GaAs IC SPDT Switch Non-Reflective Positive Control DC–4 GHz

Alpha

AS004S2-11

Features

- Positive Control Voltage
- High Isolation, Non-Reflective
- 8 Lead Hermetic Surface Mount Package
- Capable of Meeting MIL-STD Requirements[5]

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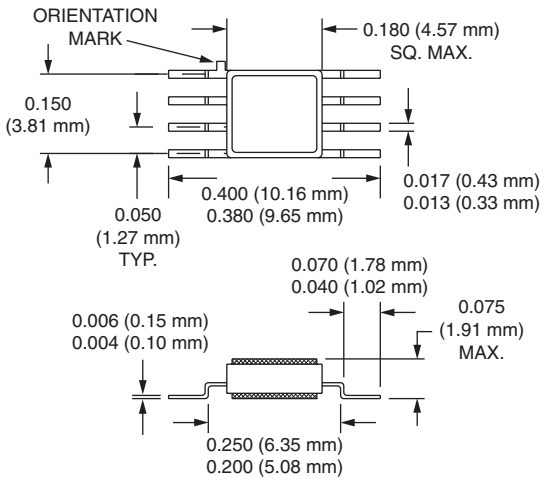


Description

The AS004S2-11 is a GaAs IC FET SPDT non-reflective switch with positive control voltage. This device is ideal for surface mounting in high reliability and commercial applications. It exhibits high isolation and low DC power consumption. It also meets MIL-STD-883 screening requirements.

Electrical Specifications at 25°C

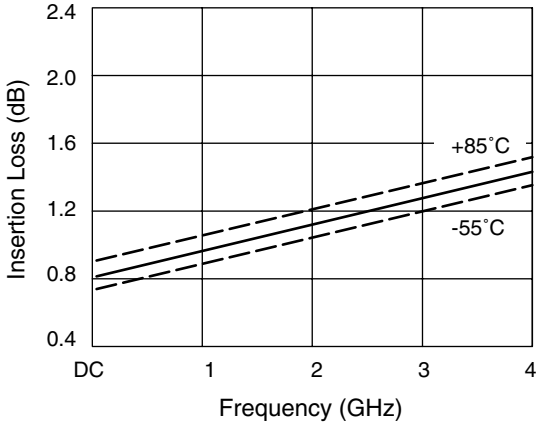
Parameter[1]	Frequency[4]	Min.	Typ.	Max.	Unit
Insertion Loss[2]	DC–1.0 GHz DC–2.0 GHz DC–4.0 GHz		0.8 1.0 1.3	1.0 1.2 1.6	dB dB dB
Isolation	DC–1.0 GHz DC–2.0 GHz DC–4.0 GHz	52 43 30	57 50 35		dB dB dB
VSWR (I/O)	DC–1.0 GHz DC–2.0 GHz DC–4.0 GHz		1.2:1 1.3:1 1.6:1	1.3:1 1.5:1 1.8:1	

Operating Characteristics at 25°C

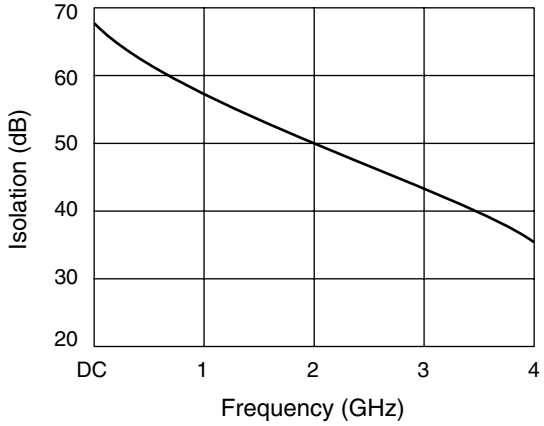
Parameter	Condition	Frequency	Min.	Typ.	Max.	Unit
Switching Characteristics	Rise, Fall (10/90% or 90/10% RF) On, Off (50% CTL to 90/10% RF) Video Feedthru[3]			25 35 20		ns ns mV
Input Power for 1 dB Compression	0/+5 V (0/+8 V)	0.5–4 GHz 0.001 GHz	21 12	24 (30) 16 (20)		dBm dBm
Intermodulation Intercept Point (IP3)	For Two-tone Input Power 13 dBm	0.5–4 GHz 0.001 GHz	42 32	46 35		dBm 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 0.003 dB/°C.
3. Video feedthru measured with 1 ns risetime pulse and 500 MHz bandwidth.
4. Actual performance dependent on external RF blocking capacitor: DC = 300 kHz.
5. See Quality/Reliability section.

Typical Performance Data



Insertion Loss vs. Frequency



Isolation vs. Frequency

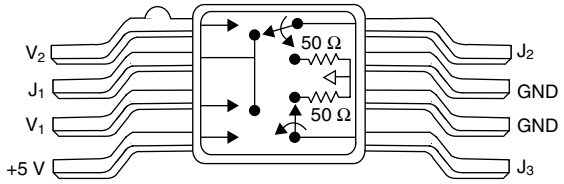
Truth Table

V_1	V_2	J_1–J_2	J_1–J_3
5	0	Insertion Loss	Isolation
0	5	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



Note: RF blocking capacitors (C_{BL}) required of each RF port (J_1, J_2, J_3).
C_{BL} = 100 pF for operation >500 MHz.