GaAs SPST IC FET Switch
Non-Reflective DC–6 GHz

Alpha

AS006M1-93

Features

- Low DC Power Consumption
- High Isolation, Non-Reflective
- Broadband DC–6 GHz
- Excellent Intermodulation Products
- Small Low Cost “Chip on Board” Package

Description

The AS006M1-93 is an IC FET SPDT switch in a low cost “chip on board” package. It features non-reflective matching at each RF port, broadband performance, with very low DC power consumption. This switch can be used in many analog and digital wireless communication systems.

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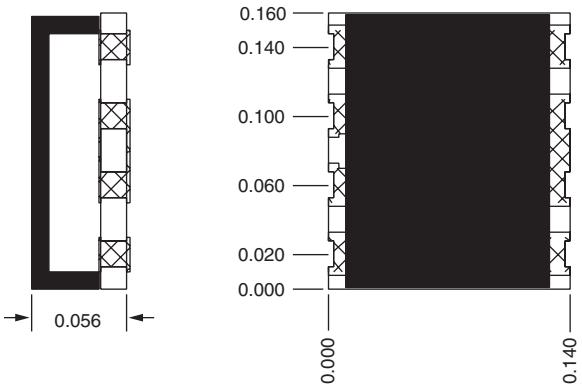


Top View

Electrical Specifications at 25°C

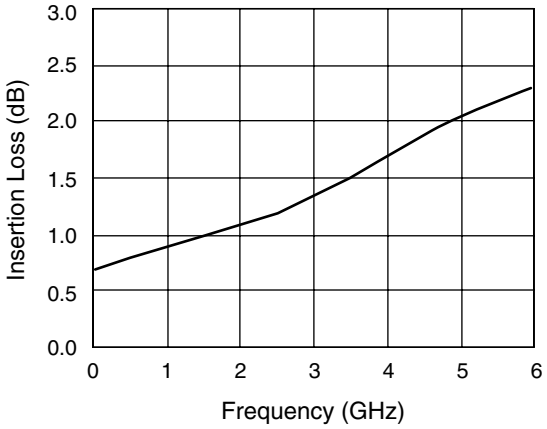
Parameter[1]	Frequency[4]	Min.	Typ.	Max.	Unit
Insertion Loss[2]	DC–1.0 GHz		0.8	1.0	dB
	DC–2.0 GHz		1.2	1.4	dB
	DC–4.0 GHz		1.8	2.0	dB
	DC–6.0 GHz		2.2	2.5	dB
Isolation	DC–1.0 GHz	54	62		dB
	DC–2.0 GHz	48	50		dB
	DC–4.0 GHz	46	52		dB
	DC–6.0 GHz	42	48		dB
VSWR (I/O)	DC–1.0 GHz		1.3:1	1.4:1	
	DC–2.0 GHz		1.4:1	1.6:1	
	DC–4.0 GHz		1.6:1	1.8:1	
	DC–6.0 GHz		1.8:1	2.0:1	

Operating Characteristics at 25°C

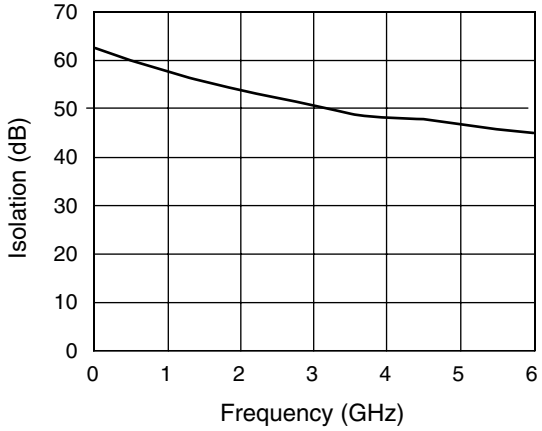
Parameter	Condition	Frequency	Min.	Typ.	Max.	Unit
Switching Characteristics	Rise, Fall (10/90% or 90/10% RF)			3		ns
	On, Off (50% CTL to 90/10% RF)			6		ns
	Video Feedthru[3]			20		mV
Input Power For 1 dB Compression		0.50–6 GHz		24		dBm
		0.05 GHz		16		dBm
Intermodulation Intercept Point (IP3)	For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

Typical Performance Data



Insertion Loss vs. Frequency

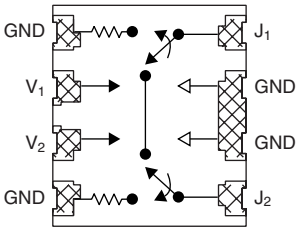


Isolation vs. Frequency

Truth Table

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

Pin Out



Absolute Maximum Ratings

Characteristic	Value
RF Input Power (RF In)	2 W Max. > 500 MHz 0/-8 V Control
Control Voltage (V_C)	-0.2 V, -10 V
Operating Temperature (T_{OP})	-40°C to +90°C
Storage Temperature (T_{ST})	-65°C to +150°C
Thermal Resistance (Θ_{JC})	25°C/W

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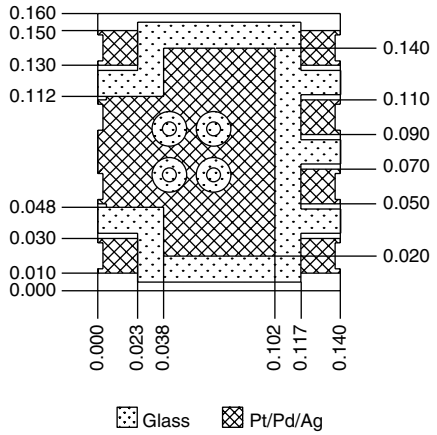

Bottom View

The “chip on board” package is a ceramic leadless chip carrier with a ceramic lid, which allows for automatic pick and place. The external terminals and backside ground plane are Pt/Pd/Ag, which is highly leach resistant and very tolerant to variations in solder conditions. The glass fingers between contacts prevent the possibility of shorted terminals. The recommended solder attachment is a SN6337 (Pb/SN).