

GaAs IC Positive Control Non-Reflective SPDT Switch 0.5–2 GHz

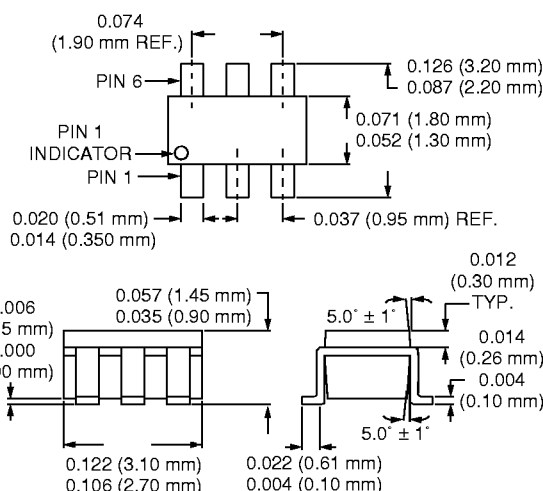


AS171-73

Features

- Positive Control Voltage
- Non-Reflective
- Low DC Power Consumption
- Small Low Cost SOT-6 Plastic Package

SOT-6



Description

The AS171-73 is an IC FET non-reflective SPDT switch in a low cost SOT-6 plastic package. The AS171-73 features low insertion loss and positive voltage operation with very low DC power consumption. This general purpose switch can be used in a variety of telecommunications applications.

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

Parameter ¹	Frequency	Min.	Typ.	Max.	Unit
Insertion Loss ²	0.5-1.0 GHz		0.8	1.0	dB
	0.5-2.0 GHz		0.9	1.1	dB
Isolation	0.5-1.0 GHz	32	35		dB
	0.5-2.0 GHz	30	33		dB
VSWR ³	0.5-2.0 GHz		1.4:1	1.8:1	

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

Parameter	Condition	Frequency	Min.	Typ.	Max.	Unit
Switching Characteristics	Rise, Fall (10/90% or 90/10% RF)			10		ns
	On, Off (50% CTL to 90/10% RF)			20		ns
	Video Feedthru ⁴			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		+26		dBm
Intermodulation Intercept Point (IP3)	For Two-tone Input Power +13 dBm	0.5–2.0 GHz		+45		dBm
Control Voltages	$V_{Low} = 0 \text{ to } 0.2 \text{ V @ } 20 \mu\text{A Max.}$ $V_{High} = +3 \text{ V @ } 100 \mu\text{A Max. to } +5 \text{ V @ } 200 \mu\text{A Max.}$ $V_S = V_{High} \pm 0.2 \text{ V}$					

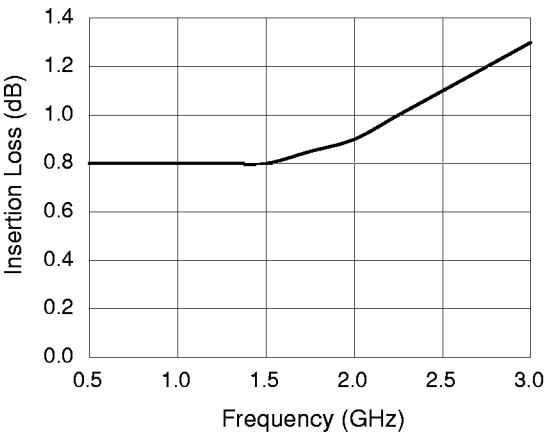
1. All measurements made in a 50 Ω system, unless otherwise specified.

2. Insertion loss changes by 0.003 dB/°C.

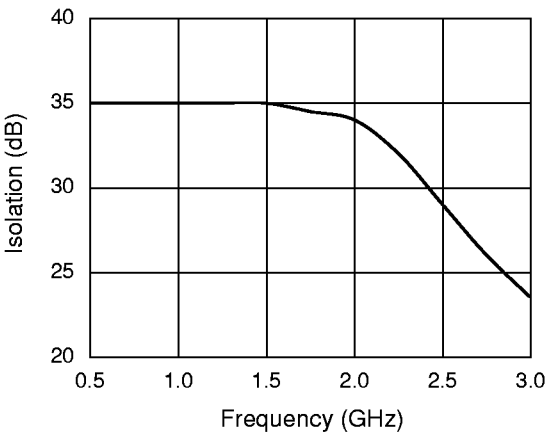
3. Input/output.

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

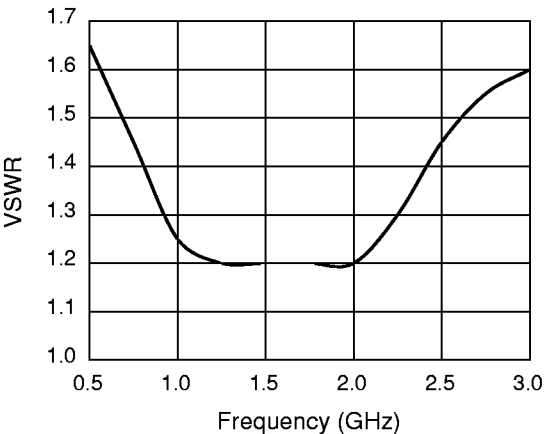
Typical Performance Data (0, +3 V)



Insertion Loss vs. Frequency



Isolation vs. Frequency



VSWR vs. Frequency

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 (V_S = V_{High} ± 0.2 V).

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

