GaAs IC SPDT Switch
Non-Reflective DC–2.5 GHz

AS002M2-12

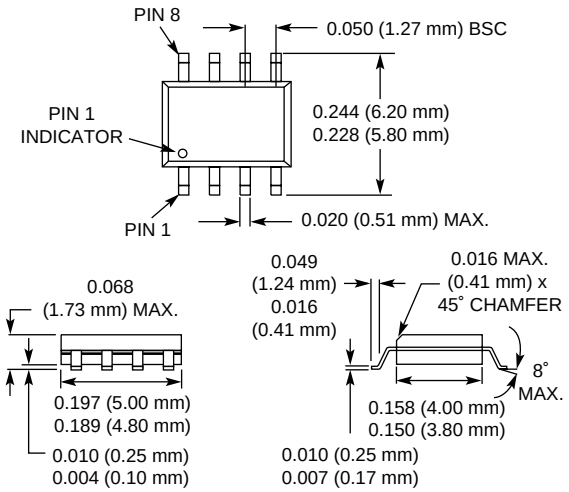
Features

- Low DC Power Consumption
- Non-Reflective
- High Isolation (40 dB @ 1 GHz)

Description

The AS002M2-12 is a low cost IC FET SPDT non-reflective switch in a plastic SOIC-8 package. The switch operates with -5, 0 V or 0, +5 V when 'floated' as shown on the following page. This general purpose SPDT switch is used in various telecommunications applications.

SOIC-8



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

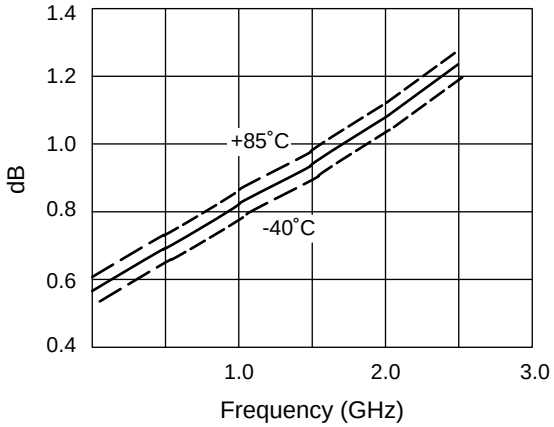
Parameter[1]	Frequency[2]	Min.	Typ.	Max.	Unit
Insertion Loss[3]	DC–0.5 GHz		0.7	0.8	dB
	DC–1.0 GHz		0.8	0.9	dB
	DC–2.0 GHz		1.1	1.2	dB
	DC–2.5 GHz		1.3	1.4	dB
Isolation	DC–0.5 GHz	42	46		dB
	DC–1.0 GHz	36	40		dB
	DC–2.0 GHz	27	30		dB
	DC–2.5 GHz	23	20		dB
VSWR[4]	DC–0.5 GHz		1.3:1	1.4:1	
	DC–2.0 GHz		1.5:1	1.6:1	
	DC–2.5 GHz		1.6:1	1.8:1	

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

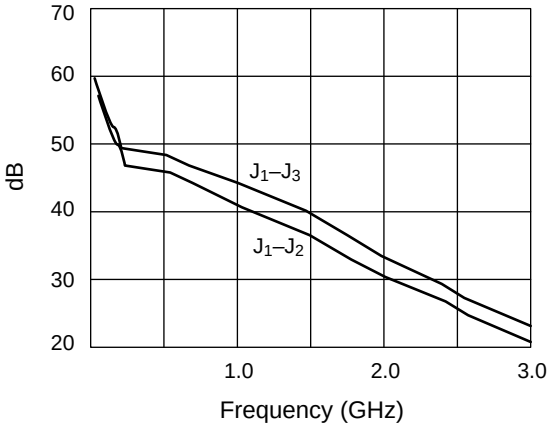
Parameter[1]	Condition	Frequency	Min.	Typ.	Max.	Unit
Switching Characteristics[5]	Rise, Fall (10/90% or 90/10% RF)			3		ns
	On, Off (50% CTL to 90/10% RF)			6		ns
	Video Feedthru			15		mV
Input Power for 1 dB Compression		0.50–2.0 GHz		+24		dBm
		0.05 GHz		+16		dBm
Intermodulation Intercept Point	For Two-tone Input Power +13 dBm	0.50–2.0 GHz		+46		dBm
Control Voltages	V_{Low} = 0 to -0.2 V @ 20 µA Max. V_{High} = -5 V @ 50 µA to -8 V @ 200 µA Max.					

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

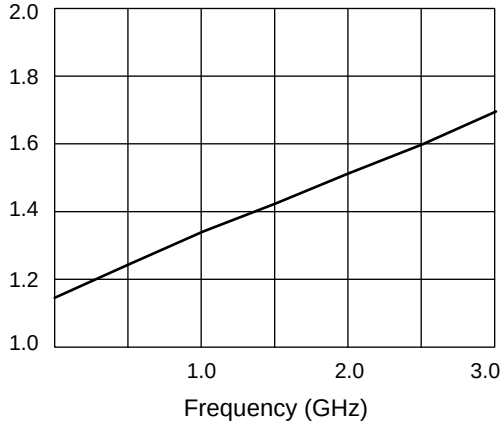
Typical Performance Data (0, -5 V)



Insertion Loss vs. Frequency



Isolation vs. Frequency



VSWR vs. Frequency

Absolute Maximum Ratings

Characteristic	Value
RF Input Power	2 W > 500 MHz 0/-8 V 0.5 W @ 50 MHz 0/-8 V
Control Voltage	+0.2 V, -8 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.

Truth Table

Negative Operation

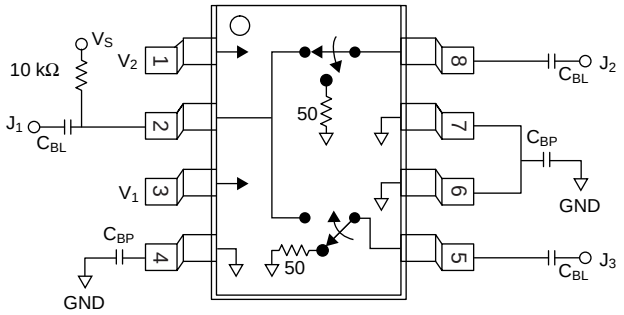
V_1	V_2	J_1–J_2	J_1–J_3
0	-5	Insertion Loss	Isolation
-5	0	Isolation	Insertion Loss

Positive Operation

V_1	V_2	J_1–J_2	J_1–J_3
V_{High}	0	Insertion Loss	Isolation
0	V_{High}	Isolation	Insertion Loss

V_{High} = +5 to +8 V (V_S = V_{High} ± 0.2 V).

Pin Out



External components shown are for positive voltage operation only.
C_{BL} = 100 pF, C_{BP} = 1000 pF for operation >500 MHz.