

Agilent L Series Electromechanical Coaxial Switches

Up to 26.5 GHz

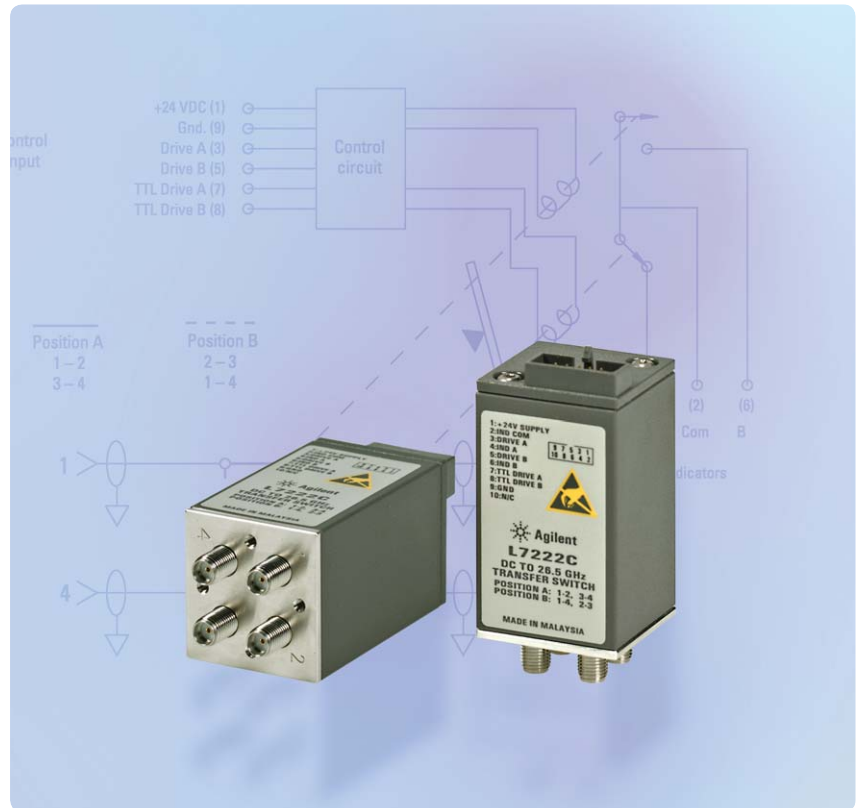


Finally,
high-performance
switches at the
right price.

- Guaranteed 0.03 dB repeatability
- Unmatched isolation
- Flexible configurations
- Economically priced

The Economy Performance Leader

In manufacturing today, reducing cost of test and increasing manufacturing yield are increasingly important. Automated test and measurement, signal monitoring, and routing applications require highly accurate and repeatable switching. Agilent's economically-priced L Series electromechanical (EM) switches provide the long life cycle, repeatability and reliability required to achieve higher performance in the majority of switching applications.



Agilent uses innovative design and careful process control to guarantee the performance of its L Series EM switches. Offering high isolation of > 90 dB and a guaranteed insertion loss repeatability of < 0.03 dB throughout the 2 million cycle operating life, these switches increase testing efficiency by minimizing measurement uncertainty and reducing downtime for recalibration.

Receive up to a 10% discount

Agilent offers a quantity price discount on the economically priced L Series electromechanical switch: a 5% discount for orders of 10 or more units, and a 10% discount for orders of 25 or more units.

Switching Applications

These high-performance EM switches can be used in a large number of applications, increasing system flexibility and simplifying system design.

Multiport switch applications

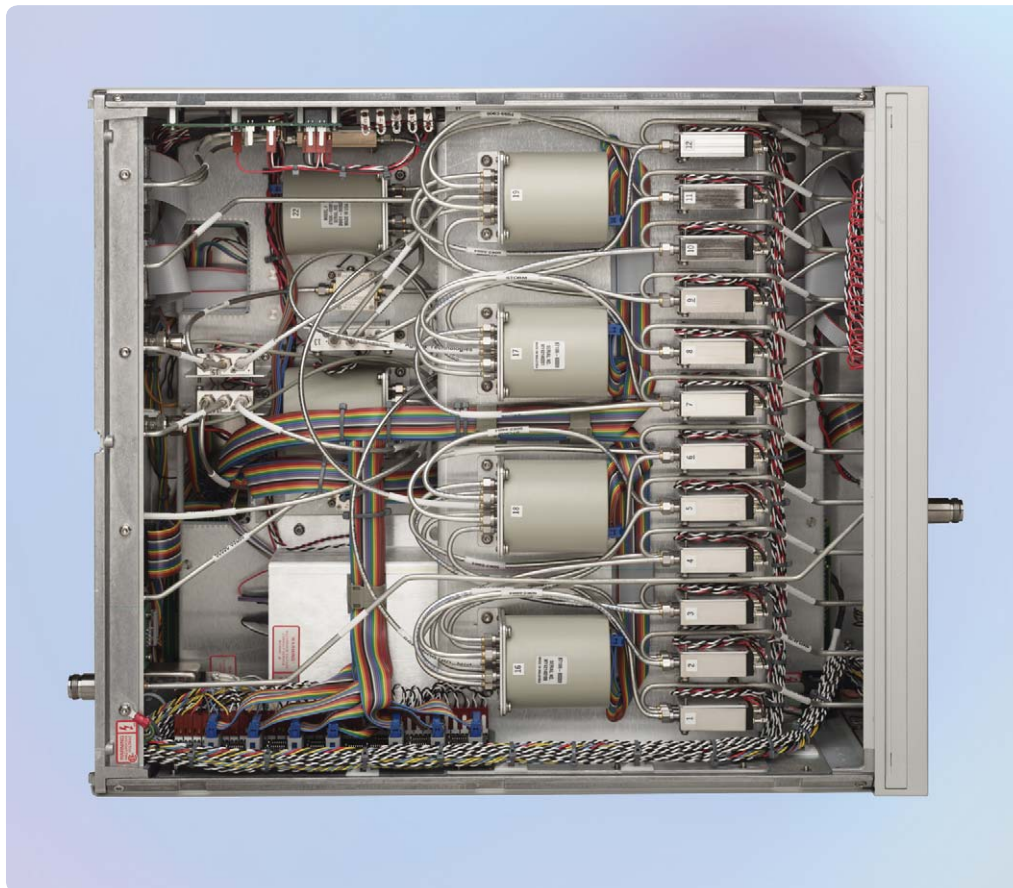
Switches are widely used in automated test systems and on bench testing. Typical switching applications for multiport coaxial switches include:

- Signal routing routes a single input to multiple outputs
- Matrix switching routes multiple input signals to multiple outputs simultaneously
- Transfer switching uses a switch to insert or remove a device in a signal path
- Switches are used to route multiple input signals to one measurement instrument

Transfer switch applications

Agilent L7222C transfer switches can be used in many different applications to increase system flexibility and simplify system design. The following are five examples:

- Switch between two inputs and two outputs
- Drop-out switch
- Signal reversal changes the direction
- Can be configured as a SPDT switch
- Bypass an active device



Switch matrixes use high performance multiport switches to route multiple input signals to multiple outputs simultaneously

Reliable Switching

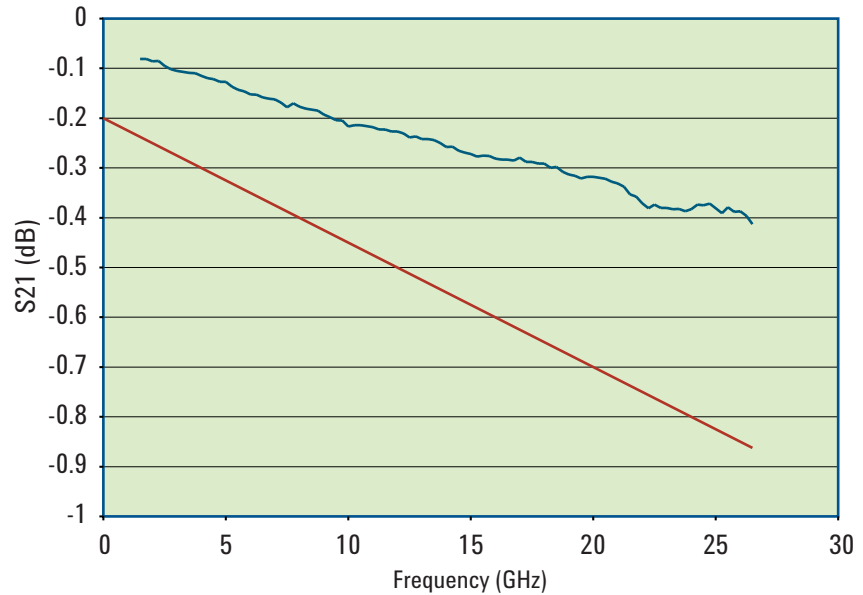
Switch life is a critical consideration in production test systems and test instrumentation. The longevity of these switches increases system uptime, and lowers the cost of ownership by reducing calibration cycles and switch maintenance.

- 0.03 dB insertion loss repeatability guaranteed for 2 million cycles
- Unique design eliminates particle build-up
- Opto-electronic indicators and interrupts

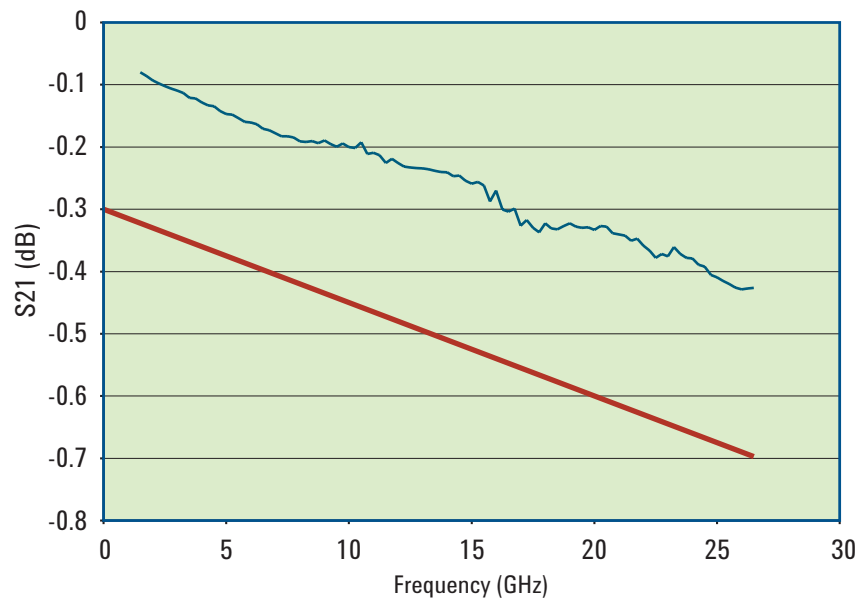
Guaranteed 0.03 dB repeatability

Agilent coaxial EM switches are designed to operate well beyond their specified lifetime within all RF specifications. Produced with stringent manufacturing processes and quality assurance systems, the exceptional 0.03 dB insertion loss repeatability of these switches is warranted for 2 million cycles at 25° C reducing uncertainty for the entire lifespan of the switch. To achieve this repeatability specification, Agilent L Series switches adopt the design created for the Agilent 5 million cycle switch. This unique design features a wiping mechanism that cleans debris off the center conductor tip every cycle, eliminating the particle build-up that is prevalent in conventional EM switch designs.

L7222C transfer switch insertion loss



L7106C EM switch insertion loss



Insertion loss repeatability guaranteed for 2 million cycles

Opto-electronic indicators and interrupts

Agilent switches also incorporate opto-electronic interrupts and indicators that improve reliability and extend the life of the switch by eliminating the DC circuit contact failures characteristic of conventional electro-mechanical switches.



Exceptional Performance

Agilent's L Series EM switches deliver the high performance and functionality over their life expectancy. The L Series ensures the highly accurate and repeatable switching needed to meet today's signal routing and monitoring and automated test equipment (ATE) requirements.

- > 85 dB isolation at 26.5 GHz
- Stringent manufacturing processes and quality assurance guarantee specifications
- Low SWR

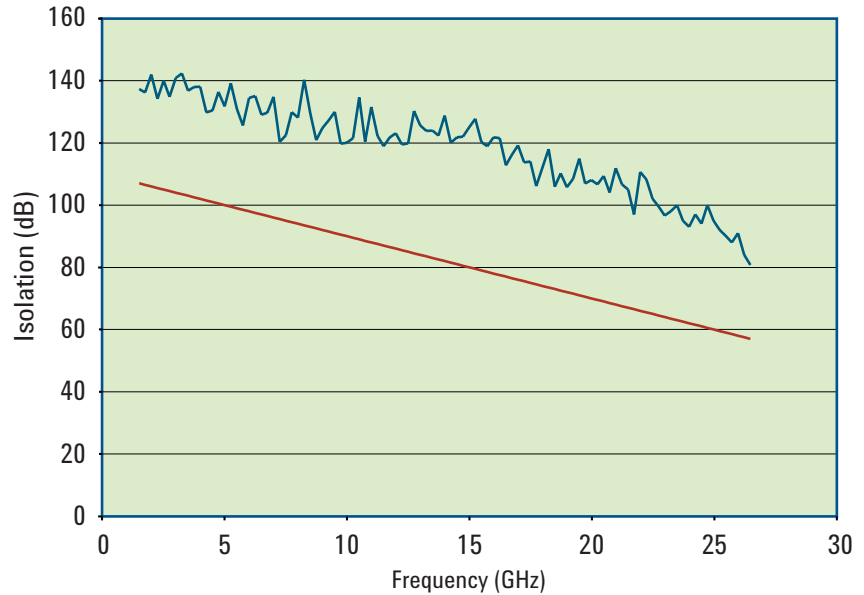
Unmatched isolation

Operating from DC to 26.5 GHz, these switches exhibit exceptional isolation performance required to maintain signal integrity. Isolation between ports is typically > 90 dB to 12 GHz, > 80 dB to 26.5 GHz reducing the influence of signals from other channels and system measurement uncertainties. The L Series switches also minimize measurement uncertainty making them ideal for use in large multi-tiered switching systems.

Low standing wave ratio (SWR)

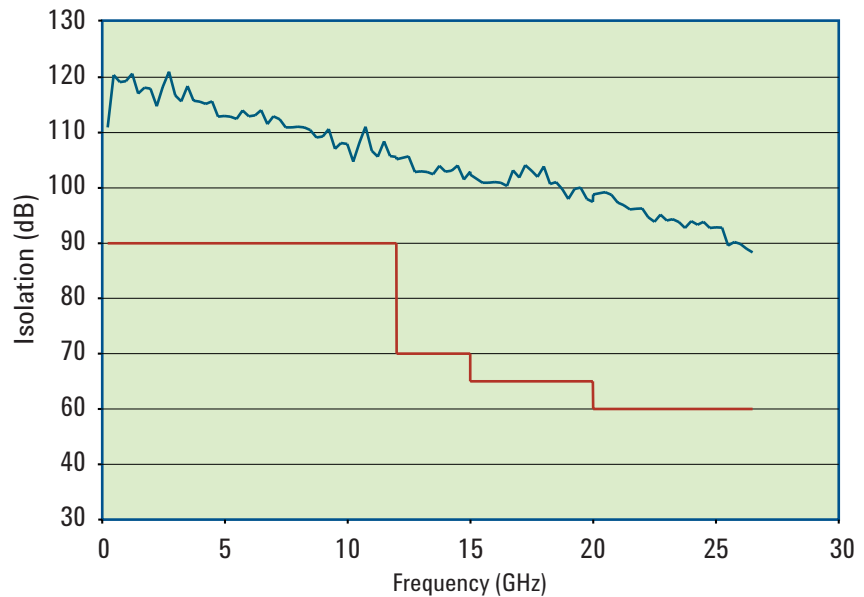
Minimize measurement uncertainty with low SWR.

L7222C transfer switch isolation



> 80 dB isolation at 26.5 GHz

L7106C EM switch isolation



> 85 dB isolation at 26.5 GHz



Flexible Configurations

A complete selection of switch configurations up to 26.5 GHz, the Agilent L Series EM switches deliver the required functionality and flexibility to deal with the most switch complex matrix and automatic test equipment (ATE) applications. SP4T, SP6T and transfer switches are available with terminated or unterminated ports to fit into any switch matrix.

- SP4T and SP6T configuration
- Terminated and unterminated ports¹
- Magnetic latching
- TTL/5 V CMOS compatible (optional)

Economically priced

Manufacturing test engineers doing system integration in telecommunications and component manufacturing industries today face a range of challenges related to price and reliability, as well as downtime and maintenance time. Addressing these challenges requires less expensive, high-performance RF switching solutions. Agilent's L Series switches offer excellent performance across all specifications at an affordable price minimizing the pressure associated with stringent budgetary constraints. The L Series offer better price per cycle reducing the cost of ownership.

Specifications

	L7104A/L7204A L7106A/L7206A	L7104B/L7204B L7106B/L7206B	L7104C/L7204C L7106C/L7206C	L7222C
Frequency range	DC to 4 GHz	DC to 20 GHz	DC to 26.5 GHz	DC to 26.5 GHz
Insertion loss	0.3 dB + 0.015 x frequency (GHz)	0.3 dB + 0.015 x frequency (GHz)	0.3 dB + 0.015 x frequency (GHz)	0.2 dB + 0.025 x frequency (GHz)
Isolation	90 dB minimum	90 dB minimum, DC to 12 GHz 70 dB minimum, 12 GHz to 15 GHz 65 dB minimum, 15 to 20 GHz 60 dB minimum, 20 to 26.5 GHz	90 dB minimum, DC to 12 GHz 70 dB minimum, 12 GHz to 15 GHz 65 dB minimum, 15 to 20 GHz	110 dB -2.0 x frequency (GHz)
SWR	1.2 maximum	1.2 maximum, DC to 4 GHz 1.35 maximum, 4 to 12.4 GHz 1.45 maximum, 12.4 to 18 GHz 1.7 maximum, 18 to 26.5 GHz	1.2 maximum, DC to 4 GHz 1.35 maximum, 4 to 12.4 GHz 1.45 maximum, 12.4 to 18 GHz 1.7 maximum, 18 to 26.5 GHz	1.1 maximum, DC to 2 GHz 1.15 maximum, 2 to 4 GHz 1.25 maximum, 4 to 12.4 GHz 1.4 maximum, 12.4 to 20 GHz 1.65 maximum, 20 to 26.5 GHz
Repeatability (Up to 2 million cycles measured at 25° C)	0.03 dB maximum	0.03 dB maximum	0.03 dB maximum	0.03 dB maximum
Connectors	SMA (f)	SMA (f)	SMA (f)	SMA (f)

1. For Multiport switches only

Ordering Information

Multiport Switches

L7104A DC to 4 GHz, SP4T terminated
L7104B DC to 20 GHz, SP4T terminated
L7104C DC to 26.5 GHz, SP4T terminated
L7204A DC to 4 GHz, SP4T unterminated
L7204B DC to 20 GHz, SP4T unterminated
L7204C DC to 26.5 GHz, SP4T unterminated
L7106A DC to 4 GHz, SP6T terminated
L7106B DC to 20 GHz, SP6T terminated
L7106C DC to 26.5 GHz, SP6T terminated
L7206A DC to 4 GHz, SP6T unterminated
L7206B DC to 20 GHz, SP6T unterminated
L7206C DC to 26.5 GHz, SP6T unterminated

Options

Option 100 Solder terminals to replace ribbon cable
Option UK6 Commercial calibration test data with certificate
Option T24 TTL/5 V CMOS compatible option

Transfer Switch

L7222C DC to 26.5 GHz transfer switch

Options

Option 100 Solder terminals in addition to ribbon cable
Option 201 Mounting bracket-assembly required
Option UK6 Commercial calibration test data with certificate



Check with an Agilent sales engineer for more information and technical support.

Related Literature

Agilent L Series Electromechanical Coaxial Switches, L7104A/B/C and L7106A/B/C Terminated, L7204A/B/C and L7206A/B/C Unterminated, Technical Overview. Literature number 5989-6030EN

Agilent L Series L7222C Coaxial Transfer Switches, DC to 26.5 GHz, Technical Overview. Literature number 5989-6084EN

Power Handling Capability of Electromechanical Switches, Application Note. Literature number 5989-6032EN

Coaxial Electromechanical Switch: How Operating Life and Repeatability of Agilent's Electromechanical Switches Minimize System Uncertainty, Application Note. Literature number 5989-6085EN



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Product specifications and descriptions in this document subject to change without notice.

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