

GaAs IC SPST Switch Low Loss DC–4 GHz

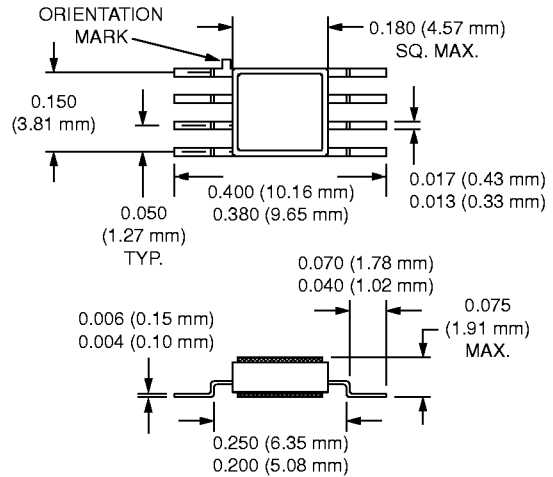


AS004L1-11

Features

- Low DC Power Consumption
- Low Loss, Reflective
- 8 Lead Hermetic Surface Mount Package
- Capable of Meeting MIL-STD Requirements⁶

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Description

The AS004L1-11 is a GaAs IC FET SPST low loss switch. This device has low insertion loss in the DC–4 GHz frequency range. It also has low DC power consumption and is used as modulators and switches for high reliability and commercial applications.

Electrical Specifications at 25°C

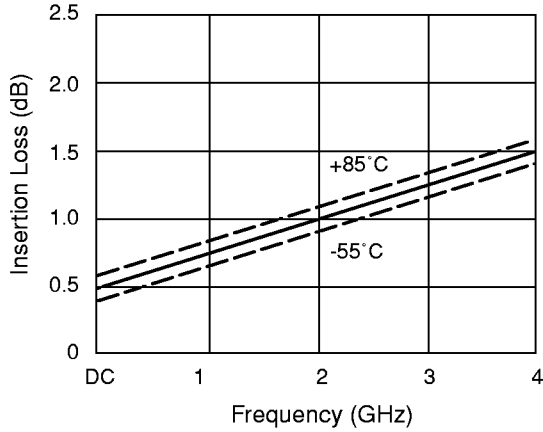
Parameter ¹	Frequency ⁵	Min.	Typ.	Max.	Unit
Insertion Loss ²	DC–1.0 GHz		0.6	0.8	dB
	DC–2.0 GHz		0.7	0.9	dB
	DC–4.0 GHz		1.1	1.3	dB
Isolation	DC–1.0 GHz	40	45		dB
	DC–2.0 GHz	32	38		dB
	DC–4.0 GHz	25	30		dB
VSWR ³	DC–1.0 GHz		1.2:1	1.3:1	
	DC–2.0 GHz		1.3:1	1.5:1	
	DC–4.0 GHz		1.6:1	1.8:1	

Operating Characteristics at 25°C

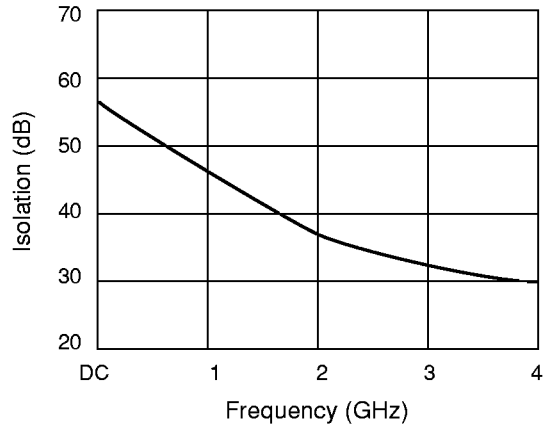
Parameter	Condition	Frequency	Min.	Typ.	Max.	Unit
Switching Characteristics	Rise, Fall (10/90% or 90/10% RF)			3	6	ns
	On, Off (50% CTL to 90/10% RF)			6	10	ns
	Video Feedthru ⁴			20	30	mV
Input Power for 1 dB Compression Control Voltages (V_C)	0/-5 V (0/-8 V)	0.5–4 GHz	21	24 (30)		dBm
		0.001 GHz	12	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 μ A Max. $V_{High} = -5$ V @ 50 μ A to -9 V @ 200 μ A 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

