

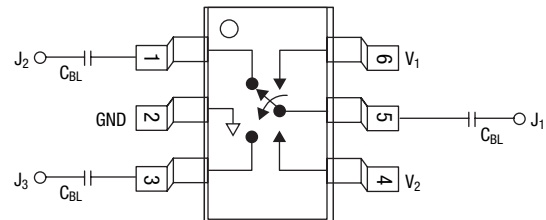
DATA SHEET

AS191-73, AS191-73LF: PHEMT GaAs IC High-Linearity 3 V Control SPDT Switch 0.1–4 GHz

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)
- Ultraminiature SOT-6 package
- PHEMT process
- Available lead (Pb)-free and RoHS-compliant MSL-1 @ 260 °C per JEDEC J-STD-020

Pin Out



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

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 ultraminiature 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.

NEW Skyworks offers lead (Pb)-free, RoHS (Restriction of Hazardous Substances)-compliant packaging.



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

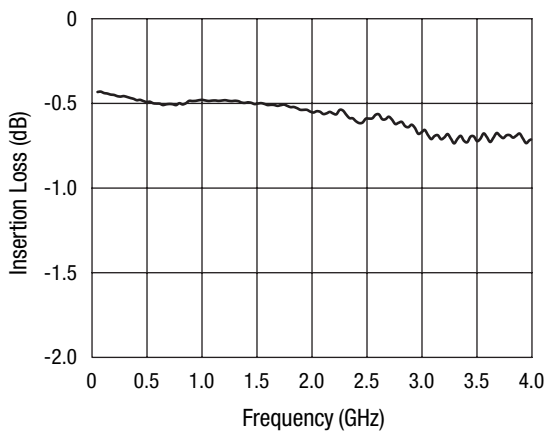
Parameter ⁽¹⁾	Frequency	Min.	Typ.	Max.	Unit
Insertion Loss ⁽²⁾	0.1–1 GHz		0.50	0.6	dB
	1.0–2 GHz		0.55	0.7	dB
	2.0–4 GHz		0.70	1.0	dB
Isolation	0.1–1 GHz	25	27		dB
	1.0–2 GHz	19	21		dB
	2.0–4 GHz	14	18		dB
VSWR ⁽³⁾	0.1–4 GHz		1.3:1		dB

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.

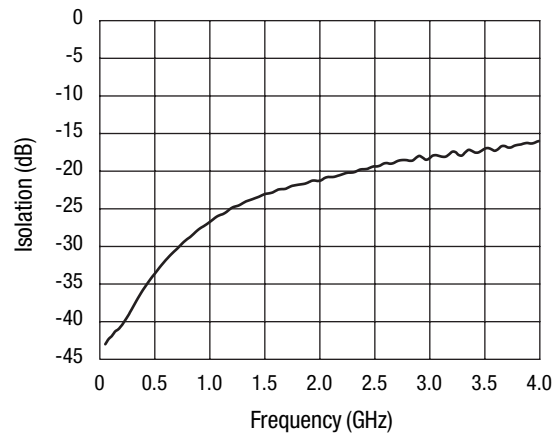
Operating Characteristics at 25 °C (0, 3 V)

Parameter	Condition	Frequency	Min.	Typ.	Max.	Unit
Switching characteristics						
Rise, fall	10/90% or 90/10% RF			60		ns
On, off	50% CTL to 90/10% RF			100		ns
Video feedthru	$T_{RISE} = 1 \text{ ns}$, BW = 500 MHz			50		mV
Input power for -0.1 dB compression	$V_{CTL} = 0/3 \text{ V}$	0.9 GHz		35		dBm
Harmonics H_2, H_3	$P_{IN} = 34.5 \text{ dBm}$	0.9 GHz		-65		dBc
Thermal resistance				25		°C/W
Control voltages	$V_{LOW} = 0 \text{ to } 0.2 \text{ V @ } 20 \mu\text{A max.}$ $V_{HIGH} = 2.5 \text{ V @ } 100 \mu\text{A max. to } 5 \text{ V @ } 200 \mu\text{A max.}$					

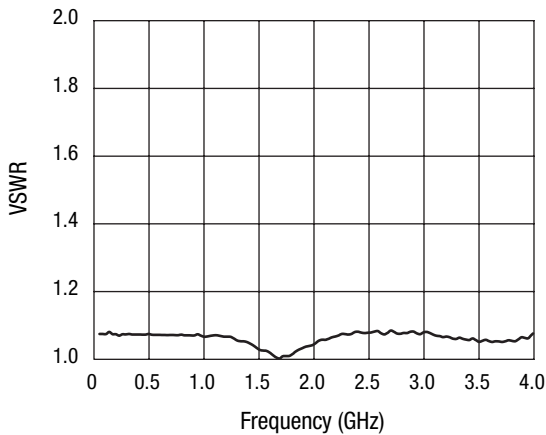
Typical Performance Data



Insertion Loss vs. Frequency



Isolation vs. Frequency



VSWR vs. Frequency

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