PHEMT GaAs IC High Linearity 3 V Control SPDT Switch 0.1–4 GHz

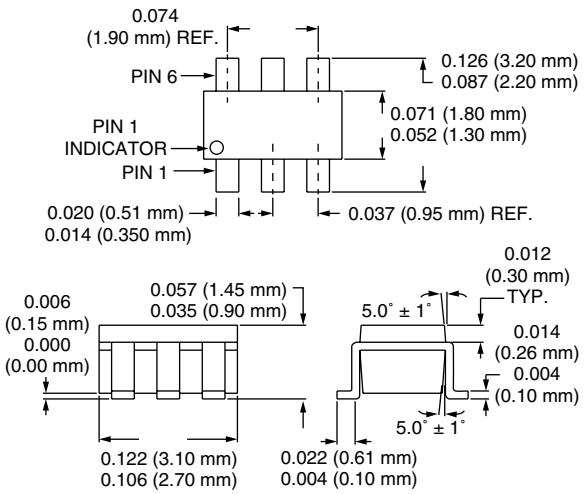
SKYWORKS

AS191-73

Features

- +2.5 to +5 V Linear Operation
- Harmonics H_2, H_3 > 65 dBc @ P_{IN} = 34.5 dBm
- Low Insertion Loss (0.5 dB @ 0.9 GHz)
- High Isolation (27 dB @ 0.9 GHz)
- Ultra Miniature SOT-6 Package
- PHEMT Process

SOT-6



Description

The AS191-73 is a PHEMT GaAs FET IC high linearity SPDT switch in a SOT-6 plastic package. This switch has been designed for use where extremely high linearity, low control voltage, high isolation, low insertion loss and ultra miniature package size are required. It can be controlled with positive, negative or a combination of both voltages. Some standard implementations include antenna changeover, T/R and diversity switching over 3 W. The AS191-73 switch can be used in many analog and digital wireless communication systems including cellular, GSM and DECT applications.

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

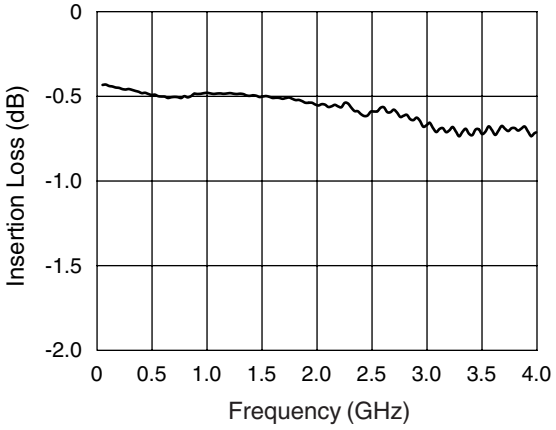
Parameter[1]	Frequency	Min.	Typ.	Max.	Unit
Insertion Loss[2]	0.1–1.0 GHz 1.0–2.0 GHz 2.0–4.0 GHz		0.50 0.55 0.70	0.60 0.70 1.00	dB dB
Isolation	0.1–1.0 GHz 1.0–2.0 GHz 2.0–4.0 GHz	25 19 14	27 21 18		dB dB dB
VSWR[3]	0.1–4.0 GHz		1.3:1		dB

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

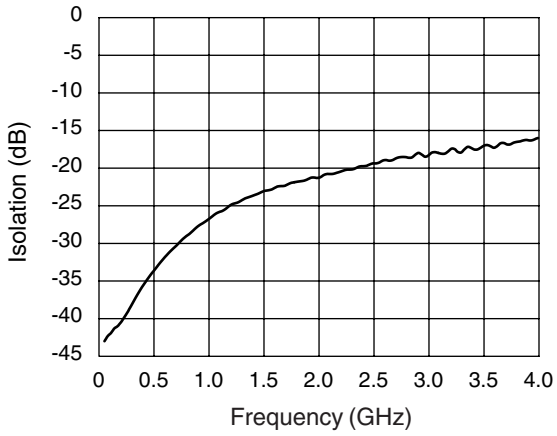
Parameter	Condition	Frequency	Min.	Typ.	Max.	Unit
Switching Characteristics[4]	Rise, Fall (10/90% or 90/10% RF) On, Off (50% CTL to 90/10% RF) Video Feedthru			60 100 50		ns ns mV
Input Power for -0.1 dB Compression	0/+3 V	0.9 GHz		+35		dBm
Harmonics H_2, H_3	P_{IN} = 34.5 dBm	0.9 GHz		+65		dBc
Control Voltages	V_{Low} = 0 to 0.2 V @ 20 µA Max. V_{High} = +2.5 V @ 100 µA Max. to +5 V @ 200 µA 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.

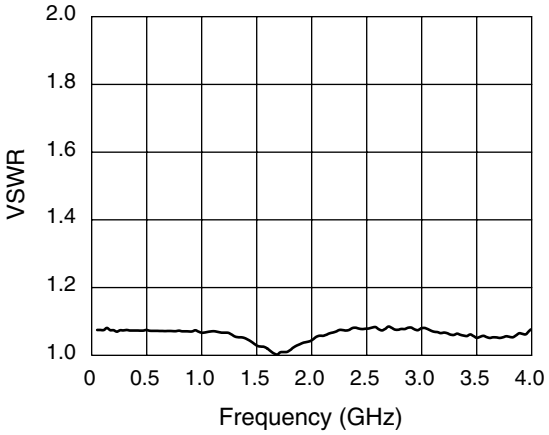
Typical Performance Data



Insertion Loss vs. Frequency



Isolation vs. Frequency



VSWR vs. Frequency

Absolute Maximum Ratings

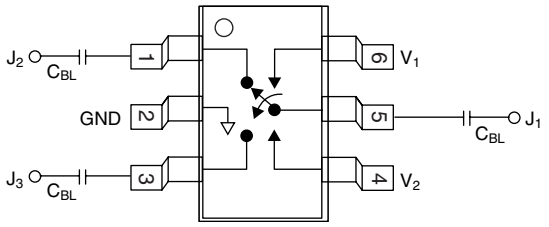
Characteristic	Value
RF Input Power	6 W Max. > 900 MHz, 0/+5 V Control
Control Voltage	-0.2 V, +8 V
Operating Temperature	-40°C to +85°C
Storage Temperature	-65°C to +150°C
Θ_{JC}	25°C/W

Truth Table

V_1	V_2	J_1–J_2	J_1–J_3
0	V_{High}	Isolation	Insertion Loss
V_{High}	0	Insertion Loss	Isolation

V_{High} = +2.5 to +5 V.

Pin Out



DC blocking capacitors (C_{BL}) must be supplied externally.
C_{BL} = 47 pF for operating frequency >500 MHz.

littlediode
COMPONENTS FOR ALL

Littlediode supplies new, hard to find or obsolete electronic components and semiconductors all over the world.

With over two million different components listed you are sure to find the part you need.

Feel free to visit us today at our online store:

LittleDiode.com

Looking forward to providing you with the best possible service.