ADI's analog switches pass analog signals such as audio data, ultrasonic imaging data.

- The switches are available in low and high voltage ranges.
- Have low on-resistance, low capacitance, low leakage current.
- Useful in applications for low-pass filter and amplifier gain adjustment selection.

ADI's specialty switches provide solutions for LAN, PCI Express® (PCIe) & USB systems.

- Supports Beyond-The-Rails system design applications.
- Have high BW from DC to 34 GHz (MEMS).

The ADI switch portfolio assist system designers’ applications in achieving

- Decreased signal distortion & insertion loss.
- Excellent isolation & low crosstalk.

Supported temp range

- -40°C to +85°C /+ 125°C
- -55°C to +210°C
# Analog Switch Family

## Low Voltage (<5 V, ±2.5 V)
- **Legend:** ADG8xx(21G, 31P) means 21 generics & 31 package options available in the family. Slide shows 499 pkg options available.

<table>
<thead>
<tr>
<th>Low Voltage (&lt;5 V, ±2.5 V)</th>
<th>Med. Voltage (5 V, ±5 V)</th>
<th>High Voltage (12 V, ±15 V)</th>
<th>CONFIG/PKG</th>
</tr>
</thead>
</table>
Analog Switch Family – Contd...

- **Low RON:** < (0.5 - 15) Ω
- **Low Leakage:** < 0.1 nA
- **Low Capacitance:** < 35 pF

### High Voltage + Robust (36 V, ±22 V)
- **ADG54xx** (12G, 24P)
- **ADG545xx** (1G, 2P)
  - SPST/ Dual-SPST/SPDT
  - Quad -SPST/SPDT
  - TSSOP/LFCSP/MSOP
  - Latch Up Immune

### High Voltage + Fault (36 V, ±22 V)
- **ADG545xxF/BF** (8G, 14P)
  - 1:1 SPST/ 2:1 SPDT
  - 4:1 MUX
  - TSSOP/LFCSP

### CONFIG/PKG

- **Low Leakage:** < 0.1 nA
  - **ADG52xx** (10G, 22P)
    - SPST/SPDT
    - TSSOP/LFCSP
    - Latch Up Immune

- **Low Capacitance:** < 35 pF
  - **ADG52xx** (10G, 22P)
    - SPST/SPDT
    - TSSOP/LFCSP
    - Latch Up Immune

- **MAX45xx** (17G, 26P)
  - 1:1 SPST/ 2:1 SPDT
  - 2/4/8:1 - MUX
  - N-SOIC/SSOP/SOT23uMAX/PDIP/CERDIP Wide-SO
  - TSSOP/LFCSP

- **MAX3xxF** (3G, 4P)
  - SPST
  - N-SOIC/PDIP
  - TSSOP/LFCSP

- **MAX3xxF** (6G, 10P)
  - SPST
  - N-SOIC/PDIP

Slide shows 102 pkg options available.
Beyond-The-Rails (BTR)
MAX147xx
(16pkg)

• Switches analog signals up to ±25 V with a single 3.0 V to 5.5 V supply
• Low Ron 1.5 Ω

USB 1.1, 2.0/LAN
MAX49xx, MAX47xx
(6 Generics -USB)
ADG772, ADG787
MAX48xx
(5 Generics - USB)

• up to ±15 kV ESD
• Single +3.0 V to +3.6 V Supply
• On-Capacitance (C_{ON}): 8pF (typ)
• Bandwidth (650MHz – 1GHz)

PCIE
MAX4928A/B
MAX4888A/B
MAX4889A/B

• 2.5/5.0/8.0 Gbps data rates
• Superior return loss -10dB (typ.) at 5.0 GHz
• 3.0 V to 3.6 V Supply

MEMS
ADGM10xx
ADGM11xx
ADGM13xx
(7 Generics)

• Lowest loss switching
• 20x Smaller, 30x Faster
• 100x longer Cycle Lifetime

Switches considered shows 58 pkg options available.
### Specialty Switch Family – Contd..

#### Enhanced Products (EP)
- ADG6xx, ADG7xx (5 V, ±5 V)
- ADG4xx, ADG4xxF
- ADG54xx, ADG54xxF
- ADG52xx, ADG333A
  (±15 V operation)

- Latch up immune
- ADG798 & ADG5298 available in
  (-55°C to +210°C)
- Low capacitance
- ADG798 RON 10.0 (max)
- Fast switching speeds

#### Level Translators
- ADG32xx (12pkg)
- ADG33xx (5 Generics)

- 3.3 V to 2.5 V, 2.5 V to 1.8 V
- Voltage translation
- 4.5 Ω RON typ. value
- High data rates of 1.2 Gbps available
- High switching speeds, low power dissipation

#### Automotive (AEC - Q100)
- ADG708, ADG711, ADG728, ADG736, ADG738, ADG658/9, ADG5412, ADG5433, ADG1411

- USB 2.0 switching in vehicles
- KL30/KL15 vehicle switching applications
- Low capacitance
- Low RON – less signal distortion

#### Crosspoint
- ADG21xx (3 pkg) MAX14xxx (4pkg)

- SPI / I2C controlled
- 1 Ω RON, 5 V or ±2.5 V operation for MAX14724
- 35 Ω RON, 12 V or ±5 V operation for ADG21xx

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Switches considered shows **30 pkg options available.**
Analog Switches & Multiplexers – Naming Convention

4 → Low On Resistance

2 → Low Capacitance, Q_{INJ}, and Leakage

5 → Latch-Up Proof

7 → Low Voltage

8 → Low Voltage, Sub-1Ω On Resistance

EP → Enhanced Product (Mil-Aero)

S → SPI Interface

F → Overvoltage Fault Protection

L → Low Logic Control (1.2 V/1.8 V logic)

M → MEMS Switch (DC – 18 GHz) Operation

ADG1412

ADG1212

ADGS5412

ADGS5412F

ADG712

ADG812

ADG918

ADG1634L

ADG1436-EP

ADGM1144
## Switch Benchmark Parameters – Leading Switch

<table>
<thead>
<tr>
<th>Benchmark Parameter</th>
<th>&lt;5.5 V Single Supply</th>
<th>±5 V Dual Supply</th>
<th>±15 V Dual Supply</th>
<th>±22 V Dual Supply</th>
</tr>
</thead>
<tbody>
<tr>
<td>RON - OnResistance</td>
<td>ADG801 0.25 Ω</td>
<td>ADG1611 1.0 Ω</td>
<td>ADG2412 0.5 Ω</td>
<td>ADG6412 0.5 Ω</td>
</tr>
<tr>
<td>Leakage @ +85° C</td>
<td>ADG774A 250 pA</td>
<td>ADG636 250 pA</td>
<td>ADG5212 250 pA</td>
<td>ADG5212 250 pA</td>
</tr>
<tr>
<td>Charge Injection - QiNJ</td>
<td>ADG772 0.5 pC</td>
<td>ADG611 -0.5 pC</td>
<td>ADG5212 0.07 pC</td>
<td>ADG5212 0.07 pC</td>
</tr>
<tr>
<td>RON x COFF Product</td>
<td>ADG774A 1.98 pF. Ω</td>
<td>ADG1611 5 pF. Ω</td>
<td>ADG1401 1.6 pF. Ω</td>
<td>ADG5412F 5 pF. Ω</td>
</tr>
<tr>
<td>Fast Speed</td>
<td>ADG774A 6 ns</td>
<td>ADG611 45 ns</td>
<td>ADG1204 70 ns</td>
<td>ADG5209 120 ns</td>
</tr>
<tr>
<td>Bandwidth</td>
<td>ADG772 630 MHz</td>
<td>ADG611 680 MHz</td>
<td>ADG1212 1 GHz</td>
<td>ADG5212 460 MHz</td>
</tr>
<tr>
<td>Off -Isolation</td>
<td>ADG779 -87 dB</td>
<td>ADG633 -90 dB</td>
<td>ADG508F -93 dB</td>
<td>ADG5206 -90 dB</td>
</tr>
<tr>
<td>Continuous Current – 1 Ch. @ +25° C</td>
<td>ADG801 400 mA</td>
<td>ADGS1612 566 mA</td>
<td>ADG2412 847 mA</td>
<td>ADG6412 847 mA</td>
</tr>
<tr>
<td>Lowest Power Supply</td>
<td>ADG841 1.65 V</td>
<td>ADG611 2.7 V</td>
<td>ADG14xx 10.8 V ±4.5 V</td>
<td>ADG54xxF 12 V ±5 V</td>
</tr>
<tr>
<td>Widest Power Supply</td>
<td>ADG7xx 5.5 V ±2.5 V</td>
<td>ADG16xx 13.2 V ±5.5 V</td>
<td>ADG54xxF 39.6 V ±22 V</td>
<td>ADG54xxF 39.6 V ±22 V</td>
</tr>
<tr>
<td>Power Consumption - IDD</td>
<td>ADG7xx ADG8xx 1 nA typ</td>
<td>ADG16xx 1 nA</td>
<td>ADG413 100 pA</td>
<td>ADG54xXF 50 uA</td>
</tr>
<tr>
<td>Absolute Footprint</td>
<td>ADG772 1.33 mm x 1.6 mm (LFCSP)</td>
<td>ADG619 1.33 mm x 1.6 mm (SOT-23)</td>
<td>ADG1201 2.9 mm x 2.8 mm (SOT-23)</td>
<td>ADG5401 2.9 mm x 3.0 mm (LFCSP)</td>
</tr>
<tr>
<td>Density – Switch Area/Channel</td>
<td>ADG888 (Dual DPDT) 4 mm²/8 (WLCSP)</td>
<td>ADG1608 (8:1 Mux) 9 mm²/8 (LFCSP)</td>
<td>ADG5206 (16:1 Mux) 25 mm²/16 (LFCSP)</td>
<td>ADG5206 (16:1 Mux) 25 mm²/16 (LFCSP)</td>
</tr>
</tbody>
</table>