

High-Frequency, Low Power Consumption MEMS Relay

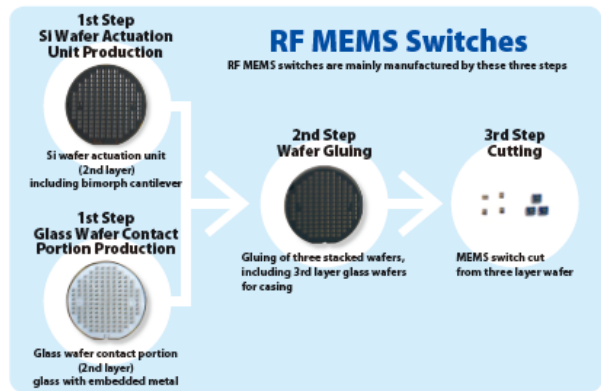
Advantest's high-frequency MEMS relay utilizes piezoelectric actuation to achieve low power consumption and high reliability. Via Advantest's proprietary deposition technology, the relay features a piezoelectric film only 1 micron thick, making low actuation voltage possible. The relay also has high reliability, using contact-point control technology honed in Advantest's semiconductor testing equipment, and it can handle up to 20 GHz high-frequency transmission, using Advantest's high-frequency measurement technology.

MEMS Relay Applications



Semiconductor Testing Equipment, High-Speed Communications Devices, High-Frequency Measurement Equipment

MEMS Relay Production Process



MEMS R&D & Production

R&D Centers : Advantest Gunma R&D Center
Advantest Laboratories (Sendai)
Brought to Practicality Under the Guidance of Prof. Masayoshi Esashi of Tohoku University

Production Center : Advantest Component (Sendai)
In-House Production of MEMS-Related Products, Compound Semiconductors, and SiPs for High-Frequency Modules

Main MEMS Relay Features (for reference)

Frequency Range : DC- 20 GHz
Actuation Voltage : 12 V
Contact Form : SPDT
Size (2 types) : 5.4 x 4.2 x 0.9 mm
2.9 x 3.4 x 0.9 mm
Isolation : > 20 dB (to 20 GHz)
Insertion Loss : < 1 dB (to 20 GHz)
Characteristic Impedance : 50 Ω

MEMS Probe Pin

Probe pins for probe cards used in wafer test are manufactured using MEMS technology.

Probe Pitch : P	60um / 60um
Probe Length : L	979.5um
Probe Width : W	50um / 40um
Tip Size	X: 11um Y: 10um
Tip Total Thickness	39.0um
SEM Image	

6 inch Wafer

Tip Size

Probe Size

About Advantest

A leading company in measurement and testing, Advantest is involved in industries that require leading-edge testing technology, such as electronics, telecommunications, and semiconductor production. In the semiconductor and component test system business, Advantest offers test systems that support reliability in every semiconductor device category, and holds global market share of roughly 50 %.

Semiconductor and Component Test Systems	Mechatronics Systems	New Concept Products
IC Test Systems Electronic Measuring Instruments	Nanotechnology Factory Automation	MEMS Terahertz Spectroscopic / Imaging Analysis System