

GaAs IC SPST Non-Reflective Switch DC–2.5 GHz



AS259M1-12

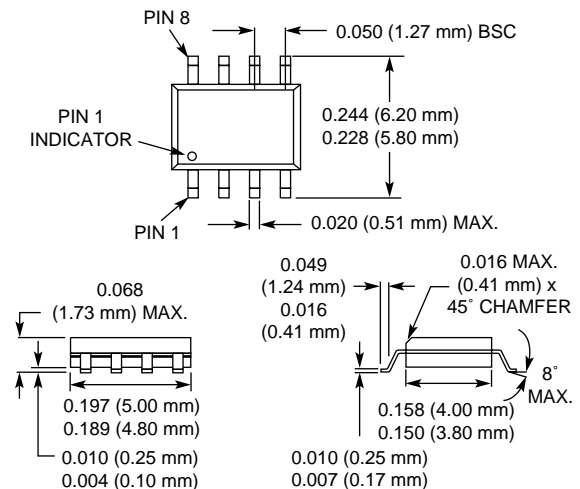
Features

- High Isolation (50 dB @ 0.9 GHz)
- Low DC Drain
- Reflective Open, J₁ Port
- Non-Reflective, J₂ Port

Description

The AS259M1-12 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)

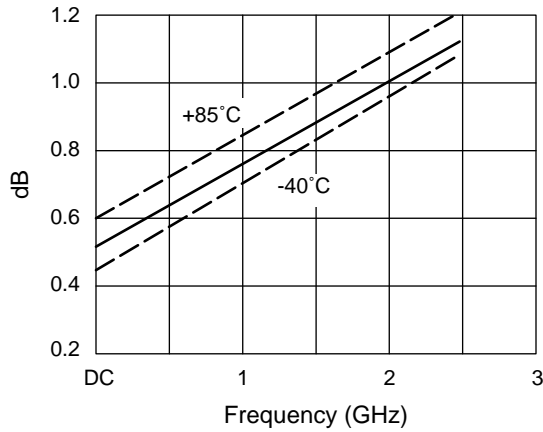
Parameter ¹	Frequency ²	Min.	Typ.	Max.	Unit
Insertion Loss ³	DC–0.5 GHz		.65	0.9	dB
	DC–1.0 GHz		.75	1.0	dB
	DC–2.5 GHz		1.0	1.2	dB
Isolation	DC–0.5 GHz	53	58		dB
	DC–1.0 GHz	45	48		dB
	DC–2.5 GHz	30	35		dB
VSWR ⁴	DC–1.0 GHz		1.2:1	1.4:1	
	DC–2.0 GHz		1.3:1	1.6:1	
	DC–2.5 GHz		1.5:1	1.8:1	

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

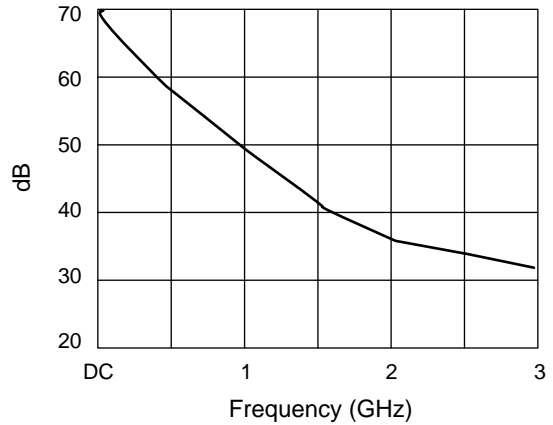
Parameter	Condition	Frequency	Min.	Typ.	Max.	Unit
Switching Characteristics ⁵	Rise, Fall (10/90% or 90/10% RF) On, Off (50% CTL to 90/10% RF) Video Feedthru			3		ns
				6		ns
				20		mV
Input Power for 1 dB Compression		0.50–2.0 GHz		+24		dBm
		0.05 GHz		+16		dBm
Intermodulation Intercept Point (IP3)	For Two-tone Input Power +13 dBm	0.50–2.0 GHz		+46		dBm
		0.05 GHz		+35		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 Ω 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.

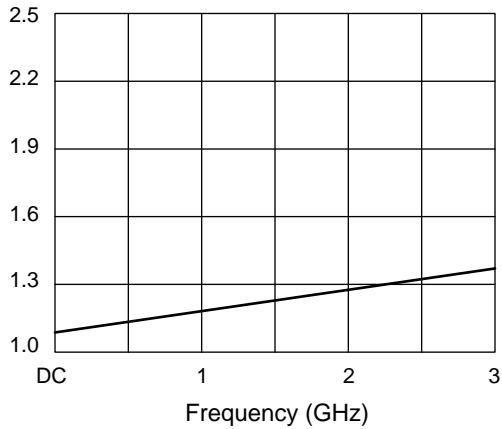
Typical Performance Data (0, -5 V)



Insertion Loss vs. Frequency



Isolation vs. Frequency



VSWR vs. Frequency

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, -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.

Truth Table

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

Pin Out

