

GaAs IC SPDT Switch Reflective DC–6 GHz



AS406R2-01, AS406R2-10

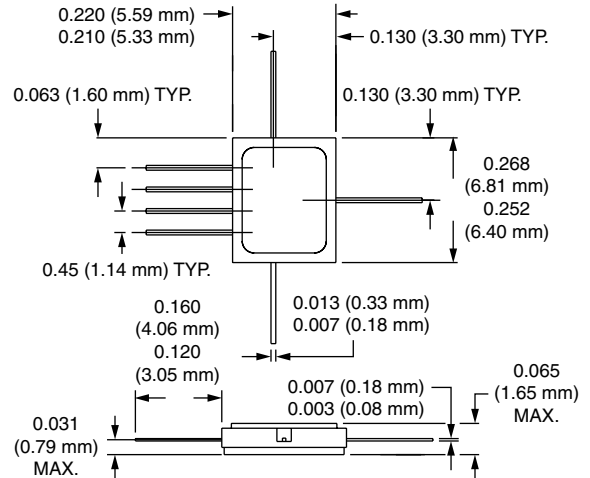
Features

- Independent Bias Control
- Reflective, Short
- 7 Lead Hermetic Package
- Capable of Meeting MIL-STD Requirements⁶

Description

The AS406R2-01 is a GaAs IC FET SPDT reflective switch. This device is ideal for microstrip applications. Since the FETs are independently biased, both arms of the switch can be turned on or off. The AS406R2-10 is the gullwing version of this device for surface mount applications.

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Electrical Specifications at 25°C

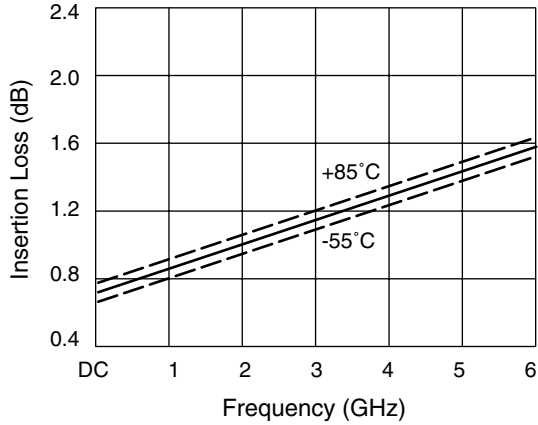
Parameter ¹	Frequency ⁵	Min.	Typ.	Max.	Unit
Insertion Loss ²	DC–1.0 GHz		0.8	1.0	dB
	DC–2.0 GHz		1.0	1.2	dB
	DC–4.0 GHz		1.3	1.5	dB
	DC–6.0 GHz		1.5	1.8	dB
Isolation	DC–1.0 GHz	53	58		dB
	DC–2.0 GHz	46	50		dB
	DC–4.0 GHz	38	42		dB
	DC–6.0 GHz	28	32		dB
VSWR ³	DC–1.0 GHz		1.2:1	1.3:1	
	DC–2.0 GHz		1.3:1	1.5:1	
	DC–4.0 GHz		1.5:1	1.8:1	
	DC–6.0 GHz		1.7:1	2.0:1	

Operating Characteristics at 25°C

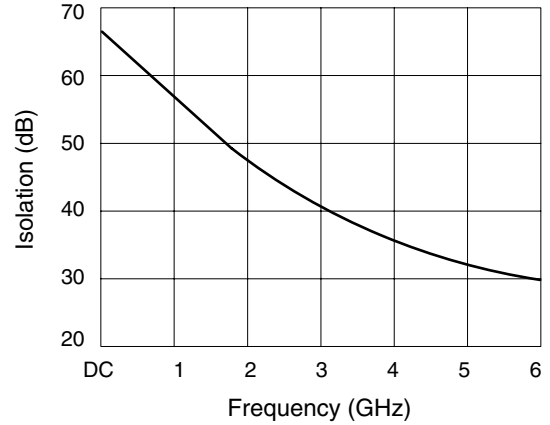
Parameter	Condition	Frequency	Min.	Typ.	Max.	Unit
Switching Characteristics	Rise, Fall (10/90% or 90/10% RF)			3	6	ns
	On, Off (50% CTL to 90/10% RF)			6	10	ns
	Video Feedthru ⁴			20	30	mV
Input Power for 1 dB Compression	0/-5 V (0/-8 V)	0.5–6 GHz	21	24 (30)		dBm
		0.001 GHz	12	16 (20)		dBm
Intermodulation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

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

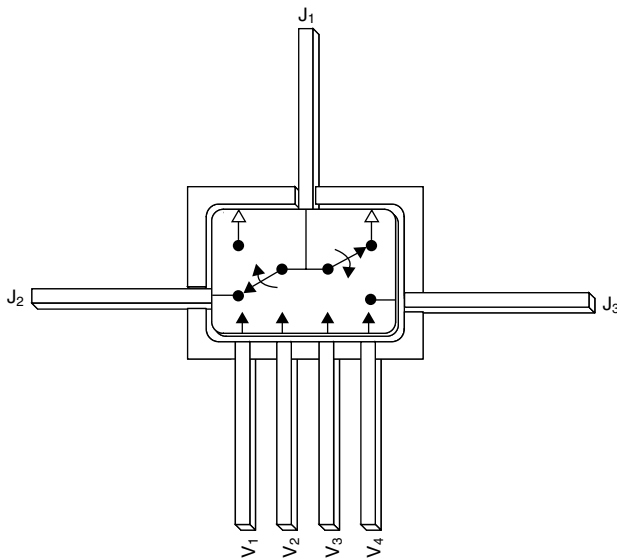
Truth Table

V ₁	V ₂	V ₃	V ₄	J ₁ -J ₂	J ₁ -J ₃
0	-5	0	-5	Insertion Loss	Isolation
-5	0	-5	0	Isolation	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



Package base is RF ground.

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