.0 GHz	26	28		dB
VSWR <sup>3</sup>	DC–1.0 GHz		1.3:1	1.4:1	
	DC–4.0 GHz		1.5:1	1.6:1	

## Operating Characteristics at 25°C

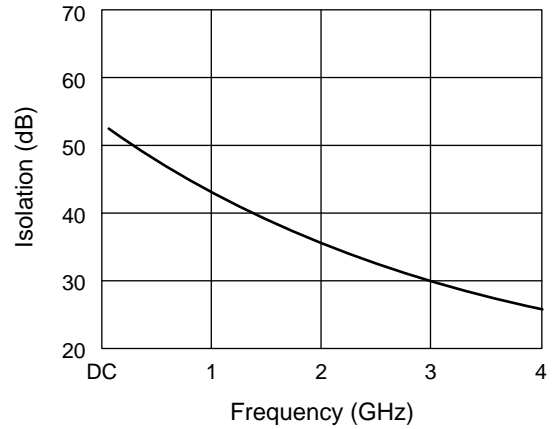
Parameter	Condition	Frequency	Min.	Typ.	Max.	Unit
Switching Characteristics	Rise, Fall (10/90% or 90/10% RF) On, Off (50% CTL to 90/10% RF) Video Feedthru <sup>4</sup>			3	6	ns
				6	10	ns
				20	30	mV
Input Power for 1 dB Compression	0/-5 V (0/-8 V)	0.5–4 GHz	21	24 (30)		dBm
		0.001 GHz	12	16 (20)		dBm
Intermodulation Intercept Point (IP3)	For Two-tone Input Power 13 dBm	0.5–4 GHz	42	46		dBm
		0.001 GHz	32	35		dBm
Control Voltages	V <sub>Low</sub> = 0 to -0.2 V @ 20 µA Max. V <sub>High</sub> = -5 V @ 50 µA to -9 V @ 200 µA Max.					

1. All measurements made in a 50 Ω system, unless otherwise specified.
2. Insertion loss changes 0.003 dB/°C.
3. Insertion loss state.
4. Video feedthru measured with 1 ns risetime pulse and 500 MHz bandwidth.
5. DC = 300 kHz.
6. See Quality/Reliability section.

Typical Performance Data



Insertion Loss vs. Frequency



Isolation vs. Frequency

Truth Table

V <sub>1</sub>	V <sub>2</sub>	J <sub>1</sub> -J <sub>2</sub>	J <sub>1</sub> -J <sub>3</sub>
0	-5	Isolation	Insertion Loss
-5	0	Insertion Loss	Isolation

Absolute Maximum Ratings

Characteristic	Value
RF Input Power (RF In)	2 W > 500 MHz 0/-8 V 0.5 W @ 50 MHz 0/-8 V
Control Voltage (V <sub>C</sub> )	+0.2 V, -10 V
Operating Temperature (T <sub>OP</sub> )	-55°C to +125°C
Storage Temperature (T <sub>ST</sub> )	-65°C to +150°C
Thermal Resistance (Θ <sub>JC</sub> )	25°C/W

Pin Out

