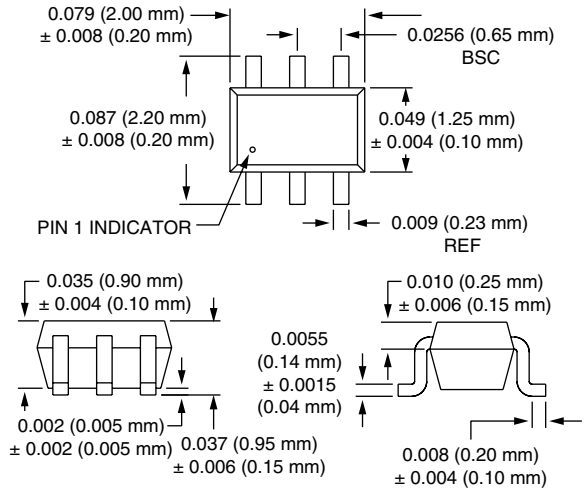
GaAs IC SPDT Reflective Switch
Positive Control DC–2 GHz

AS170-92

Features

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

SC-70 6 Lead



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.

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

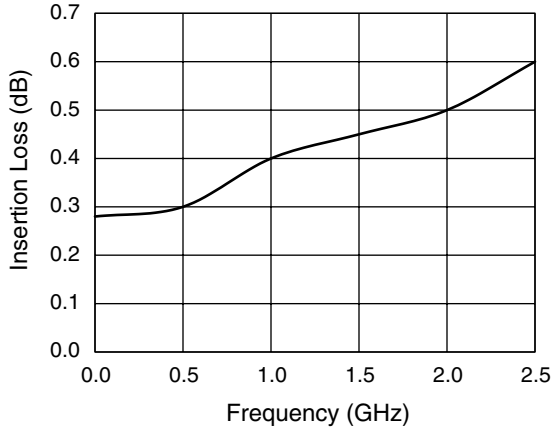
Parameter[1]	Frequency[2]	Min.	Typ.	Max.	Unit
Insertion Loss[3]	DC–1.0 GHz DC–2.0 GHz		0.45 0.60	0.6 0.8	dB dB
Isolation	DC–1.0 GHz DC–2.0 GHz	15 10	18 13		dB dB
VSWR[4]	DC–1.0 GHz DC–2.0 GHz		1.2:1 1.5:1		

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

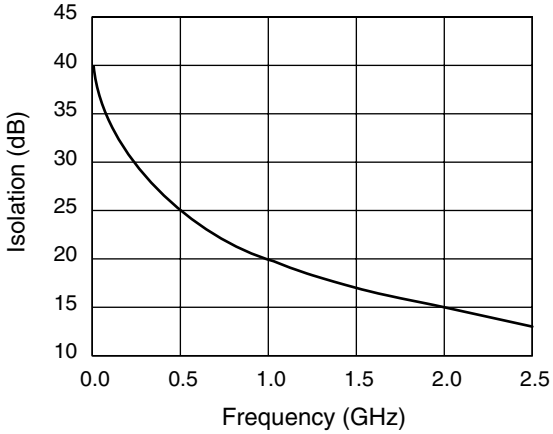
Parameter	Condition	Frequency	Min.	Typ.	Max.	Unit
Switching Characteristics[5]	Rise, Fall (10/90% or 90/10% RF) On, Off (50% CTL to 90/10% RF) Video Feedthru			10 20 25		ns ns mV
Input Power for 1 dB Compression	0/+3 V 0/+5 V	0.5–2.0 GHz 0.5–2.0 GHz		+21 +28		dBm dBm
Intermodulation Intercept Point (IP3)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

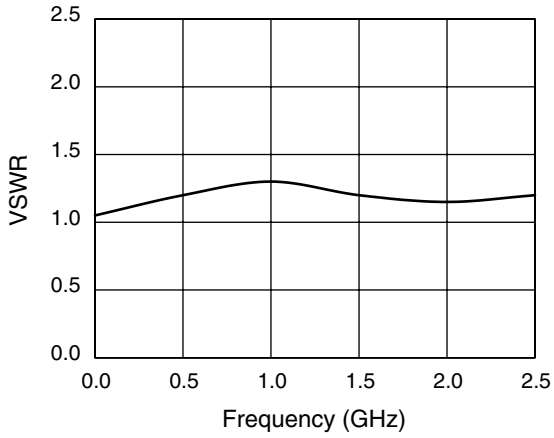
Typical Performance Data (0, +3 V)



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

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.

Pin Out