

Keysight Technologies

U9397A/C

FET Solid State Switches (SPDT)

U9397A 300 kHz to 8 GHz

U9397C 300 kHz to 18 GHz



Key Features

- Prevent damage to sensitive components with low video leakage < 10 mVpp
- Minimize crosstalk with exceptionally high isolation 100 dB @ 8 GHz
- Maintain fast throughput with industry leading settling time for FET switches of 350 μ s
- Eliminate the need for external drivers with an integrated TTL/CMOS driver

Description

Keysight Technologies, Inc. U9397A and U9397C FET solid state switches, SPDT provide superior performance in terms of video leakage, isolation, settling time, and insertion loss across a broad operating frequency range. The U9397A/C are particularly suitable for measuring sensitive devices and components, such as mixers and amplifiers, where video leakage may cause damage or reliability issues. High isolation minimizes crosstalk between measurements, ensuring accurate testing and improving yields. A switching speed of 500 ns makes these ideal for high-speed RF and microwave SPDT switching applications in instrumentation, communications, radar, and many other test systems.

The U9397A/C incorporate a patented design which reduces the settling time to < 350 μ s (measured to 0.01 dB of the final value). Other FET switches available today have a typical settling time of > 50 ms.

The U9397A/C switches have a GaAs FET MMIC at each RF port, and the integrated TTL/CMOS driver is configured in such a way that when either the RF1 or RF2 port is not selected to RFCOM, the port is terminated to 50 Ohm.

Specifications

Specifications refer to the performance standards or limits against which the solid state switches are tested.

Typical characteristics are included for additional information only and they are not specifications. These are denoted as "*typical*," "*nominal*" or "*approximate*" and are printed in italic.

Specifications subject to change.

RF Specifications

Model	U9397A	U9397C
Frequency range	300 kHz to 8 GHz	300 kHz to 18 GHz
Insertion loss	< 3.0 dB (300 kHz to 4 GHz) < 3.5 dB (4 to 8 GHz)	< 5.0 dB (300 kHz to 8 GHz) < 6.5 dB (8 to 18 GHz)
Isolation	100 dB	90 dB
Return loss (ON & common port)	> 15 dB	> 10 dB
Return loss (OFF port)	> 18 dB	> 13 dB
Settling time	350 μ s	350 μ s
Switching speed rise/fall ¹	5 / 0.5 μ s (typical)	5 / 0.5 μ s (typical)
Video leakage	< 10 mVpp	< 10 mVpp
Characteristic impedance	50 Ω (nominal)	50 Ω (nominal)
Connectors	SMA (f)	SMA (f)

1. Switching speed is based on 10% to 90% RF.

Absolute Maximum Ratings²

Parameters	U9397A		U9397C	
	Min	Max	Min	Max
RF input power (average)		+29 dBm		+27 dBm
DC voltage to RF port	-2.5 V	+2.5 V	-2.5 V	+2.5 V
Current sourcing at RF1 or RF2 ³		60 mA		60 mA
Vdc bias	+12 V	+24 V	+12 V	+24 V
CTRL input high voltage	+2.4 V	6 V	+2.4 V	6 V
CTRL input low voltage	0 V	+0.8 V	0 V	+0.8 V

2. Operation in excess of any one of these specifications may result in permanent damage to the product.

3. Sinking not allowed.

Ordering Information

U9397A	8 GHz high performance solid state switch
U9397C	18 GHz high performance solid state switch

Related Literature

U9397A/C High Performance Solid State Switch, Technical Overview, 5989-6088EN

Video Leakage
Application Note, 5989-6086EN

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