

GaAs IC SPDT Reflective Switch Positive Control DC–2 GHz



AS170-92

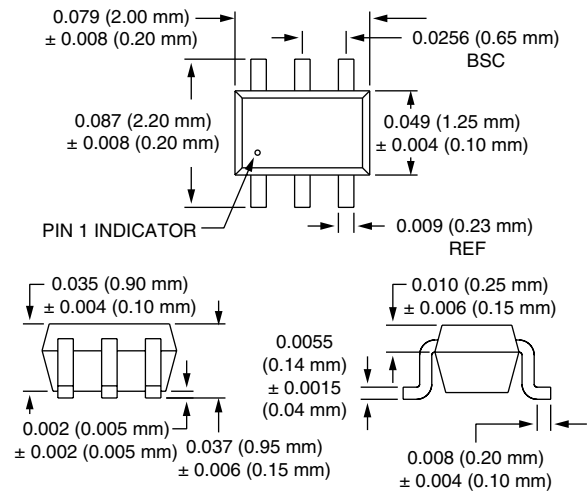
Features

- Low Insertion Loss
- Positive Control Voltage
- Low DC Power Consumption
- Ultra Miniature SC-70 6 Lead Package

Description

The AS170-92 is an IC FET reflective SPDT switch in a low cost miniature SC-70 6 lead plastic package. The AS170-92 features low insertion loss and positive voltage operation with very low DC power consumption. This general purpose switch provides a low cost solution for IF switching requirements in dual band and dual mode applications.

SC-70 6 Lead



Electrical Specifications at 25°C (0, +3 V)

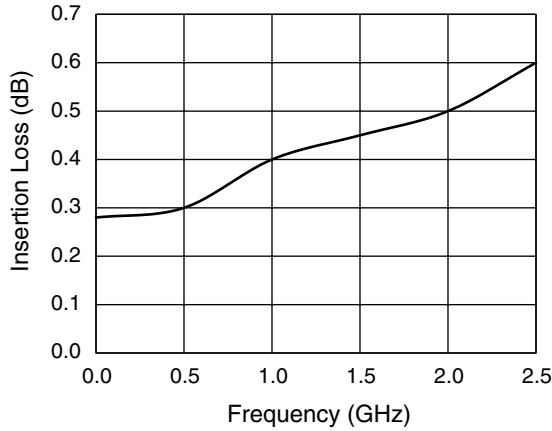
Parameter ¹	Frequency ²	Min.	Typ.	Max.	Unit
Insertion Loss ³	DC–1.0 GHz		0.45	0.6	dB
	DC–2.0 GHz		0.60	0.8	dB
Isolation	DC–1.0 GHz	15	18		dB
	DC–2.0 GHz	10	13		dB
VSWR ⁴	DC–1.0 GHz		1.2:1		
	DC–2.0 GHz		1.5:1		

Operating Characteristics at 25°C (0, +3 V)

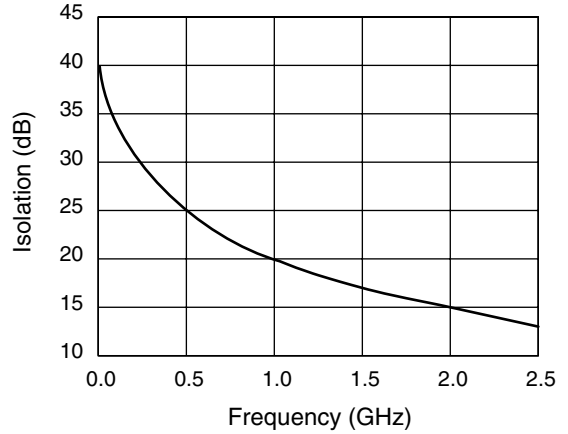
Parameter	Condition	Frequency	Min.	Typ.	Max.	Unit
Switching Characteristics ⁵	Rise, Fall (10/90% or 90/10% RF)			10		ns
	On, Off (50% CTL to 90/10% RF)			20		ns
	Video Feedthru			25		mV
Input Power for 1 dB Compression	0/+3 V	0.5–2.0 GHz		+21		dBm
	0/+5 V	0.5–2.0 GHz		+28		dBm
Intermodulation Intercept Point (IP3)	For Two-tone Input Power +13 dBm 0/+3 V 0/+5 V	0.5–2.0 GHz		+36		dBm
		0.5–2.0 GHz		+45		dBm
Control Voltages	V _{Low} = 0 to 0.2 V @ 20 µA Max. V _{High} = +3 V @ 100 µA Max. to +5 V @ 200 µA Max.					

1. All measurements made in a 50 Ω system, unless otherwise specified.
2. DC = 300 kHz.
3. Insertion loss changes by 0.003 dB/°C.
4. Insertion loss state.
5. Video feedthru measured with 1 ns risetime pulse and 500 MHz bandwidth.

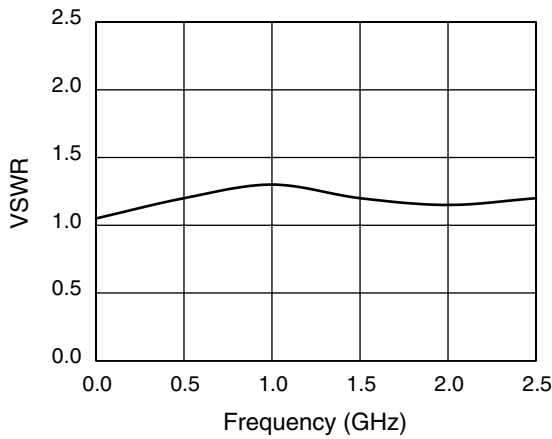
Typical Performance Data (0, +3 V)



Insertion Loss vs. Frequency



Isolation vs. Frequency

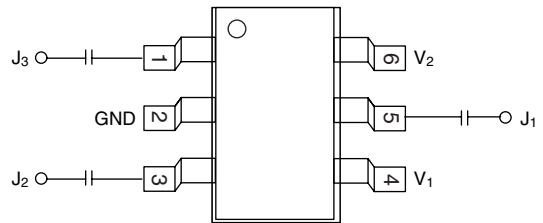


VSWR vs. Frequency

Absolute Maximum Ratings

Characteristic	Value
RF Input Power	2 W > 500 MHz 0/+7 V Control
Control Voltage	-0.2 V, +8 V
Operating Temperature	-40°C to +85°C
Storage Temperature	-50°C to +150°C
θ_{JC}	25°C/W

Pin Out



Truth Table

V ₁	V ₂	J ₁ -J ₂	J ₁ -J ₃
V _{High}	0	Insertion Loss	Isolation
0	V _{High}	Isolation	Insertion Loss

V_{High} = +3 to +5 V.