

# Analog Switches Quick Select Guide



# Overview

The Texas Instruments (TI) signal switch product portfolio provides high-performance and low-power solutions to solve signal routing issues between DSP's, CPUs, industry standard buses, memory and peripherals. The TI switch portfolio includes general purpose analog switches, high speed switches and specialty switches for applications including USB, LAN, video, audio and PCIe.

## Product Families

- **General Purpose Switches**
  - SPST
  - SPDT
  - SP3T/SP4T
- **Switches with Detection Capability**
  - Audio jack
  - Micro-USB
- **High-speed (> 1 Ghz) Switches**
  - Video
  - Memory
  - Data

## Switches by Interface

Starting Part #	Interface
TS5A23159	Audio
TS3A227E	Audio Jack
TS3DV642	Display Port
TS3L501E	Ethernet
TS3DV642	HDMI
TS3DV621	LVDS
TS3USB3200/TS3USB3031	MHL
TS2PCIE412/ TS2PCIE2212	PCIe Gen 2
TS3USB3000	SATA
TS3USB221A/E	USB 2.0
TS3USB3200/TS3USB3031	USB 2.0 + MHL
TS5USB224	USB 2.0 + Audio
TSU6721	USB VBUS OVP
BQ24392	µUSB Charging Port
TS3V712EL	VGA

Our switches support a wide range of supply voltages (.8 -12 V) and signal voltages (from -2.6 to 12 V), support fast data throughput (>7-GHz bandwidth) and offer low on-resistance and input capacitance for minimal signal distortion and insertion loss.

**Our broad portfolio can be used in any application by offering a variety of:**

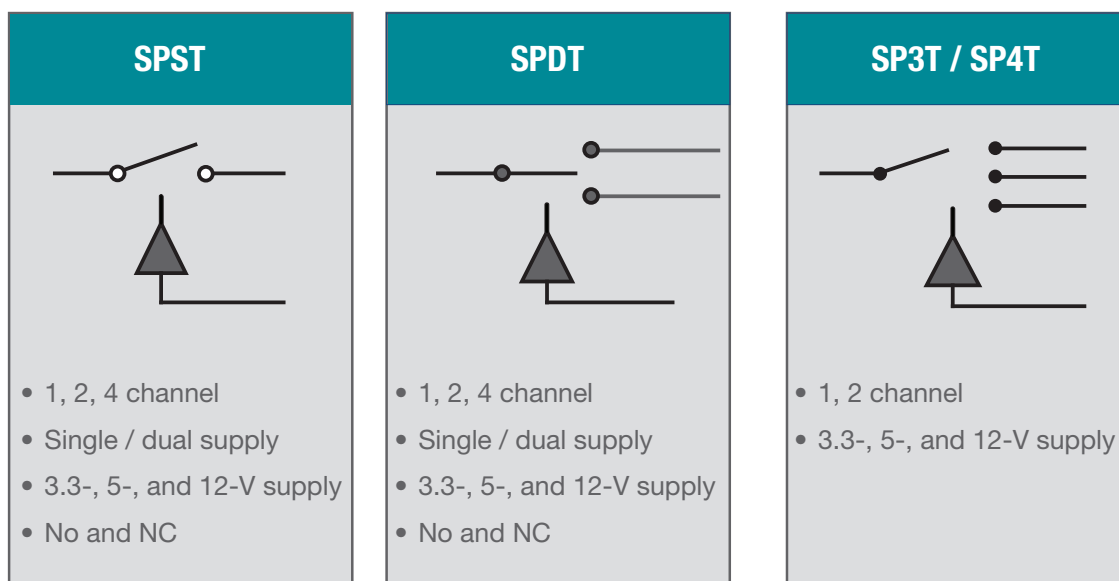
- Channel counts
- Configurations
- Voltage ranges
- RON resistances
- Bandwidth

Availability in advanced packaging (BGA, QFN, and WCSP) can reduce board space in space-constrained applications



# General Purpose Switches

TI's broad general purpose analog switch product family encompasses a variety of different channel counts, configurations, supply voltages, ON resistances, and bandwidths to target any application.



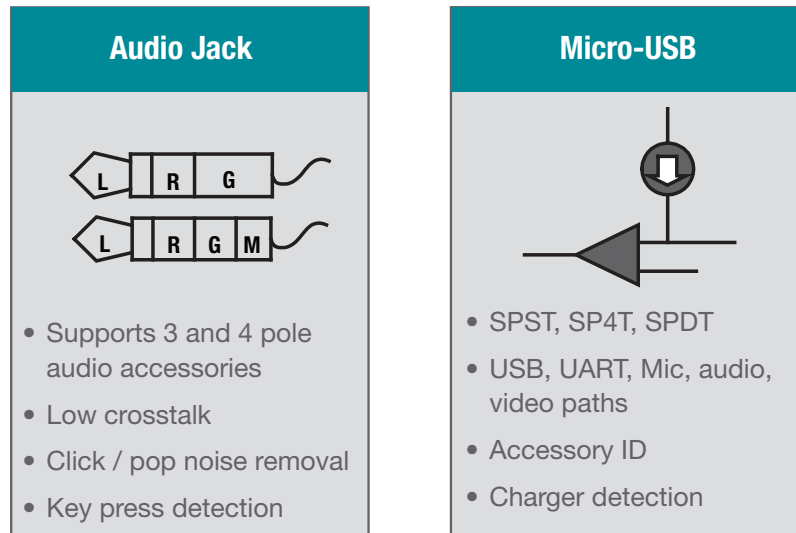
## Featured Products

Part Number	Key Features	Interface	Status
<b>TS3A4741</b>	Dual 0.9-Ω low-voltage SPST analog switch	General Purpose	Released
<b>TS5A23159</b>	Dual 1-Ω SPDT analog switch	General Purpose	Released
<b>TS12A4516</b>	Single 25-Ω SPST analog switch, ±1-V to ±6-V dual-supply operation	General Purpose	Released
<b>TS5A3166-Q1</b>	Automotive 1-Ω SPST analog switch 5-V/3.3-V single-channel analog switch	Automotive - General Purpose	Released
<b>TS5A22364-Q1</b>	Automotive 0.65-Ω dual SPDT analog switch with negative rail capability	Automotive - General Purpose	Preview



# Signal Switches with Detection Capability

TI offers switches specialized to target specific applications requiring detection capability including audio jack and micro-USB switches. Audio jack switches can be used to enhance end user experience through features like accessory detection, click/pop noise removal, key press detection and low crosstalk. Micro-USB switches are used to integrate multiple switches into a single device supporting various types of signals including USB 2.0, UART, audio, microphone and video.



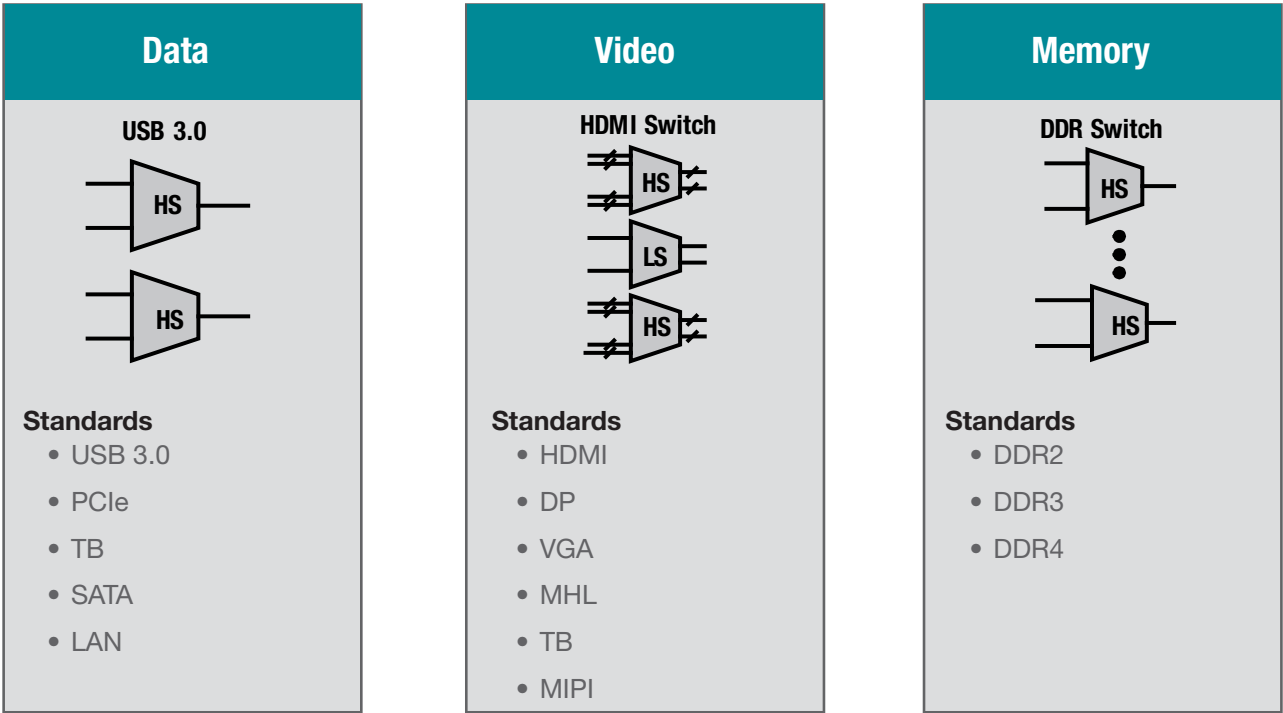
## Featured Products

Part Number	Key Features	Interface	Status
TS3A227E	Accessory configuration detection, power-off noise removal, key press detection, low power sleep mode, ultra low Ron ground FETs,	Audio Jack	Released
TS3A226AE	Ultra low Ron ground FETs, FM transmission capability, accessory configuration detection	Audio Jack	Released
TSU6721	USB port multimedia switch supports USB, UART, audio, ID, MIC and load switch	Micro-USB	Released
BQ24392	Single USB 2.0 HS/UART path, BCv1.2 charger detection	Micro-USB	Released



# High-Speed (>1 GHz) Switches

TI offers a portfolio of high-speed (>1 GHz) switches specialized for a variety of applications including USB, PCIe, HDMI, DP, MHL, and DDR memory.



## Featured Products

Part Number	Key Features	Interface	Status
TS3DDR4000	12-Ch bidirectional switch, 1.8 V compatible control, 6.4 Ghz BW, low skew	DDR4	Sampling
TS3USB3000	MHL/USB mux/demux, 6.1 Ghz BW	USB	Released
TS3DV642	12-Ch 2:1 bidirectional mux/demux, 7.5 Ghz BW	HDMI	Released
TS2PCIE412	3-Ch 2:L mux/demux, 2.1 GHz, 3 Gbps data rate	PCIe	Released

# Design Resources, References and Support

TI provides many resources to help you design systems faster, including TI Designs and guides. We also offer world-wide support to ensure your questions are answered fast.

## Guides

- Analog Switch Selection Guide ([SLYB125](#))



## Jump start your design process

- Comprehensive reference designs
- Complete schematics/block diagrams
- BOMs
- Design files and test reports

[ti.com/tidesigns](http://ti.com/tidesigns)

## Featured TI Designs

- **TIDA-00006**: Headset Detection Switch to Detect 3-Pole or 4-Pole 3.5 mm Accessories
- **TIDEP0006**: Data Concentrator Reference Design
- **TIDEP0014**: Dual Camera Reference Design with AM437x – SITARA
- **TIDEP0018**: Temperature Sensor Interface Module for Programmable Logic Controllers (PLC) - ADC
- **PMP7977**: Xilinx Artix 7 FPGA Power Management Reference Design



Signal Switches Forum: [ti.com/switchesforum](http://ti.com/switchesforum)

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TI has specifically designated certain components as meeting ISO/TS16949 requirements, mainly for automotive use. In any case of use of non-designated products, TI will not be responsible for any failure to meet ISO/TS16949.

### Products

Audio	<a href="http://www.ti.com/audio">www.ti.com/audio</a>
Amplifiers	<a href="http://amplifier.ti.com">amplifier.ti.com</a>
Data Converters	<a href="http://dataconverter.ti.com">dataconverter.ti.com</a>
DLP® Products	<a href="http://www.dlp.com">www.dlp.com</a>
DSP	<a href="http://dsp.ti.com">dsp.ti.com</a>
Clocks and Timers	<a href="http://www.ti.com/clocks">www.ti.com/clocks</a>
Interface	<a href="http://interface.ti.com">interface.ti.com</a>
Logic	<a href="http://logic.ti.com">logic.ti.com</a>
Power Mgmt	<a href="http://power.ti.com">power.ti.com</a>
Microcontrollers	<a href="http://microcontroller.ti.com">microcontroller.ti.com</a>
RFID	<a href="http://www.ti-rfid.com">www.ti-rfid.com</a>
OMAP Applications Processors	<a href="http://www.ti.com/omap">www.ti.com/omap</a>
Wireless Connectivity	<a href="http://www.ti.com/wirelessconnectivity">www.ti.com/wirelessconnectivity</a>

### Applications

Automotive and Transportation	<a href="http://www.ti.com/automotive">www.ti.com/automotive</a>
Communications and Telecom	<a href="http://www.ti.com/communications">www.ti.com/communications</a>
Computers and Peripherals	<a href="http://www.ti.com/computers">www.ti.com/computers</a>
Consumer Electronics	<a href="http://www.ti.com/consumer-apps">www.ti.com/consumer-apps</a>
Energy and Lighting	<a href="http://www.ti.com/energy">www.ti.com/energy</a>
Industrial	<a href="http://www.ti.com/industrial">www.ti.com/industrial</a>
Medical	<a href="http://www.ti.com/medical">www.ti.com/medical</a>
Security	<a href="http://www.ti.com/security">www.ti.com/security</a>
Space, Avionics and Defense	<a href="http://www.ti.com/space-avionics-defense">www.ti.com/space-avionics-defense</a>
Video and Imaging	<a href="http://www.ti.com/video">www.ti.com/video</a>

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[e2e.ti.com](http://e2e.ti.com)