

GaAs IC SPDT Low Loss Switch Reflective DC–4 GHz



AS004R2-11

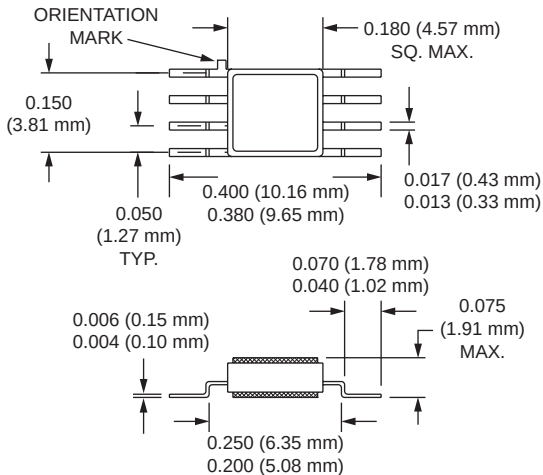
Features

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

Description

The AS004R2-11 SPDT reflective switch operates from DC–4 GHz. These devices are useful as modulators and switches in high reliability and commercial applications.

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Electrical Specifications at 25°C

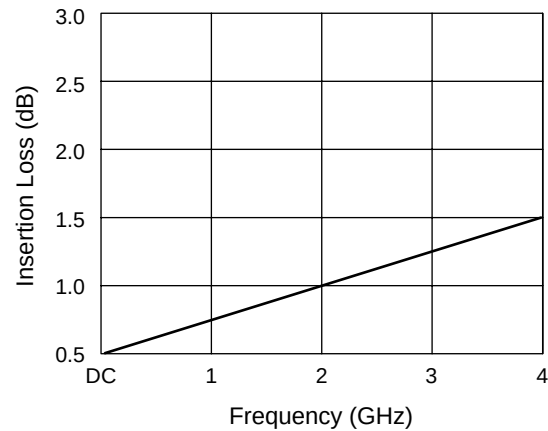
Parameter ¹	Frequency ⁵	Min.	Typ.	Max.	Unit
Insertion Loss ²	DC–1.0 GHz		0.8	1.0	dB
	DC–2.0 GHz		1.0	1.2	dB
	DC–4.0 GHz		1.3	1.5	dB
Isolation	DC–1.0 GHz	50	55		dB
	DC–2.0 GHz	42	48		dB
	DC–4.0 GHz	30	34		dB
VSWR ³	DC–1.0 GHz		1.2:1	1.4:1	
	DC–4.0 GHz		1.5:1	1.8:1	

Operating Characteristics at 25°C

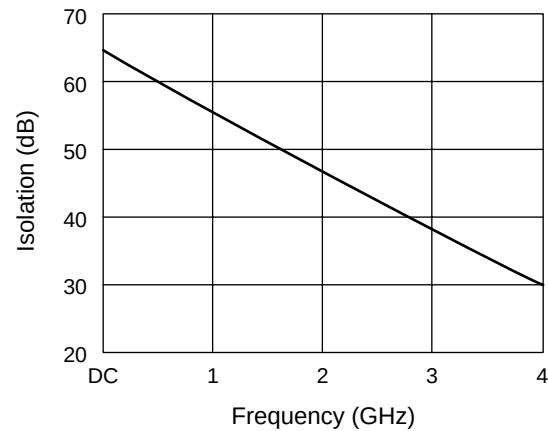
Parameter	Condition	Frequency	Min.	Typ.	Max.	Unit
Switching Characteristics	Rise, Fall (10/90% or 90/10% RF)			3	6	ns
	On, Off (50% CTL to 90/10% RF)			6	10	ns
	Video Feedthru ⁴			20	30	mV
Input Power for 1 dB Compression	0/-5 V (0/-8 V)	0.5–4 GHz	21	24 (30)		dBm
		0.001 GHz	12	16 (20)		dBm
Intermodulation 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	$V_{Low} = 0 \text{ to } -0.2 \text{ V @ } 20 \mu\text{A Max.}$ $V_{High} = -5 \text{ V @ } 50 \mu\text{A to } -9 \text{ V @ } 200 \mu\text{A Max.}$					

1. All measurements made in a 50 Ω system, unless otherwise specified.
2. Insertion loss changes 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	J ₁ –J ₃
0	-5	Isolation	Insertion Loss
-5	0	Insertion Loss	Isolation

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 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

