

KEYSIGHT TECHNOLOGIES (AGILENT HP)

87104A

The Keysight Technologies (formerly Agilent / HP) 87104A is a high-performance multiport SP4T coaxial latching switch designed for RF and microwave signal routing. Operating from DC to 4 GHz, it provides excellent insertion loss, isolation, and VSWR specifications with high repeatability. Featuring a latching solenoid actuator with self-interruption, it is highly optimized for automatic test equipment (ATE) and RF signal monitoring applications.

SPECIFICATIONS

General

Interfaces	SMA (female) RF connectors; 16-pin ribbon cable connector or solder terminals (configuration dependent)
------------	---

Physical

Power Supply	24 VDC nominal (20 to 30 VDC range) standard; optional 5 VDC (Option 011) or 15 VDC (Option 015); typical current 120 mA @ 24 V
Operating Temperature	-25 °C to +75 °C °C
Dimensions (W×H×D)	63.5 mm × 52.1 mm × 63.5 mm mm

RF Performance Specifications

Frequency Range	DC to 4 GHz
Characteristic Impedance	50 Ω
Insertion Loss	< 0.3 dB
Isolation	> 100 dB
Voltage Standing Wave Ratio (VSWR)	< 1.15
Insertion Loss Repeatability	0.03 dB maximum (guaranteed up to 5,000,000 cycles)

Actuator and Electrical Control Specifications

Actuator Type	Latching with self-interruption
Nominal Coil Voltage	24 VDC (Standard)
Coil Current	120 mA at 24 VDC (per port)
Switching Speed / Transition Time	< 15 ms
Self-Interruption Feature	Yes (solenoid power automatically disconnects after switching)

Mechanical and Interface Characteristics

Switch Configuration	SP4T (Single Pole Four Throw), multiport, unterminated
RF Connector Type	SMA (female)
Mechanical Lifetime (Cold Switching)	5,000,000 cycles (guaranteed)
Typical Mechanical Lifetime	10,000,000 cycles

Environmental and Reliability

Storage Temperature Range	-55 °C to +85 °C
Operating Humidity	95% relative humidity at 40 °C for 5 days

Configuration Options

TTL/CMOS Drive Option	Option 161 (incorporates TTL/CMOS drive and electronic indicators)
Coil Voltage Selection Options	5 VDC (Option 011), 15 VDC (Option 015), 24 VDC (Option 024)
Indicator Contact Options	Solder terminals (Option 100) or ribbon cable (Option 161)

RF Performance

Cold Switching RF Power Handling (Average)	150 W CW (at 4 GHz)
Hot Switching RF Power Handling (Average)	2 W CW
Hot Switching RF Power Handling (Peak)	100 W (10 µs pulse width, 1% duty cycle)

Environmental

Operating Shock	50 g (11 ms half-sine pulse)
Non-operating Shock	500 g (1.8 ms half-sine pulse)
Operating Vibration	7 g (5 to 2000 Hz)
Non-operating Vibration	20 g (20 to 2000 Hz)
Operating Altitude	4,600 m (15,000 ft)
Storage Altitude	15,300 m (50,000 ft)

Inputs & Outputs

Control Connector Type	Solder terminals (Option 100) / 16-pin ribbon cable (Option 161)
------------------------	--

RF Characteristics

Number of Throws	4
Termination	Unterminated
Number of Ports	5 (1 common, 4 output)

Performance

Switching Sequence	Break-before-make
--------------------	-------------------

TECHNOLOGY

Coaxial Latching Switch

APPLICATIONS

RF and microwave signal routing, automated test equipment (ATE), RF communications testing

Generated by SpecAtlasHub (specatlashub.com). Specifications are compiled from available sources and are subject to change — verify critical values against the manufacturer before purchase.