GaAs IC SPST Switch Low Loss Reflective DC–6 GHz

Alpha

AS006L1-01, AS006L1-10

Features

- Low DC Power Consumption
- Low Loss, Reflective
- 7 Lead Hermetic Package
- Capable of Meeting MIL-STD Requirements[6]

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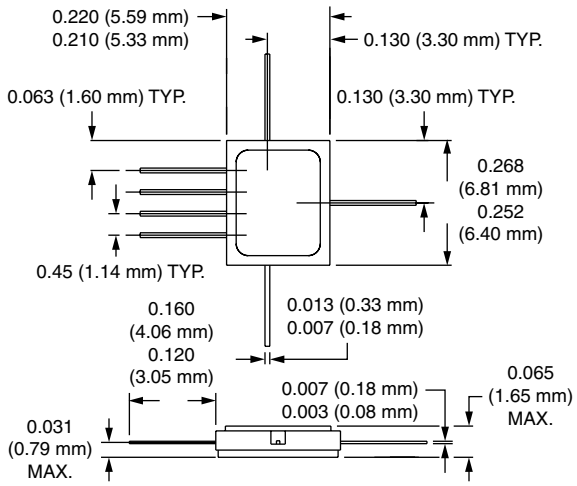


Description

The AS006L1-01 is a GaAs IC FET SPST low loss reflective switch. This device is ideal for microstrip applications and has optimum broadband performance since all leads are RF isolated. This product is useful as a modulator and switch in high reliability and commercial applications. The AS006L1-10 is the gullwing version of this device for surface mount applications.

Electrical Specifications at 25°C

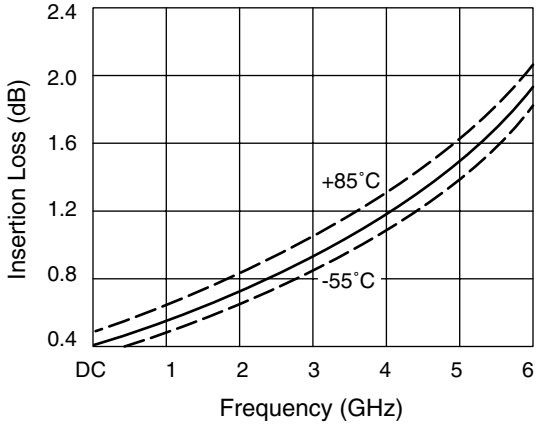
Parameter[1]	Frequency[5]	Min.	Typ.	Max.	Unit
Insertion Loss[2]	DC–1.0 GHz		0.5	0.7	dB
	DC–2.0 GHz		0.7	0.9	dB
	DC–4.0 GHz		1.1	1.3	dB
	DC–6.0 GHz		1.7	1.9	dB
Isolation	DC–1.0 GHz	45	54		dB
	DC–2.0 GHz	40	45		dB
	DC–4.0 GHz	30	35		dB
	DC–6.0 GHz	25	28		dB
VSWR[3]	DC–1.0 GHz		1.2:1	1.3:1	
	DC–2.0 GHz		1.3:1	1.5:1	
	DC–4.0 GHz		1.6:1	1.8:1	
	DC–6.0 GHz		1.8:1	2.0:1	

Operating Characteristics at 25°C

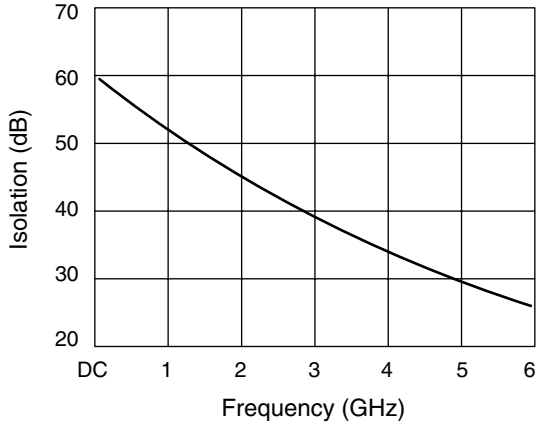
Parameter	Condition	Frequency	Min.	Typ.	Max.	Unit
Switching Characteristics	Rise, Fall (10/90% or 90/10% RF)			3	6	ns
	On, Off (50% CTL to 90/10% RF)			6	10	ns
	Video Feedthru[4]			20	30	mV
Input Power for 1 dB Compression	0/-5 V (0/-8 V)	0.5–6 GHz	21	24 (30)		dBm
		0.001 GHz	12	16 (20)		dBm
Intermodulation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

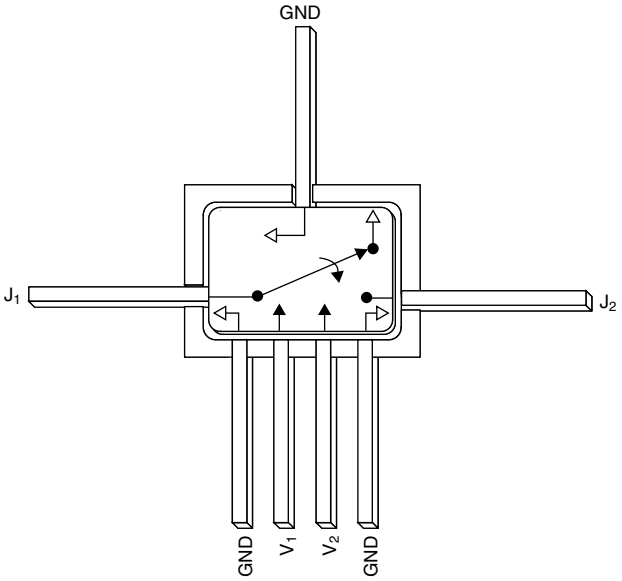
Truth Table

V_1	V_2	J_1–J_2
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_C)	+0.2 V, -10.0 V
Operating Temperature (T_{OP})	-55°C to +125°C
Storage Temperature (T_{ST})	-65°C to +150°C
Thermal Resistance (Θ_{JC})	25°C/W

Pin Out



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