

NEATSwitch™

Miniature analog, digital and power switches



July 2005

Digital switch

NEATSwitch digital switch products are superior replacements for mechanical relays in LAN applications. LAN switches offer low R_{on} , wide bandwidth and low differential crosstalk, making them ideal for 10/100/1000 Base-T PHY LAN applications. NEATSwitch digital switches also offer effective solutions for PCI bus, HDMI and DVI.

B5S16281/B5S162861

20-bit 2 port bus switch

- Low on-resistance: 5Ω
- Operating voltage: 4.0 to 5.5V
- Propagation delay: 0.25ns
- Compatible with 74 series 16281
- B5S162861 is B5S16281 with built-in 25Ω resistor at output



B5S16282/B5S162862

20-bit 2 port bus switch

- Low on-resistance: 5Ω
- Operating voltage: 4.0 to 5.5V
- Propagation delay: 0.25ns
- Compatible with 74 series 16282
- B5S162862 is B5S16282 with built-in 25Ω resistor at output



STMUX1000L

Gigabit LAN switch

- High -3dB bandwidth: 450MHz
- Low on-resistance: 5.5Ω
- Operating voltage: 3.0 to 3.6V single supply
- Very low crosstalk: -40dB crosstalk at 250MHz
- 200ps bit-to-bit skew
- Package: QFN56



STHDMI001A*

Differential 2 to 1 channel HDMI/DVI digital switch

- High -3dB bandwidth: 350MHz
- Very low crosstalk: -40dB at 250MHz
- Operation supply voltage: 3.0 to 3.6V single supply
- Package: TSSOP48 (0.5mm pitch)



* Coming soon

△ World's smallest

Analog switch for mobile applications

When it comes to audio and data solutions for mobile products, **STMicroelectronics'** SPST/SPDT analog switch product range is ideal, thanks to its low resistance, high bandwidth and low voltage. When space is at premium, take advantage of ST's acknowledged leadership in package innovation. Our analog switch solutions are packaged in small-sized surfaced-mount devices, suitable for space sensitive products.



Baseband

STG3684/3684A*/3685/3699/3699A

Low-voltage 0.5Ω 500mA quad/dual SPDT switch

- High-speed: tPD = 0.4ns typ. @ $V_{cc} = 3.3V$
- Low power dissipation:
 $I_{cc} = 200nA \text{ max @ } T_a = 25^\circ C$
- Operation supply voltage: 1.65 to 4.3V single supply
- Package: Flip-Chip9 1.6 4 x 1.47mm, DFN10L 2.3 x 2mm, QFN16 3 x 3mm, Δ QFN16 2.5 x 2.5mm

STG719

Low-voltage 4Ω single SPDT switch

- High-speed: tPD = 0.4ns typ. @ $V_{cc} = 3.3V$
- Low power dissipation :
 $I_{cc} = 1\mu A \text{ max @ } T_a = 85^\circ C$
- Operation supply voltage: 1.8 to 5.5V single supply
- Package: SOT23-6L 2.9 x 2.8mm

STG3680/3690

Low-voltage 5Ω 500mA quad/dual SPDT switch

- High-speed: tPD = 0.4ns typ. @ $V_{cc} = 3.3V$
- Low power dissipation:
 $I_{cc} = 200nA \text{ max @ } T_a = 25^\circ C$
- Operation supply voltage: 1.65 to 4.3V single supply
- Package: QFN16 3x3mm, TSSOP16

STG3157

Low-voltage 9Ω single SPDT switch

- High-speed: tPD = 0.4ns typ. @ $V_{cc} = 3.3V$
- Low power dissipation:
 $I_{cc} = 0.1\mu A \text{ max @ } T_a = 25^\circ C$
- Operation supply voltage: 1.65 to 5.5V single supply
- Package: SOT323-6L 2.0 x 2.1mm

74V1G66/74V2G66

Single/dual bilateral 10Ω SPST switch

- High-speed: tPD = 0.4ns typ. @ $V_{cc} = 3.3V$
- Low power dissipation:
 $I_{cc} = 1\mu A \text{ max @ } T_a = 25^\circ C$
- Operation supply voltage: 2.0 to 5.5V single supply
- Package: SOT23-5L/8L 2.9 x 2.8mm, SOT323-5L 2.2 x 2.0mm

STG3689*

Low-voltage 0.7Ω dual SPDT switch

- High-speed: tPD = 0.3ns typ. @ $V_{cc} = 3.3V$
- Low power dissipation:
 $I_{cc} = 0.2\mu A \text{ max @ } T_a = 85^\circ C$
- Operation supply voltage: 1.65 to 4.3V single supply
- Package: TDFN 2.5 x 1.3mm

STG3384*

Low-voltage 0.9Ω dual SPST switch

- High-speed: tPD = 0.3ns typ @ $V_{cc} = 3.3V$
- Low power dissipation:
 $I_{cc} = 0.2\mu A \text{ max @ } T_a = 85^\circ C$
- Operation supply voltage: 1.65 to 4.3V single supply
- Package: Δ TDFN 2.5 x 1.3mm

Power switch

The low resistance NEATSwitch power switch products offer reliable overcurrent and thermal protection solutions. These power switches are designed for general purpose power protection and industrial standards such as USB, express cards and memory cards. The power switches come in 1, 2 or 4 channels with fixed and adjustable overcurrent limit.



ST890B/890C

Single channel 90m Ω power switch with adjustable current limit

- Continuous current: 1200mA
- Operating voltage: 2.7 to 5.5V
- Package: S0-8

ST2042/2044/2052/2054

Dual/quad channel 80m Ω USB power switch

- Continuous current: 500mA
- Operating voltage: 2.7 to 5.5V
- Package: S0-8, S0-16

STMEC001BT*

Express card power switch

- Continuous current: 1300mA (3.3V), 275mA (3.3V AUX), 650mA (1.5V)
- Operating voltage: 1.5/3.3V
- Package: TSSOP48 with exposed pad



STMPS2242/2252*

Dual channel 80m Ω power switch with reversed current blocking

- Continuous current: 500mA
- Operating voltage: 2.7 to 5.5V
- Package: S0-8

STMPS2262/2272*

Dual channel 80m Ω power switch with reversed current blocking

- Continuous current: 1000 mA
- Operating voltage: 2.7 to 5.5 V
- Package: S0-8

Analog switch (for video)

NEATSwitch analog switch (video) products offer switching solutions for next generation video channel electronic devices such as LCD TV, PDP, FPD, projection TV, HDTV, PC, DVD recorders and set-top boxes. The high bandwidth and sufficiently low on-resistance provide low insertion losses, making the switches ideal for composite (NTSC, PAL) and component (YPbPr, RGB) high definition video applications. The range includes switches with I²C control and support for standard definition (SD) and high definition (HD) input/output.



STMAV340

Quad SPDT analog video switch

- High -3dB bandwidth: 300MHz
- Low on-resistance: 4 Ω (typ)
- Operation supply voltage: 4.0 to 5.5V single supply
- Package: TSSOP16 (0.5mm pitch)

STMAV350*

Multiple channel I²C controlled video switch for standard definition (SD) and high definition (HD)

- High -3dB bandwidth: 300MHz
- Low crosstalk: -63dB at 10MHz
- Operation supply voltage: 4.0 to 5.5V single supply
- Package: TQFP32 (0.5mm pitch)

NEATSwitch – analog switch for mobile applications

Part number	Function	Description	I_{cc} [μ A]	R_{on} [Ω]	-3dB BW [MHz]	V_{cc} [V]	I_s [mA]	Package
74V1G66	1xSPST	Single bilateral 1 SPST switch	1	8.5	180	2.0 to 5.5	50	SOT23-5L, SOT323-5L
74V2G66	2xSPST	Dual bilateral 2 SPST switch	1	8.5	180	2.0 to 5.5	50	SOT23-8L
STG3157	1xSPDT	Low-voltage single SPDT switch	1	9.0	250	1.65 to 5.5	128	SOT323-6L
STG719	1xSPDT	Low-voltage single SPDT switch	1	6.0	200	1.8 to 5.5	50	SOT23-6L
STG3690	4xSPDT	Low-voltage quad SPDT switch	0.2	5.0	50	1.65 to 3.6	500	TSSOP16, QFN16
STG3680	2xSPDT	Low-voltage dual SPDT switch	0.2	0.5/0.8	50	1.65 to 4.3	500	QFN16
STG3684	2xSPDT	Low-voltage dual SPDT switch	0.2	0.5	50	1.65 to 3.6	500	QFN16
STG3685	2xSPDT	Low-voltage dual SPDT switch [◇]	0.2	0.5	50	1.65 to 3.6	500	Flip-Chip9
STG3699	4xSPDT	Low-voltage quad SPDT switch	0.2	0.5	50	1.65 to 3.6	500	QFN16
STG3699A	4xSPDT	Low-voltage quad SPDT switch [◇]	0.2	0.5	50	1.65 to 4.3	500	QFN16(3x3), QFN16(2.5X2.5)
STG3684A*	2xSPDT	Low-voltage dual SPDT switch [◇]	0.2	0.5	50	1.65 to 4.3	500	QFN16(3x3), DFN10(2.3x2)
STG3689*	2xSPDT	Low-voltage dual SPDT switch [◇]	0.2	0.9	150	1.65 to 4.3	500	DFN10(2.5X1.3)
STG3384*	2xSPST	Low-voltage dual SPST switch [◇]	0.2	0.9	150	1.65 to 4.3	500	DFN10(2.5x1.3)

[◇] With 1.8V control line tolerant

NEATSwitch – analog switch for video applications

Part number	Description	-3dB BW [MHz]	R_{on} [Ω]	V_{cc} [V]	Package
STMAV340	Quad SPDT high bandwidth switch with logic control	300	4	4.0 to 5.5	TSSOP16
STMAV350*	Multi-channel SPDT switch with I ² C control for standard definition (SD) and high-definition (HD) inputs/outputs	300	4	4.0 to 5.5	TQFP32

NEATSwitch – digital switch

Part number	Description	-3dB BW [MHz]	R_{on} [Ω]	V_{cc} [V]	Package
B5S16861	Pin and function compatible with 74 series 16861	–	15	4.0 to 5.5	TSSOP48
B5S16862	Pin and function compatible with 74 series 16862	–	15	4.0 to 5.5	TOP48
STMUX1000	Differential SPDT 2 to 1 switch, for gigabit LAN with a shared single ethernet PHY unit	450	5.5	3.0 to 3.6	QFN56
STHDMI001A*	Differential SPDT 2 to 1 switch, for 2 HDMI or DVI input/output	350	4	3.0 to 3.6	TSSOP48

NEATSwitch – power switch

Part number	Function	Description	R_{on} [Ω]	V_{cc} [V]	I_{max} [A]	Package
ST890B/C	1xSPST	1 channel power switch	90	2.7 to 5.5	1.2 (adjustable)	SO-8
ST2042/ST2052	2xSPST	2 channel power switch	80	2.7 to 5.5	0.5	SO-8
ST2044/ST2054	4xSPST	4 channel power switch	80	2.7 to 5.5	0.5	SO-16
STMEC001BT*	3xSPST	1 channel power switch for express card	–	1.5 / 3.3	1.3 (3.3V), 0.275 (3.3V aux), 0.65 (1.5V)	TSSOP24 with exposed pad
STMP2242/ STMP2252*	2xSPST	2 channel power switch with reversed current blocking	80	2.7 to 5.5	0.5	SO-8
STMP2262/ STMP2272*	2xSPST	2 channel power switch with reversed current blocking	80	2.7 to 5.5	1.0	SO-8

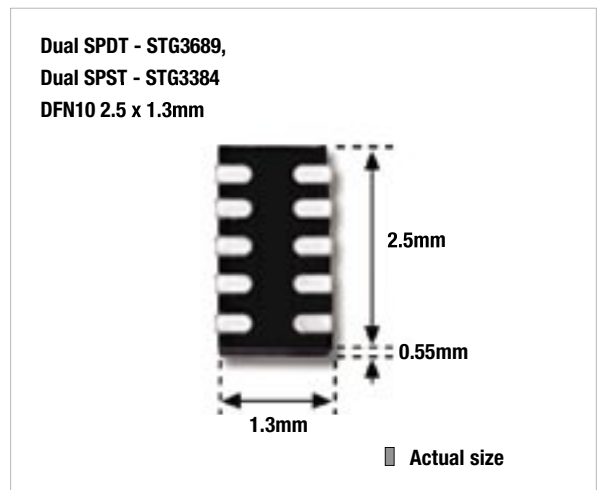
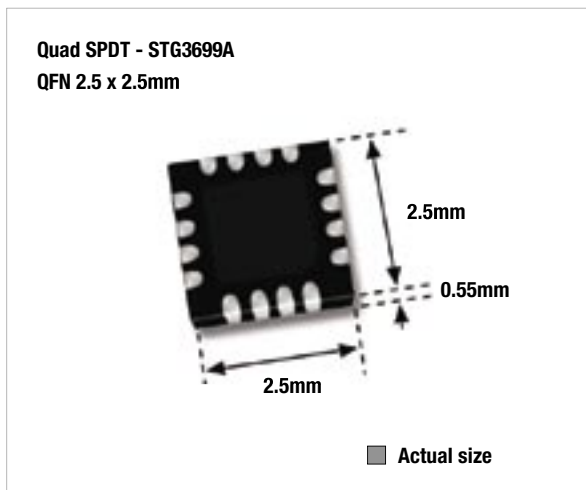
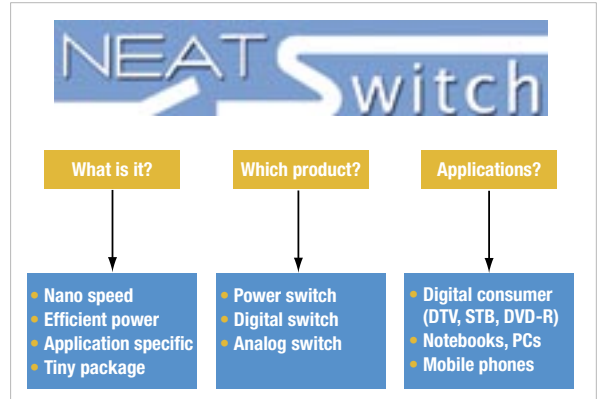
* Coming soon

The NEATSwitch solution

ST offers a wide family of analog, digital and power switch products, which are categorized as NEATSwitches. They are designed to meet the demanding needs of analog signal circuits (audio, video), digital signal circuits (LAN, DVI, HDMI), and applications requiring power protection. ST offers some of the most advanced small surface-mount device package solutions available in today's industry.

NEATSwitch key features are summarized in the word NEAT, as explained below:

- Nano speed. Leverages ST's most advanced HCMOS technology to create the highest performance switches available in the market
- Efficient power. With low $R_{DS(on)}$ and low I_{cc} , power dissipation is low
- Application specific products are optimized for specific application areas, including mobile phones, video, LAN, HDMI, DVI, etc
- Tiny package. ST is today's world leader in space-optimized surface mount device packages: QFN 2.5 x 2.5mm and DFN10 2.5 x 1.3mm



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Full product information at www.st.com