The ADGM1304 and ADGM1004 are single-pole, four-throw (SP4T) switches fabricated using Analog Devices internal microelectromechanical systems (MEMS) switch technology.

This state-of-the-art technology enables a vastly smaller, more reliable, power-saving, lighter, faster switching, and wider bandwidth relay replacement solution.

The ADGM1304 and ADGM1004 are highly linear, low insertion loss switches that are fully operational from 0 Hz/dc up to 14 GHz and 13 GHz, respectively. The ADGM1004 is further optimized with a 2.5 kV HBM ESD rating.

A copackaged, low voltage, standard logic compatible driver IC generates the high voltage necessary to internally electrostatically actuate the switch. All four switches are also independently controlled for maximum flexibility.

ADGM1304 Insertion Loss and Off Isolation
ADGM1304/ADGM1004
Highlights to Remember

Gold cantilever type designs

20× smaller than typical EM relays

>10× reduction in power usage

>20× lighter than typical EM relays

Actuation (on/off cold-switching) lifetimes

DSLR 100k
EM relays 10M
Keyboard 50M
500M
MEMS switch 1B

30× faster switch turn on time (with no sound)

MEMS contact gap (over 100× less than hair width)

EMR 1000 μsec
MEMS switch 30 μsec
50,000 nm wide
MEMS switch 300 nm contact gap

Maximum usable bandwidth
0 Hz/dc to 14 GHz+

dc mmW
ADGM1004 MEMS switch showing inbuilt, low voltage/low power driver on left, MEMS switch on right (SP4T) with mounted, solid-state, 5 kV HBM ESD protection die on RF pins.
Introducing a revolutionary 0 Hz/dc to GHz switching solution. Innovative thinking and a proprietary approach offer a superior alternative to conventional relay approaches. Discover what MEMS switch technology can do for you in instrumentation, aerospace and defense, healthcare, communications, and other key markets.

Visit analog.com/MEMSswitch

User Guides
UG-644: Evaluating the ADGM1304 0 Hz/DC to 14 GHz, Single-Pole, Four-Throw MEMS Switch with Integrated Driver (Rev. A)

Technical Articles
The Fundamentals of Analog Devices’ Revolutionary MEMS Switch Technology
Groundbreaking 5 kV ESD MEMS Switch Technology

Circuit Notes
CN-0377: DC to 2.5 GHz Switchable RF Attenuator Implemented with RF MEMS Switches (Rev. A)

Press Release
Analog Devices Makes MEMS Switch Technology a Commercial Reality

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Device Configuration</th>
<th>Switch RON (Typ)(Ω)</th>
<th>Leakage Switch Off (Typ) (pA)</th>
<th>Frequency Response (Min) (Hz)</th>
<th>Frequency Response (Max) (GHz)</th>
<th>Insertion Loss (Typ) (dB)</th>
<th>Off Isolation (Typ) (dB)</th>
<th>IIP3 (Typ) (dBm)</th>
<th>Input Power (Max) (dBm)</th>
<th>Specified at Frequency (GHz)</th>
<th>Price 1000 to 4999 ($U.S.)</th>
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