

# GaAs IC SPST Switch Non-Reflective DC–4 GHz



AS004M1-11

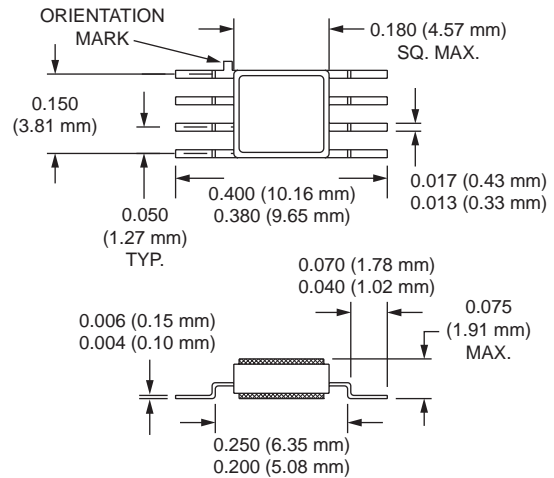
## Features

- Low DC Power Consumption
- High Isolation, Non-Reflective (Input and Output)
- 8 Lead Hermetic Surface Mount Package
- Capable of Meeting MIL-STD Requirements<sup>5</sup>

## Description

The AS004M1-11 is a GaAs IC FET SPST non-reflective switch. This device is useful as a modulator and switch and is ideal for surface mounting in high reliability and commercial applications.

-11



## Electrical Specifications at 25°C

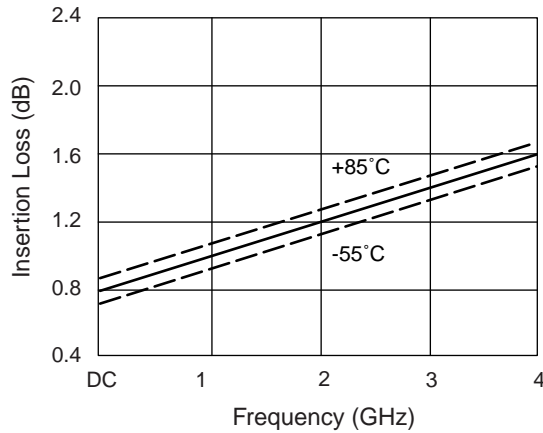
Parameter <sup>1</sup>	Frequency <sup>4</sup>	Min.	Typ.	Max.	Unit
Insertion Loss <sup>2</sup>	DC–1.0 GHz		0.9	1.1	dB
	DC–2.0 GHz		1.0	1.2	dB
	DC–4.0 GHz		1.4	1.6	dB
Isolation	DC–1.0 GHz	55	60		dB
	DC–2.0 GHz	50	55		dB
	DC–4.0 GHz	45	48		dB
VSWR (I/O)	DC–1.0 GHz		1.2:1	1.3:1	
	DC–2.0 GHz		1.3:1	1.5:1	
	DC–4.0 GHz		1.6:1	1.8:1	

## Operating Characteristics at 25°C

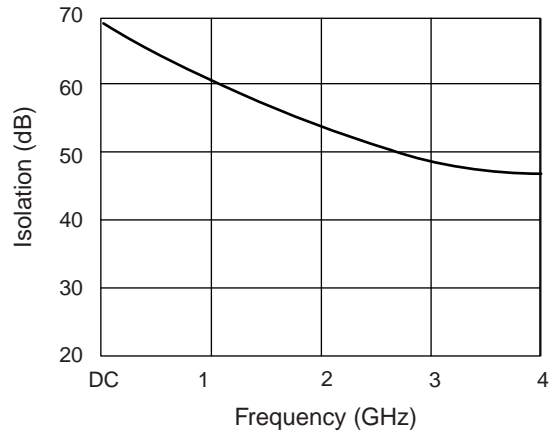
Parameter	Condition	Frequency	Min.	Typ.	Max.	Unit
Switching Characteristics	Rise, Fall (10/90% or 90/10% RF)			3	6	ns
	On, Off (50% CTL to 90/10% RF)			6	10	ns
	Video Feedthru <sup>3</sup>			20	30	mV
Input Power for 1 dB Compression Control Voltages ( $V_C$ )	0/-5 V (0/-8 V)	0.5–4 GHz	21	24 (30)		dBm
		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	$V_{Low} = 0$ to $-0.2$ V @ 20 $\mu$ A Max. $V_{High} = -5$ V @ 50 $\mu$ A to $-9$ V @ 200 $\mu$ A Max.					

1. All measurements made in a 50  $\Omega$  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.
5. 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>
0	-5	Isolation
-5	0	Insertion Loss

**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 <sub>i</sub> , -10.0 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**

