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# UNION SEMICONDUCTOR

[www.union-ic.com](http://www.union-ic.com)

Analog and Data Switches Selection Guide

# Company Profile

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## Who We Are

Founded in 2001, Union Semiconductor is a fabless integrated circuit design company, engaged in inventing, designing and marketing high performance linear and mixed-signal integrated circuits (ICs) for use in a variety of electronic equipment.

Union Semiconductor's products bridge the analog real world and digital world by detecting, measuring, amplifying, converting power supply and providing protection for electronic circuits.

## Corporate Mission

Union Semiconductor's mission is to continuously develop high quality and innovative mixed signal IC solutions that add value to customers' electronics equipment worldwide.

## Products and Applications

Our products include power supplies, power management circuits, analog switches, interface circuits, ESD protection ICs and EMI filters.

Union Semiconductor markets over 180 analog ICs for uses in a wide variety of electronic equipment. These include PCs and their peripherals, portable devices, instrumentation, test equipments and digital consumer electronics.

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# Product Selection Guide

## Analog and Data Switches

### Low Ron Analog Switches (Ron<1Ω)

Part Number	V <sub>CC</sub> (V)	Features	R <sub>ON</sub> (Ω) (Max)	Bandwidth (MHz)	Off Isolation @ 100kHz (dB)	Cross-Talk @ 100kHz (dB)	Package
UM4157	1.65~4.3	Single SPDT	0.8	70	-75	-75	SOT363
UM2268	1.8~4.4	Dual SPDT	0.75	80	-78	-93	QFN10 1.8×1.4
UM2268A	1.8~4.4	Dual SPDT	0.75	80	-78	-93	QFN10 2.1×1.6
UM4684	1.8~5.5	Dual SPDT	0.8	20	-69	-69	CSP10 MSOP10
UM5223	1.65~4.5	Dual SPDT	0.5	75	-78	-92	QFN10 1.8×1.4
UM3699A	1.65~5.5	Dual DPDT	0.75	20	-62	-62	QFN16 3.0×3.0

\*: Future product, contact factory.

### High Bandwidth Data Switches (BW>200MHz)

Part Number	V <sub>CC</sub> (V)	Features	R <sub>ON</sub> (Ω) (Max)	Bandwidth (MHz)	Off Isolation (dB)**	Cross-Talk (dB)**	Package
UM3156	1.65~5.5	Single SPDT, Low I <sub>CCT</sub>	10	230	-60	-54	SOT363
UM3157	1.65~5.5	Single SPDT, Low I <sub>CCT</sub>	10	250	-57	-54	SOT363
UM3257	1.65~5.5	Dual SPDT, Low I <sub>CCT</sub>	10	250	-55	-54	DFN12 3.0×1.6
UM3258	1.65~5.5	Dual SPDT, Low I <sub>CCT</sub>	10	300	-55	-54	DFN12 3.0×1.0
UM4717	1.8~5.5	Dual SPDT	6	300	-55	-80	CSP10
UM4717Q	1.8~5.5	Dual SPDT	6	300	-55	-80	QFN10 1.8×1.4
UM4258Q	1.8~5.5	Dual SPDT	4.5	300	-55	-80	QFN10 1.8×1.4
UM3670	1.8~5.5	Dual DPDT	10	300	-55	-60	QFN16 3.0×3.0
UM3670A	1.8~5.5	Dual DPDT	10	300	-55	-60	QFN16 2.6×1.8
UM7222	2.7~5.5	Dual SPDT	9	550	-25dB @ 250MHz	-48dB @ 250MHz	QFN10 1.8×1.4
UM7222A	2.7~5.5	Dual SPDT	9	550	-25dB @ 250MHz	-48dB @ 250MHz	QFN10 2.1×1.6
UM7222MA	2.7~5.5	Dual SPDT	9	550	-25dB @ 250MHz	-48dB @ 250MHz	MSOP10
UM9636	2.7~12	Dual SPDT	110	720	-58	-67	QFN10 1.8×1.4
*UM1153	2.7~5.0	Single DPDT, Negative Signal Capability	4.6 (Audio) 5.5 (USB)	900 (USB)	-81dB @ 100kHz	-93dB @ 100kHz	QFN10 1.8×1.4

### Video Switch

Part Number	V <sub>CC</sub> (V)	Features	R <sub>ON</sub> (Ω) (Max)	Bandwidth (MHz)	Off Isolation (dB)**	Cross-Talk (dB)**	Package
UM330	1.8~5.5	Quad SPDT	10	500	-50	-60	TSSOP16

\*: Future product, contact factory.

\*\* : Typically, the spec value is measured at f=10MHz, otherwise see the measurement condition in the table.

## Analog and Data Switches

### High Speed USB2.0 (480Mbps) DPDT Switch

#### UM7222/UM7222A

##### Key Features

- OVT on D+ and D- up to 5.5V
- Power Off Protection:  
When  $V_{CC}=0V$ , D+ and D- Can Tolerate up to 5.5V
- Low Crosstalk: -50dB (250MHz)
- Low Current Consumption: 1 $\mu$ A
- Channel On-Capacitance: 6.5pF (Typ)
- $V_{CC}$  Operating Range: +2.7V to +5.5V
- 550MHz Bandwidth (or Data Frequency)
- ESD Rating:  $\pm 4kV$  I/O to GND

##### Applications

- Differential Signal Data Routing
- USB2.0 Signal Routing
- Cell Phones, PDAs, Digital Cameras and Notebooks
- LCD Monitors, TV and Set-Top Boxes

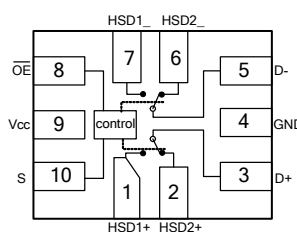
##### Benefits

- OVT on D+ and D-
- Power Off Protection

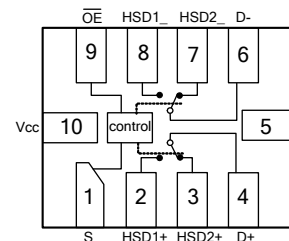
The UM7222/UM7222A is a dual port high-speed, low-power data switch optimized for USB 2.0 signal switching. The UM7222/UM7222A switch is configured in double-pole/double-throw DPDT. It handles bidirectional signal flow, achieving a 550 MHz -3dB bandwidth, and a port to port crosstalk and isolation at -50dB at 250MHz.

The UM7222/UM7222A operates from a single +2.7V to +5.5V supply, with current consumption less than 1 $\mu$ A.

The UM7222/UM7222A features wide bandwidth and low bit-to-bit skew allow it to pass high-speed differential signal with good signal integrity, offers little or no attenuation of the high-speed signals at the outputs. Its high channel-to-channel crosstalk rejection results in minimal noise interface. Its bandwidth is wide enough to pass high-speed USB 2.0 differential signals (480Mbps). The control logic threshold is guaranteed to be compatible with 1.8V logic.



UM7222 QFN10 1.8x1.4, Top View



UM7222A QFN10 2.1x1.6, Top View

UM7222/7222A Pin Configurations

### High Voltage, High Bandwidth DPDT Data Switch

#### UM9636

##### Key Features

- Ron is Typically 83 $\Omega$  at  $V_{CC}=12V$
- Channel On-Capacitance: 6.5pF (Typ)
- Typically 720MHz -3dB Bandwidth
- Low Crosstalk: Typically -67dB (10MHz)
- Low Off-Isolation: Typically -58dB (10MHz)
- Low Voltage, 1.65V CMOS/TTL Compatible
- Low Current Consumption: 1 $\mu$ A
- $V_{CC}$  Operating Range: +2.7V to +12V
- Lead (Pb)-Free QFN10 1.8x1.4 Package

##### Applications

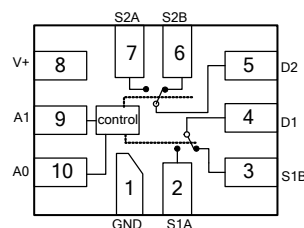
- High-End Data Acquisition
- Medical Instruments
- Precision Instruments
- High Speed Communications Applications
- Automated Test Equipments
- Sample and Hold Applications

##### Benefits

- Low Voltage, 1.65V CMOS/TTL Compatible

The UM9636 is a high-speed, low-power dual single-pole/double-throw (SPDT) analog switch that operates from a single +2.7V to +12V supply.

The UM9636 features 720MHz -3dB bandwidth, -67dB crosstalk and -58dB off-isolation at 10MHz frequency. Wide bandwidth and low on resistant allow it to pass high-speed differential signal with good signal integrity. The switch is bidirectional and offers little or no attenuation of the high-speed signals at the outputs. Its high channel-to-channel crosstalk rejection results in minimal noise interference. Key applications for the UM9636 are logic level translation, pulse generator, and high speed or low noise signal switching in precision instrumentations and portable device designs.



UM9636 QFN10 1.8x1.4, Top View

UM9636 Pin Configuration

## Sales Contact

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