

HCF, M74HC, STG, ST, STMPS, STCC, STHV, STHVUP

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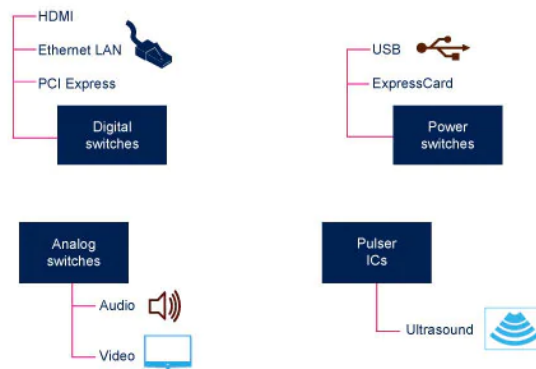
Switches and Multiplexers

Overview

ST's portfolio of switches and high voltage multiplexers include:

- analog switches
- data signal switches
- power/load switches
- Power switches with USB Charge Controller
- Ultrasound Pulsers ICs and High Voltage Multiplexers

for applications as audio, USB, video, LVDS, PCIe and ultrasound imaging.



Analog Switch/Multiplexers

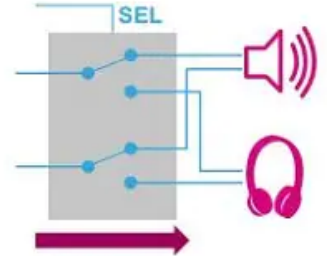
Overview

Our analog switch IC portfolio ranges from SPDT switches to larger octal SPDT or quad DPDT switches. It features low on-resistances, integrated 15 kV protection diodes and negative charge pump, and with a bandwidth meeting audio or USB requirements.

They come in tiny packages, making them perfectly suited for portable applications, and can also address any application requiring high-performance switching.

In portable applications, switches are used to route a great variety of signal – audio to the speaker or the headphones, or other signals from and towards sensors:

- Guarantee a simple yet efficient system implementation
- Compatibility with high-speed signals, for USB 2.0 applications



Low RDS(on) analog switch single or dual

The ideal choice for wearable devices.

Switches are commonly used to multiplex or de-multiplex a great variety of signals. For instance, in portable applications, switches are used to route signals such as audio to speaker or to headphones. Nowadays, with the sensors and interface proliferation in new applications such as wearable, switches also become the ideal solution to route signals from / towards each other's, and thus guaranteeing a simple efficient system implementation.

Low RDS(on) analog switches such as AS11P2TLR and AS21P2TLR are especially suited to low current / low voltage signals. Designed in silicon gate C2MOS technology to operate from 1.65 to 4.3 V, it offers very low ON resistance at VCC= 3.6 V (ex AS21P2TLR: RON< 0.5 Ω). They can easily sustain high bandwidth (450Mbps or more for AS21P2THBQ), and implement break-before-make delay time and ultra low power consumption. All inputs and outputs are equipped with protection circuits against static discharge, giving them ESD and excess transient voltage immunity.

Switches and Multiplexers/Analog Switch/Multiplexers

Part Number	General Description	Package	Supply Voltage (V) min	Supply Voltage (V) max	Vi Range	R _{DS(on)} (Ω) typ	Operating Ambient Temperature min	Operating Ambient Temperature max	Tphl (ns) typ	Logical Function
HCF4051	Single 8-channel analog multiplexer/demultiplexer	SO-16	3	20	0 to VCC	125	-55	125	-	Single 8-Channel Analog Multiplexer/Demultiplexer
M74HC4851	Single 8 Channel Analog Mux/Demux With Injection Current Protection	SO-16,TSSOP-16L	2	6	0 to VCC	150	-40	125	11	Single 8 Channel Analog Mux/Demux With Injection Current Protection
M74HC4852	DUAL 4 Channel Analog Mux/Demux With Injection Current Protection	SO-16	2	6	0 to VCC	-	-40	125	11	DUAL 4 Channel Analog Mux/Demux With Injection Current Protection
STG12181QT	Dual supply, quad SPDT switch, 1.8V and 3.3V logic input compatible	VFQFPN 20 4x4x0.8	-12	5.5	Vss to Vdd	3.6	-40	125	0.7	Negative / Positive / Quad SPDT switch
STG3157	Low voltage low on-resistance SPDT switch with break-before-make feature	SOT323-6L	1.65	5.5	-0.5 to VCC +0.5	4.4	-40	85	0.8	Single SPDT
STG3682	Low Voltage High Bandwidth Dual SPDT Switch	QFN-10L P 0.4 mm	1.65	4.3	0 to VCC	4	-40	85	0.25	SPDT
STG3692	Low Voltage High Bandwidth Quad SPDT	VFQFPN 16 2.6x1.8x0.5	1.65	4.3	0 to VCC	4	-40	85	0.25	Low voltage high bandwidth quad SPDT switch
STG3696E	Low voltage dual SPDT switch for USB/audio signal switching	QFN-10L P 0.4 mm	2.7	4.5	Vcc - 5V to Vcc	2.4	-40	85	-	Low voltage dual SPDT switch for USB/audio signal switching
STG3820	Low voltage high bandwidth quad DPDT switch	CSP P 0.4 mm	1.65	4.3	0 to VCC	5.1	-40	85	0.13	Low voltage high bandwidth quad DPDT switch
STG3856	Low voltage 1.0Ω max dual SP3T switch with break-before-make feature	VFQFPN 12 2.2x1.4x0.55	1.65	4.3	0 to VCC	0.6	-40	85	0.3	SP3T
STG5682	Low voltage dual SPDT switch with negative rail capability	VFQFPN 16 2.6x1.8x0.55	1.65	4.5	VCC -5.5 to VCC	0.45	-40	85	0.3	SPDT
STG719	Low voltage 4 Ohm SPDT switch	SOT23-6L	1.8	5.5	0 to VCC	4	-55	125	0.3	SPDT switch
STMAV340	Low on resistance quad, SPDT, wide-bandwidth video switch	TSSOP-16L	4	5.5	0 to 5.5	3	-40	85	-	Low ON Resistance Quad, SPDT, Wide-Bandwidth Video Switch
STMLS05	Array of 5 switches, Low Ron, Ultra low leakage current	QFN-16L	1.8	3.6	1.05 to 5.5	0.108	-40	70	-	Five-channel PMOS load switches
STG4160	Low voltage 0.5 Ohm single SPDT switch with break-before-make feature and 15 kV ESD protection	Chip Scale Package 0.5mm pitch	1.65	4.8	0 to VCC	0.4	-40	85	0.18	Low voltage 0.5Ohm single SPDT switch with break-before-make feature and 15kV ESD protection

Data/Signal Switches

Overview

ST's portfolio of data/signal switches addresses GLAN, VGA, PCIe, LVDS and HDMI applications.

LAN switches are bidirectional mux/demux devices with low on-resistance, that support the 10/100/1000 base-T Ethernet LAN standards. They have a bandwidth of up to 450 MHz and operate with a power consumption of 150 μ A.

PCI Express switches are bidirectional octal SPDT switches with low on-resistance, low cross-talk, low bit-to-bit skew, high noise isolation and low I/O capacitance.

Switches and Multiplexers/Data/Signal Switches

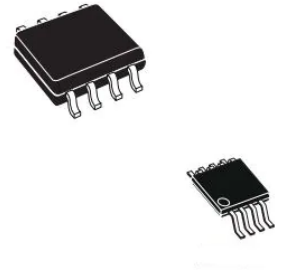
Part Number	General Description	Package	Supply Voltage (V) min	Supply Voltage (V) max	Logical Function
M74HC151	8-Channel Multiplexer	SO-16,TSSOP-16L	2	6	8-Channel Multiplexer

Power Load Switches

Overview

Low-resistance power load switches offer reliable overcurrent and thermal protection. They are designed for general-purpose power protection or for applications such as USB, hot-swap and power distribution.

The power switches come in 1- or 2-channel versions with fixed and adjustable overcurrent limit. Some include a USB charge controller specifically designed to optimize USB host applications.



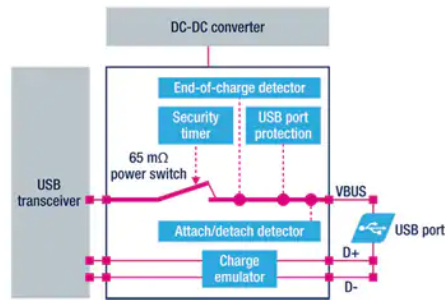
Switches and Multiplexers/Power Load Switches

Part Number	General Description	Number of Channels nom	Recommended Output Current (A) max	Adjustable current limit	R _{DS(on)} (mΩ) typ	Enable pin active level	ESD: HBM Minimum (V) nom	Supply Voltage (V) min	Supply Voltage (V) max	Supply Current (μA) (ON) max	Supply Current (μA) (OFF) max	Operating Temperature (°C) min	Operating Temperature (°C) max	Package
ST890	1.2 A current limited high side power switch with thermal shutdown	1	1.2	true	75	low	2000	2.7	5.5	25	1	-40	85	SO-8,VDFDFPN 8 3x3x0.85
STMPS2141	Enhanced single channel power switches	1	0.5	false	90	low	2000	2.7	5.5	60	12	85	-40	MiniSO-8,SO-8,SOT23-5L
STMPS2151	Enhanced single channel power switches	1	0.5	false	90	high	2000	2.7	5.5	60	12	-40	85	MiniSO-8,SO-8,SOT23-5L
STMPS2161	Enhanced single channel power switches	1	1	false	-	low	2000	2.7	5.5	60	12	-40	85	MiniSO-8,SO-8,SOT23-5L
STMPS2171	Enhanced single channel power switches	1	1	false	90	high	2000	2.7	5.5	60	12	-40	85	MiniSO-8,SO-8,SOT23-5L
STMPS2242	Enhanced dual channel power switches	2	0.5	false	105	low	2000	2.7	5.5	70	14	-40	85	MINI SO8,SO-8
STMPS2252	Enhanced dual channel power switches	2	0.5	false	105	high	2000	2.7	5.5	70	14	-40	85	MINI SO8,SO-8
STMPS2262	Enhanced dual channel power switches	2	1	false	105	low	2000	2.7	5.5	70	14	-40	85	MINI SO8
STMPS2272	Enhanced dual channel power switches	2	1	false	105	high	2000	2.7	5.5	70	14	-40	85	MINI SO8

Power switches with USB Charge Controller

Overview

ST's USB charger emulator family (STCC) features ICs integrating a power switch, a data switch and an intelligent charge controller. It supports most charging schemes on the market (standard and proprietary) to ensure compatibility with a broad range of portable devices. ST's unique and patented attach detection mechanism makes the STCC family ideal to guarantee fast and accurate charging while preserving the host battery.



COMPATIBLE WITH A LARGE VARIETY OF PROPRIETARY MODES

- USB 2.0 and 3.0
- BC 1.2
- YD/T 1591-2009 spec
- Apple 1A/2A
- Blackberry
- HTC
- Lenovo
- LG
- Motorola
- Nokia
- Samsung
- Sony
- Xiaomi

Tested and validated with more than 150 of the latest phones and tablets

Switches and Multiplexers/Power switches with USB Charge Controller

Part Number	General Description	Number of Channels nom	Adjustable current limit	Output Current-Max (A) max	Divider Mode	R _{DS(on)} (mΩ) typ	Supply Voltage (V) min	Supply Voltage (V) max	Attach Detection	Charging Flag	Operating Temperature (°C) min	Operating Temperature (°C) max	Package
STCC2540	USB charging controller with integrated power switch	1	true	2.5	Apple (2A)	65	4.5	5.5	false	true	-40	85	VFQFPN 16 3x3x0.8

Ultrasound Pulser ICs and HV Multiplexers

Overview

ST's **ultrasound imaging IC solutions** offer a complete range of integrated high-voltage transmitters and **HV multiplexers**.

Optimized for portable ultrasound topologies, the STHVUP series, a very integrated ultrasound transmitter solution, will enhance the portability of your ultrasound point-of-care systems. You will find also the state-of-the art STHV1600 ultrasound pulser IC, the STHV200 ultrasound linear transmit IC, and high-voltage multiplexer ICs.

ST's proprietary **BCD6s-SOI** and **BCD8sSOI process technologies** enable the combination of low-voltage CMOS logic, precise analog circuitry and robust power stages on the same chip, offering unprecedented level of integration.

Typical applications:

- Ultra-portable ultrasound imaging
- Medical ultrasound imaging
- Point-of-care ultrasound imaging
- Non-destructive testing equipment
- Pulse waveform generator
- Sonar and radar systems
- Other piezoelectric, capacitive or MEMS transducers



Switches and Multiplexers/Ultrasound Pulser ICs and HV Multiplexers

Part Number	General Description	Package	Number of Channels nom	Output levels
STHV1600	16 channels ± 100 V, $\pm 2/4$ A, 5/3-level RTZ, high-speed ultrasound pulser with integrated transmit beamformer	LFBGA10X10X1.4 144 12SQ P.8 B.46	16	5
STHV200	Dual channel ± 100 V, high voltage 3 A linear amplifier and 2 A pulser transmitter	UFQFPN 7X7X0.65 48L 0.5 PITCH	2	-
STHV64SW	64-channel (± 100 V / -200 to 0 V / 0 to 200 V), low harmonic distortion, highvoltage analog independent switches	TFBGA 12X12X1.2 196 P0.8 B0.4	64	-
STHV748S	Quad ± 90 V, ± 2 A, 3/5 level, ESD-enhanced high-speed ultrasound pulser	VFQFPN 64 9x9x1.0 mm	4	5
STHV800	Octal ± 90 V, ± 2 A, 3-level RTZ, high-speed ultrasound pulser	TFLGA-56LD 8x8x0.9mm	8	3
STHVUP32	32 channels ± 100 V, $\pm 0.4/0.8$ A, 3/5-level RTZ, TR switch, high-speed ultrasound pulser with integrated transmit beamformer	FCBGA168 11.5X10.5X1.35 0.8P	32	5
STHVUP64	64 channels ± 100 V, $\pm 0.2/0.4$ A, 3/5-level RTZ, TR switch, high-speed ultrasound pulser with integrated transmit beamformer	FCBGA196 10x10x1.4 0.65P 0.35B	64	5

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