

GaAs IC SPST Switch Reflective DC–4 GHz



AS004R1-11

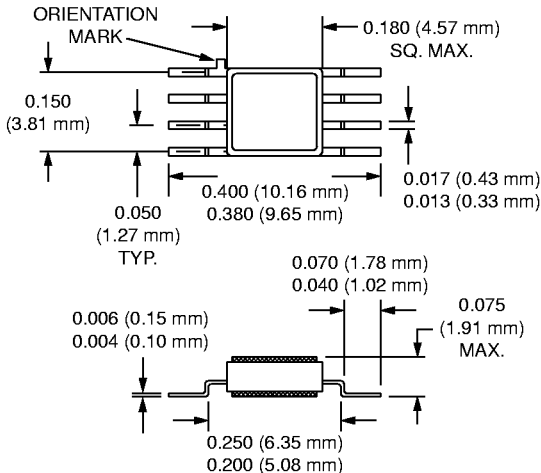
Features

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

Description

The AS004R1-11 is a GaAs IC FET SPST reflective switch that 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		0.9	1.1	dB
	DC–2.0 GHz		1.0	1.2	dB
	DC–4.0 GHz		1.4	1.6	dB
Isolation	DC–1.0 GHz	45	53		dB
	DC–2.0 GHz	38	45		dB
	DC–4.0 GHz	30	35		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	0/-5 V (0/-8 V)	0.5–4 GHz		24 (30)		dBm
		0.001 GHz		16 (20)		dBm
Intermodulation Intercept Point (IP3)	For Two-tone Input Power 13 dBm	0.5–4 GHz		46		dBm
		0.001 GHz		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 by 0.003 dB/°C.

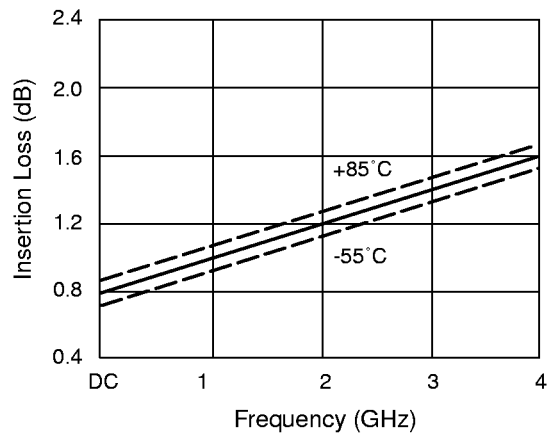
3. Insertion loss state.

4. Video feedthru measured with 1 ns risetime pulse and 500 MHz bandwidth.

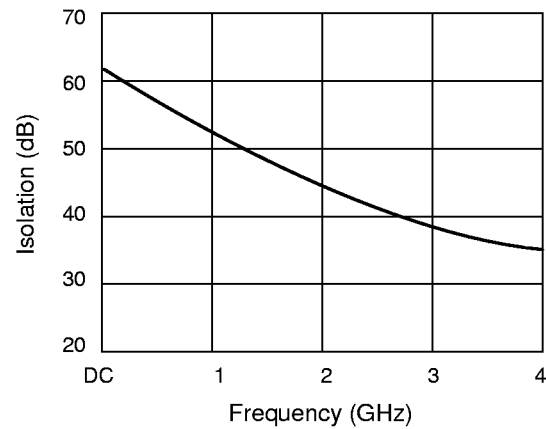
5. DC = 300 kHz.

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

