

Технические характеристики

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Power Management

Overview

As one of the world's leading suppliers of both integrated and discrete power conversion semiconductors, ST's Power Management ICs enable energy-saving, high-power-density and lower-standby-power design solutions.

Our product portfolio includes highly-integrated **Gallium Nitride (GaN) Power ICs**, **AC-DC converters**, **switching DC-DC converters**, **linear voltage regulators**, **battery management ICs**, **LED drivers**, **photovoltaic ICs**, **MOSFET and IGBT drivers**, **motor drivers** and more.

These integrated solutions reduce the design cycle and ST's **eDesignSuite** allows you to rapidly select and simulate the optimal configuration for your power management design, bringing a further advantage in time-to-market.

Our Power Management IC Portfolio

AC-DC Converters



Offline converters, PFCs and a variety of controllers and supervisors/housekeeping ICs.

Battery Management ICs



Battery management for wearable and IoT wireless chargers.

DC-DC Switching Converters



High efficiency switching regulators, wide Vin range and lout capability for consumer, industrial and automotive.

Display Supplies and Controllers



Display PSU portfolio enabling solutions of high quality images, energy saving, high-power-density.

Energy Harvesting and Solar Charging ICs



Supply the Internet of Things ecosystem by extracting energy from ambient light or thermal differences.

Gallium Nitride (GaN) Power ICs



High-voltage GaN Converters, STDRIVE® GaN drivers and Integrated Smart GaNs MASTERGAN, advanced power System-in-Package.

Gate Drivers



Include integrated high-voltage half-bridge, single and multiple low-voltage gate drivers.

High-density Power Drivers



System in Package (SiP) solutions integrating in compact QFN packages the STDRIVE gate drivers and MOSFET-based power stages.

eFuses and hot-swap ICs



Advanced protection ICs, including current limiters, electronic fuses and DC power breakers.

Intelligent Power Switches



Ideal for high-side and low-side configurations, they integrate the control section and power stage on the same chip.

LED Drivers



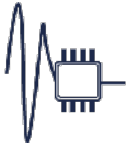
Multi-topologies with high-driving performances and efficiency, for automotive and industrial applications.

Lighting ICs



High-voltage ballast controllers for analog solutions and complete power management units for digital platforms.

Linear Voltage Regulators



Rugged industry-standard linear regulators and high performance LDOs in tiny package.

LNB Supplies



for analog and digital satellite receivers and Sat-PC cards with extremely low component count.

Photovoltaic ICs



Cool bypass switches for improved reliability and DC-DC converters with built-in MPPT for increased power conversion.

Power Management and SBCs



Power Mgt and System Basis ICs conceived to fit into automotive infotainment and telematics systems, electronic control units (ECU) and car body modules

Power Over Ethernet ICs



Compliant with both the more recent IEEE 802.3at specification (POE+) and the former IEEE 802.3af (PoE).

Voltage References



Fixed and adjustable high-power shunt, high precision/low power shunt and series voltage references.

Wireless Charger ICs



A complete portfolio of both transmitter and receiver chip-sets optimized for different implementation requirements.

AC-DC Converters

Overview

With robust, advanced high-voltage converters, power factor correctors, a variety of controllers and supervisors/housekeeping ICs, together with innovative architectures and extended temperature ranges.

ST can offer integrated solutions and meet all switching-mode power supply design needs.

New generation **AC-DC converters** reduce power consumption and increase efficiency, essential for powering the majority of mains equipment. When combined together, ST power factor correctors, PWM controllers and offline converters significantly lower system power consumption to outperform the most demanding energy-saving regulations, such as 80 PLUS® Initiative, ErP Lot 6, Energy Star, and many others.



Power Management / AC-DC Converters /Digital and Resonant Controllers

Part Number	General Description	Package	Supply Voltage (V) max	Switching Frequency (kHz) max	Soft-start	Anti-capacitive mode protection	Burst-mode	Deadtime Adjustment
L6598	Resonant Controller	SO-16	14.6	400	No	false	N	Internally Fixed
L6599A	Improved high-voltage resonant controller	SO-16	16	500	Yes	false	Y	Internally Fixed
L6599AF	Ultra-extreme temperature range improved high voltage resonant controller	SO-16	16	500	Yes	false	Y	Internally Fixed
L6599AT	IMPROVED HIGH-VOLTAGE RESONANT CONTROLLER	SO-16	16	500	Yes	false	Y	Internally Fixed
L6699	Enhanced high-voltage resonant controller	SO-16	16	300	Yes smooth	true	Y Soft	Self Adaptative
ST-ONE	Fully integrated controller for smart chargers	SSOP 36 LD 300 MIL .0315 PITCH	16	1000	Yes	-	Y	NVM Programmable
ST-ONEHP	Fully integrated controller for USB-PD 3.1 Extended Power Range (EPR) chargers	SSOP 36 LD 300 MIL .0315 PITCH	16	1000	Yes	-	Y	NVM Programmable
ST-ONEMP	Fully integrated controller for multiport smart chargers	SSOP 36 LD 300 MIL .0315 PITCH	16	1000	Yes	-	Y	NVM Programmable
STCMB1	Transition mode (TM) PFC with X-cap discharge and LLC resonant combo controller	SO-20	16	300	Yes smooth	true	Y Soft	Self Adaptative
STNRG011	Digital combo multi-mode PFC and time-shift LLC resonant controller	SO-20	5.5	200	Yes smooth	true	Y	NVM Programmable
STNRG011A	Digital combo multi-mode PFC and time-shift LLC resonant controller	SO-20	5.5	200	Yes smooth	true	Y	NVM Programmable
STNRG012	Digital combo multi-mode PFC and time-shift LLC resonant controller for AC and DC input line	SO-20	19	200	Yes smooth	true	Y	NVM Programmable
STNRG328S	Digital controller for STC/HSTC topologies	VFQFPN 32 5x5x1.0 mm	5.5	-	-	-	-	-
STNRG388A	Digital controller for power conversion applications with up to 6 programmable PWM generators, 96 MHz PLL	TSSOP 38	5.5	-	-	-	-	-
L6599	High-voltage resonant controller	SO-16	16	500	Yes	false	Y	Internally Fixed

Power Management / AC-DC Converters /High Voltage Converters

Part Number	General Description	Package	R _{DS(on)} (Ω) max	Transistor Breakdown Voltage (V) min	Drain Current (A) nom
ALTAIR04-900	Off-line all-primary-sensing switching regulator	SO-16	-	-	0.7
ALTAIR05T-800	Off-line all-primary-sensing switching regulator	SO-16	-	-	0.65
VIPER01	VIPerPlus family: Low voltage energy saving fixed frequency high voltage converter	SSOP 10	30	800	0.12,0.24,0.36
VIPER01B	Energy saving off-line high voltage converter	SSOP 10	30	800	0.36
VIPER06	VIPerPlus family: Energy saving high voltage converter for direct feedback	PDIP 7,SSOP 10	32	800	0.35
VIPEROP	VIPerPlus family: Zero-power off-line high voltage converter	SO-16	20	800	0.4
VIPER11	Energy saving off-line high voltage converter	SSOP 10	17	800	0.48,0.59
VIPER122	High voltage converter	SSOP 10	24	730	0.4
VIPER12A-E	Fixed frequency off line converter	DIP-8,SO-8	30	730	0.4
VIPER16	VIPerPlus family: Energy saving 6W high voltage converter with direct feedback	PDIP 7,SO-16	24	800	0.4
VIPER17	VIPerPlus family: Fixed frequency 6W high performance off line high voltage converter	PDIP 7,SO-16	24	800	0.4
VIPER222	High voltage converter	SSOP 10	15	730	0.62
VIPER22A-E	Fixed frequency off line converter	SO-8	17	730	0.7
VIPER22ADIP-E	Fixed frequency off line converter	DIP-8	17	730	0.7
VIPER22AS-E	Low power off-line SMPS primary switcher	SO-8	17	730	0.7
VIPER25	VIPerPlus family: Quasi-resonant high performance off line high voltage converter	SO-16	7	800	0.7
VIPER26	Fixed frequency VIPer plus family	PDIP 7,SO-16	7	800	0.7
VIPER26K	1050 V High voltage converter	SO-16	7	1050	0.7
VIPER27	VIPerPlus family: Fixed frequency 12W high performance off line high voltage converter	PDIP 7,SO-16	7	800	0.7
VIPER28	VIPerPlus family: Peak power fixed frequency off line high voltage converter	PDIP 7,SO-16	7	800	0.8
VIPER31	Energy Saving Off-line High Voltage Converter	SO-16	3.5	800	0.85

VIPER35	VIPerPlus family: Quasi-resonant high performance off line high voltage converter	SO-16	4.5	800	1
VIPER37	VIPerPlus family: Fixed frequency 15W high performance off line high voltage converter	SDIP 10,SO-16	4.5	800	1
VIPER38	VIPerPlus family: Peak power fixed frequency high voltage converter	SDIP 10,SO-16	4.5	800	1.15
VIPER53-E	Fixed frequency off line converter	DIP-8,PowerSO-10	1	620	2
VIPER53E-E	Fixed frequency off line converter	PowerSO-10	1	620	2
VIPERGAN100	Advanced quasi-resonant offline high voltage converter with E-mode GaN HEMT	GQFN5X6X1.0	0.3	650	3.5
VIPERGAN50	Advanced quasi-resonant offline high voltage converter with E-mode GaN HEMT	GQFN5X6X1.0	0.45	650	2.25
VIPERGAN65	Advanced quasi-resonant offline high voltage converter with E-mode GaN HEMT	GQFN5X6X1.0	0.345	650	3
VIPER50A-E	Fixed frequency off line converter	PowerSO-10	5.7	700	2

Power Management / AC-DC Converters /PFC Controllers

Part Number	General Description	Package	Topology Mode	Oversvoltage protection	AC Brownout Protection	Inductor Saturation Protection	Feedback failure protection
L4981	L4981A: Fixed Frequency Average Current Mode; L4981B: Line Modulated Frequency Average Current Mode	SO-20	Continuous Current Mode	true	false	false	false
L4984D	CCM PFC CONTROLLER	SSOP 10	Current-mode with	true	true	true	true
L4985	Continuous conduction mode (CCM) PFC controller with high voltage startup	SO-8	Current-mode fixed frequency	true	true	true	true
L4986	Continuous conduction mode (CCM) PFC controller with high voltage startup and power good	SSOP 10	Current-mode fixed frequency	true	true	true	true
L6562A	Transition-mode PFC controller BCD technology	SO-8	Transition Mode	true	false	false	false
L6562AT	Transition-mode PFC controller	SO-8	Transition Mode	true	false	false	false
L6563	Advanced transition-mode PFC controller	SO-14	Transition Mode	true	true	true	true
L6563A	Advanced transition-mode PFC controller	SO-14	Transition Mode	true	-	true	true
L6563H	High voltage start-up transition-mode PFC	SO-16	Transition Mode	true	true	true	true
L6563S	Enhanced transition-mode PFC controller	SO-14	Transition Mode	true	true	true	true
L6564	10 pin transition-mode PFC controller	SSOP 10	Transition Mode	true	true	true	true
L6564H	High voltage start-up transition-mode PFC	SO-14	Transition Mode	true	true	true	true
L6564T	10 pin transition-mode PFC controller for outdoor applications	SSOP 10	Transition mode	true	true	true	true
L6561	Transition mode power factor corrector	DIP-8,SO-8	Transition Mode	true	false	false	false
L6562	Transition mode	SO-8	Transition Mode	true	false	false	false

Power Management / AC-DC Converters /PWM Controllers

Part Number	General Description	Package	Grade	Input duty cycle voltage (V) min	Input duty cycle voltage (V) max	Output Current- Max (A) nom	Regulated Output Voltage (V) min	Regulated Output Voltage (V) max	Regulator Switching frequency (kHz) max	Max Duty Cycle (%) typ	Topology	Synchronize Frequency	Current Limiting Mode	Disable Pin	Stand-by Pin
L5991	Current Mode PWM	SO-16	Industrial	-	-	-	-	-	-	-	-	-	-	-	-
L6565	Quasi-resonant Controller	DIP-8,SO-8	Industrial	-	-	-	-	-	-	-	-	-	-	-	-
L6566A	Multi-mode controller for SMPS with PFC front-end	SO-16	Industrial	-	-	-	-	-	-	-	-	-	-	-	-
L6566B	Multi-mode controller for SMPS	SO-16	Industrial	-	-	-	-	-	-	-	-	-	-	-	-
L6566BH	Multi-mode controller for SMPS	SO-16	Industrial	-	-	-	-	-	-	-	-	-	-	-	-
L6591	Current mode PWM controller for Asymmetrical Half Bridge converter topology	SO-16	Industrial	9.2	-	0.8	4.9	5.1	500	50	Fixed frequency current mode	-	Plot, text	true	-
L6668	Smart primary controller	SO-16	Industrial	-	-	-	-	-	-	-	-	-	-	-	-
SG2525	Voltage Mode PWM	PDIP 16,SO-16	Industrial	8	35	0.5	-	-	500	49	Voltage mode	false	pulse	true	true
SG3524	Voltage Mode PWM	PDIP 16,SO-16	Industrial	8	40	0.1	-	-	300	45	Voltage mode	false	pulse	false	true
SG3525	Voltage Mode PWM	PDIP 16,SO-16	Industrial	8	35	0.5	-	-	500	49	Voltage mode	false	pulse	true	true
STCH03	Offline PWM controller for low standby adapters	SO-8	Industrial	11.5	23	0.48	10.5	13	167	-	Quasi Resonant Flyback	-	-	false	false
UC2842B	Current Mode PWM	DIP-8,SO-8	Industrial	11	30	1	-	-	500	100	Current Mode	false	pulse	false	false
UC2843B	Current Mode PWM	DIP-8,SO-8	Industrial	8.2	30	1	-	-	500	100	Current Mode	false	pulse	false	false
UC2844B	Current Mode PWM	DIP-8,SO-8	Industrial	11	30	1	-	-	500	50	Current Mode	false	pulse	false	false
UC2845B	Current Mode PWM	DIP-8,SO-8	Industrial	8.2	30	1	-	-	500	50	Current Mode	false	pulse	false	false
UC3842B	Current Mode PWM	DIP-8,SO-8	Industrial	11	30	1	-	-	500	100	Current Mode	false	pulse	false	false
UC3843B	Current Mode PWM	DIP-8,SO-8	Industrial	8.2	30	1	-	-	500	100	Current Mode	false	pulse	false	false
UC3844B	Current Mode PWM	DIP-8,SO-8	Industrial	11	30	1	-	-	500	50	Current Mode	false	pulse	false	false
UC3845B	Current Mode PWM	DIP-8,SO-8	Industrial	8.2	30	1	-	-	500	50	Current Mode	false	pulse	false	false
STCH02	Offline PWM quasi resonant controller for ultra-low standby power supplies	SO-8	Industrial	23	11.5	0.48	10.5	13	260	-	Quasi Resonant Flyback	-	-	false	false

Power Management / AC-DC Converters /Synchronous Rectification Controllers

Part Number	General Description	Package	Input duty cycle voltage (V) max	Input duty cycle voltage (V) min	Regulator Switching frequency (kHz) max	Topology	Disable Pin	Stand-by Pin
SRK1000	Adaptive synchronous rectification controller for flyback converter	SOT23-6L	-	-	-	flyback	-	-
SRK1000A	Adaptive synchronous rectification controller for flyback converter	SOT23-6L	-	-	-	flyback	-	-
SRK1000B	Adaptive synchronous rectification controller for flyback converter	SOT23-6L	-	-	-	flyback	-	-
SRK1001	Adaptive synchronous rectification controller for flyback converter	SO-8	-	-	-	flyback	true	-
SRK1004	Synchronous rectifier controller for non-complementary active clamp flyback converter	VFDFPN 6L 2 X 2 X 0,75 PITCH0.65	-	-	-	-	-	-
SRK2000A	Synchronous rectifier smart driver for LLC resonant converters	SO-8	32	4.5	550	LLC Resonant	true	-
SRK2001	Adaptive synchronous rectification controller for LLC resonant converter	SSOP 10	4.5	32	500	LLC Resonant	true	true
SRK2001A	Adaptive synchronous rectification controller for LLC resonant converter	SSOP 10	4.5	32	500	LLC Resonant	true	true
STSR30	SYNCHRONOUS RECTIFIERS SMART DRIVERS FOR ADAPTOR FLYBACK	SO-8	5.5	4.5	500	flyback	true	true

Power Management / AC-DC Converters /Voltage and Current Controllers

Part Number	General Description	Operating Temperature (°C) min	Operating Temperature (°C) max	Package	Supply Current (mA) typ	Supply Voltage (V) min	Supply Voltage (V) max	Reference Voltage (V) nom	Peak Output Current (mA) nom
SEA05	Advanced CV/CC secondary controller	-	-	SOT23-6L	-	-	-	-	-
SEA05L	Advanced constant voltage and constant current controller with very efficient LED pilot-lamp driver	-40	150	SOT23-6L	0.25	3.5	36	2.5	15
TSM101	VOLTAGE AND CURRENT CONTROLLER	-40	80	SO-8	-	4.5	32	1.24	15
TSM1011	Constant Voltage and Constant Current Controller	0	105	SO-8	-	4.5	28	2.5	27
TSM1012	LOW CONSUMPTION VOLTAGE AND CURRENT CONTROLLER FOR BATTERY CHARGERS AND ADAPTORS	0	105	SO-8	-	4.5	28	1.25	10
TSM1014	Low Consumption Voltage and Current Controller for Battery Chargers and Adaptors	-40	105	SO-8	-	4.5	28	1.25	10
TSM103W	Dual operational amplifier and voltage reference	-40	105	SO-8	-	4.5	36	2.5	40
TSM1052	Constant voltage and constant current controller for battery chargers and adapters	-10	85	SOT23-6L	-	1.7	18	1.21	-

Battery Management ICs

Overview

Battery management ICs play an important role in ensuring the safety of users, while making sure they get the most out of their battery-powered devices. Battery management solutions require accurate voltage, current, and temperature measurements to determine the exact state of charge of batteries and battery packs.

Battery management ICs also ensure safety by monitoring cell temperatures during use and charging and cutting energy if temperature limits are reached.

Applications

ST Battery management ICs find applications in many sectors and use cases, including digital cameras, small appliances, and even small electric vehicles.



Personal electronics



Industrial



Automotive

Product types

The ST portfolio of **battery management ICs** includes:

Products

Battery monitoring fuel gauge ICs

These devices offer outstanding measurement accuracy (voltage, current, and temperature) and extremely low power consumption in small footprints. They increase battery runtime and lifespan in mobile phones, multimedia players, digital cameras, and other space-constrained portable devices.

Products

Battery chargers

These devices offer charge currents from as little as 200 mA to 1.2 A and are ideal for any rechargeable lithium-ion battery.

Products

Multicell battery monitoring and balancing ICs

The ICs provide high measurement accuracy (voltage, current, and temperature) and cell balancing functions with low power consumption. They increase battery runtime, lifespan, and safety in power tools, home appliances, and garden tools, as well as home and industrial energy storage systems.

STC3117 provides high accurate battery monitoring

The STC3117 is a gas gauge IC with battery charger control for handheld applications. It includes the ST's Patented OptimGauge™ algorithm for accurate battery capacity calculation.

Li-Ion linear charger with load switches and smart reset generator

The STBC02 and STBC03 battery-charger management chips improve integration without compromising performance and power consumption. They combine a linear battery charger, a 150 mA LDO, two SPDT switches and a Protection Circuit Module for the battery. Moreover, the STBC02 features a digital single wire interface and a smart reset/watchdog function.

In addition to a shipping mode that maximizes battery life during the end product's shelf life, both devices feature a charger enable input to stop the charging process anytime and are automatically powered by the connected battery when the IN pin is not connected to a valid power source (battery mode).

The STBC02/03 offers the perfect solution for wearable and IoT markets, reducing the application cost, footprint and design time.

Power Management / Battery Management ICs /Battery Chargers

Part Number	General Description	Operating Temperature (°C) min	Operating Temperature (°C) max	Supply Current (mA) typ	Supply Voltage (V) min	Supply Voltage (V) max	Package
L6924D	Battery charger system with integrated power switch for Li-Ion/Li-Polymer	-40	125	1.8	2.5	12	VFQFPN 16 3x3x1.0
L6924U	USB compatible battery charger system with integrated power switch for Li-Ion/Li-Polymer	-40	85	1.8	2.5	12	VFQFPN 16 3x3x1.0
STBC02	Li-Ion linear battery charger with LDO, load switches and reset generator	-40	125	0.004	4.55	5.4	Chip Scale Package 0.4mm pitch
STBC03	Li-Ion linear battery charger with LDO and load switches	-40	85	0.004	4.55	5.4	Chip Scale Package 0.4mm pitch
STBC08	800mA STANDALONE LINEAR Li-Ion Battery charger with thermal regulation	-40	85	0.15	4.25	6.5	VFDFPN 6 3x3
STBC15	Ultra-low current consumption linear battery charger	-40	85	0.58	3.2	6.5	CSP P 0.3 mm,MLPQ/QFN 1.7x2.0x0.55 12L P0.4
STC4054	800mA Standalone linear Li-Ion battery charger with thermal regulation	-40	85	0.15	4.25	6.5	TSOT23-5L
STCC2540	USB charging controller with integrated power switch	-40	85	-	4.5	5.5	VFQFPN 16 3x3x0.8
STNS01	Li-Ion Linear Battery Charger with LDO	-40	85	1.4	4.55	5.4	VFDFPN 12 3x3x0.75
STUSBCD01B	USB charger detection interface	-40	85	-	2.2	4.5	CSP P 0.4 mm

Power Management / Battery Management ICs /Battery Fuel Gauge

Part Number	General Description	Package	Grade	Operating Temperature (°C) min	Operating Temperature (°C) max	Supply Current (mA) typ	Supply Voltage (V) min	Supply Voltage (V) max
STC3100	Battery monitor IC with Coulomb counter/gas gauge	MiniSO-8,QFN-8L P 0.5 mm	Industrial	-40	85	0.1	2.7	5.5
STC3115	Gas gauge IC with alarm output for handheld applications	CSP P 0.4 mm,UFDFPN 2X3 10L	Industrial	-40	85	0.045	2.7	4.5
STC3117	Gas gauge IC with battery charger control for handheld applications	CSP P 0.4 mm	Industrial	-40	85	0.04	2.7	4.5
GG25L	Gas gauge IC with alarm output	CSP P 0.4 mm	Industrial	-40	85	0.045	2.7	4.5

Power Management / Battery Management ICs / Multicell Battery Monitoring and Balancing ICs

Part Number	General Description	Package	Grade	Operating Temperature (°C) min	Operating Temperature (°C) max	Supply Voltage (V) min	Supply Voltage (V) max
L9961	Chip for industrial battery management applications up to 5 cells	VFQFPN 5X5X1 32L P0.5	Industrial	85	-40	4.3	25
L9963E	Automotive chip for battery management applications with daisy chain up to 31 devices	TQFP 64 10x10x1.0	Automotive Safety	105	-40	9.6	70
L9963T	Automotive general purpose SPI to isolated SPI transceiver	SO-16	Automotive	105	-40	4.5	5.5

DC-DC Switching Converters

Overview

ST's monolithic **DC-DC switching regulators** offer input-voltage capability up to 61 V, **buck converters** able to deliver output currents up to 6 A, and high switching frequency up to 2.3MHz.

The broad portfolio of ICs is composed of highly-specialized products to meet every market requirement and **power management** needs: high voltage technology, together with high reliability and robustness for **industrial** and **automotive**, compactness and high **efficiency** for consumer applications.

These **switched-mode power supply** devices embed a full set of protection functions (overcurrent, overvoltage, over-temperature) to increase the MTBF and reduce the number of external components needed for **power conversion**. There are multiple package options, all offering compactness and high thermal performances to fit different applications.

ST also has a unique and fully isolated, resonant, single-stage direct conversion from 48 V straight to the Point-of-Load (PoL), CPU/DDR in full compliance to Intel VR13 and VR12.5 specifications, and a fully scalable solution able to manage up to 6 interleaved cells with dynamic cell shedding and pulse skipping.



New Programmable Buck Converter for USB Power Delivery

The STPD01 is a programmable synchronous buck converter suitable for **USB power delivery** applications. The device provides those voltages required by USB power delivery systems as per **USB PD 3.0** spec up to 60 W output power (20 V, 3 A) and includes the necessary circuitry for cable drop compensation.

Available in QFN24L 3 x 4 mm2, the STPD01 embeds a **programmable watchdog** to improve the robustness and the safety of the complete system, along with **overvoltage, overcurrent and overtemperature protections**.

Different values of output voltage and current limitation can be also set dynamically through **I2C interface**.

Evaluation board is available to support developers in their designs.

STEVAL-2STPD01

38 V 1.5 A / 2 A step-down converters with low quiescent current

The new L6981 and L6982 are easy-to-use **regulators** delivering **high efficiency** capability across all loads. The **wide input voltage range** (3.5 V — 38V), makes them also the ideal solution for 24 V industrial bus-powered systems, HVAC power supplies, battery-powered equipment, decentralized intelligent nodes and always-on devices like smart sensors.

Housed in an **SO8** package, the L6981 (1.5 A) and L6982 (2 A) are also based on a **peak current mode** architecture with internal compensation, to help reduce the overall size and complexity of the end-product designs.

Evaluation boards are available, to support developers in their designs.

STEVAL-L6981CDR ; STEVAL-L6981NDR

STEVAL-L6982CDR ; STEVAL-L6982NDR

60 V 300 mA step-down converter with 10uA quiescent current

ST's new L7983 is a compact synchronous buck converter able to satisfy noise-sensitive applications and maximize efficiency at light load thanks to its Low-noise and Low-consumption modes.

With a wide input-voltage range, the L7983 can operate from 12 and 24 V industrial buses with wide safety margins. It is also suitable for battery-powered applications, industrial fail-safe systems, decentralized intelligent nodes, appliances, robotics and precision-sensing applications that leverage the easy-to-use Low-noise mode.

Power supply and converter solution evaluation boards based on the L7983 are also available

New synchronous buck controller to handle extreme step-down ratios

With compact dimensions and an input-voltage range from 6V to 75V, STMicroelectronics' L3751 synchronous buck controller serves different applications, from **industrial equipment to battery powered light electric vehicles**.

Available in QFN20 package with wettable flanks, it is also suited to use in **telecom and networking equipment** that feature commonly used 24V and 48V buses.

The STEVAL-L3751V12, 100W evaluation board, is available to help designers accelerate device selection in power-supply development.

Power Management / DC-DC Switching Converters /48 V Direct Power Conversion

Part Number	General Description	Package	Recommended Input Voltage (V) min	Recommended Input Voltage (V) max	Supply Voltage (V) min	Supply Voltage (V) max	Key features	Operating Temperature (°C) min	Operating Temperature (°C) max
PSA60	Universal digital multicell controller with PMBus	QFN 68 8x8x1.0	40	60	4.5	5.5	Black box recorder,Current-Limited,Diagnostic,Diff Current Sense Amp,Embedded NVM,Intel VR12.5,Intel VR13,Overcurrent protection,Telemetry,Thermal Shutdown	0	125
STPDDC60	Universal digital multicell controller with PMBus	QFN 68 8x8x1.0	40	60	4.5	5.5	Black box recorder,Current-Limited,Diagnostic,Diff Current Sense Amp,Embedded NVM,Intel VR12.5,Intel VR13,Overcurrent protection,Telemetry,Thermal Shutdown	0	125
STPRDC01	Synchronous rectifier smart driver	VFDFPN 12 3X3X0.9	40	60	4.5	5.5	Diff Current Sense Amp,Dual low-side driver,Zero-current switching (ZCS),Zero-voltage switching (ZVS)	0	125
STPRDC02	High performance high voltage	VFQFPN 25L 4x4x0.85 Pitch 0.4	40	60	4.75	13.2	Adjustable deadtime,Full-bridge driver,Programmable dead-time	0	125
STPRDC02A	High performance high voltage	VFQFPN 25L 4x4x0.85 Pitch 0.4	40	60	4.75	13.2	Adjustable deadtime,Full-bridge driver,Programmable dead-time	0	125
STRG02	Synchronous rectifier smart driver	VFDFPN 12 3X3X0.9	40	60	4.5	5.5	-	0	125
STRG06	Universal digital multicell controller with PMBus	QFN 68 8x8x1.0	40	60	4.5	5.5	Black box recorder,Intel VR13	0	125
STRG04	High performance high voltage full bridge driver	VFQFPN 25L 4x4x0.85 Pitch 0.4	40	60	5	13.2	Full-bridge driver,Overcurrent protection,Programmable dead-time	0	125

Power Management / DC-DC Switching Converters /Boost Regulators

Part Number	General Description	Package	Input Voltage (V) min	Input Voltage (V) max	Regulated Output Voltage (V) min	Regulated Output Voltage (V) max	Output Current-Max (A) nom	Quiescent current (mA) typ	Synchronous rectification	Grade	Switching Frequency (kHz) typ	Oscillator Switching frequency (kHz) (Internal) max
L6920DB	Synchronous rectifier step up converter	MiniSO-8	0.8	5.5	1.8	5.2	0.9	0.009	Yes	Industrial	-	-
L6920DC	Synchronous rectifier step up converter	MiniSO-8	0.8	5.5	1.8	5.5	0.9	0.009	Yes	Industrial	-	-
ST8R00	MICROPOWER STEP UP DC/DC CONVERTER	DFN8 4x4	4	6	6	12	1	0.8	Yes	Industrial	-	-
L6920	1 V high efficiency synchronous step up converter	TSSOP-8L	0.6	5.5	2	5.2	1.2	0.01	Yes	Industrial	300	300

Power Management / DC-DC Switching Converters / Buck Regulators

Part Number	General Description	Package	Grade	Input Voltage (V) min	Input Voltage (V) max	Regulated Output Voltage (V) min	Regulated Output Voltage (V) max	Output Current-Max (A) nom	Synchronous rectification	Quiescent current (mA) typ	Regulator Switching frequency (kHz) typ	Inhibit Pin	Soft-start	Other Features	Oscillator Switching frequency (kHz) (Internal) min	Oscillator Switching frequency (kHz) (Internal) max	Oscillator Switching frequency (kHz) (External) min	Oscillator Switching frequency (kHz) (External) max	Junction Temperature (°C) min
A5970AD	Up to 1 A step down switching regulator for automotive applications	SO-8	Automotive	4	36	1.235	36	1	No	2.7	250	true	No	SYNCHRONIZATION,VREF	500	500	500	700	-40
A5970D	Up to 1 A step-down switching regulator for automotive applications	SO-8	Automotive	4	36	1.235	36	1	No	2.7	250	true	No	SYNCHRONIZATION,VREF	250	250	250	700	-40
A5972D	Up to 1.5 A step-down switching regulator for automotive applications	SO-8	Automotive	4	36	1.235	36	1.5	No	2.7	-	false	No	SYNCHRONIZATION,VREF	500	500	250	700	-40
A5973AD	Up to 1.5 A step-down switching regulator for automotive applications	PowerSO-8	Automotive	4	36	1.235	36	1.5	No	2.7	500	true	No	SYNCHRONIZATION,VREF	500	500	500	700	-40
A5973D	Up to 2 A step down switching regulator for automotive applications	PowerSO-8	Automotive	4	36	1.235	36	2	No	2.7	250	true	No	SYNCHRONIZATION,VREF	250	250	500	700	-40
A5975AD	Up to 2.5 A step down switching regulator for automotive applications	PowerSO-8	Automotive	4	36	1.235	36	2.5	No	2.7	500	true	No	SYNCHRONIZATION,VREF	500	500	500	700	-40
A5975D	Up to 3 A step down switching regulator for automotive applications	PowerSO-8	Automotive	4	36	1.235	36	3	No	2.7	250	true	No	SYNCHRONIZATION,VREF	250	250	250	700	-40
A6902D	Up to 1 A step down switching regulator with adjustable current limit for automotive applications	SO-8	Automotive	8	36	1.235	36	1	No	2.7	250	false	No	constant current control, HS current sense pins	250	250	250	2000	-40
A6984	36 V 400 mA synchronous step-down switching regulator	VFDPPN 4X4X1.0 10L PITCH 0.50	Automotive	4.5	36	0.9	28	0.4	Yes	0.1	-	true	Yes	PGOOD,Vbias,adj Fsw,Selectable low noise-consumption mode	250	250	-	-	-40
A6985F	Automotive 38 V, 500 mA synchronous step-down switching regulator with 30 µA quiescent current	HTSSOP16	Automotive	4	38	0.85	38	0.5	Yes	0.03	250	true	Yes	PGOOD,Vbias,adj Fsw,Selectable low noise-consumption mode	250	2000	250	2000	-40
A6986	38 V, 2 A synchronous step-down switching regulator with 30 µA quiescent current	HTSSOP16	Automotive	4	38	0.85	38	2	Yes	0.03	250	true	Yes	adj Fsw,Selectable low noise-consumption mode	250	2000	250	2000	-40
A6986F	Automotive 38 V, 1.5 A synchronous step-down switching regulator with 30 µA quiescent current	HTSSOP16	Automotive	4	38	0.85	38	1.5	Yes	0.03	250	true	Yes	adj Fsw,Fixed Voltage vers available,Selectable low noise-consumption mode	250	2000	250	2000	-40
A6986I	Automotive 38 V, 5W synchronous iso-buck converter	HTSSOP16	Automotive	4	38	0.85	38	2	Yes	0.03	250	true	Yes	Isolated Buck, adj Fsw,Selectable low noise-consumption mode	250	1000	250	1000	-40
A7985A	2 A step-down switching regulator for automotive applications	PowerSO-8	Automotive	4.5	38	0.6	38	2	No	2.4	250	true	Yes	SYNCHRONIZATION,adj Fsw	250	1000	250	1000	-40
A7986A	3 A step-down switching regulator for automotive applications	PowerSO-8	Automotive	4.5	38	0.6	38	3	No	2.4	250	true	Yes	SYNCHRONIZATION,adj Fsw	250	1000	250	1000	-40
A7987	61 V 3A asynchronous step-down switching regulator with adjustable current limitation for automotive	HTSSOP16	Automotive	4.5	61	0.8	61	3	No	1	250	true	Yes	Adj. current limit	250	1500	250	1500	-40
AST1531	Up to 4 V, 3 A step-down 1.5 MHz switching regulator for automotive applications	VFDPPN 8 3x3x1.0	Automotive	2.8	4	0.8	4	3	Yes	0.63	1500	true	Yes	PGOOD	1200	1900	-	-	-40
AST1531HF	Up to 4 V, 3 A step-down 2.3 MHz switching regulator for automotive applications	VFDPPN 8 3x3x1.0	Automotive	2.8	4	0.8	4	3	Yes	0.63	2300	true	Yes	PGOOD	1750	2300	-	-	-40
L3751	Wide 6 V to 75 V input voltage synchronous buck controller	QFN 3.5X4.5X1.0 20L PITCH 0.50	Industrial	6	75	0.8	60	-	Yes	1.8	400	true	Yes	Power Good, Input voltage tracking, UVLO,	100	1000	100	1000	-40
L4971	1.5A Switching Regulator	DIP-8,SO-16W	Industrial	8	55	3.3	50	1.5	No	2.7	-	true	Yes	-	100	300	-	-	-
L4973	3.5 A step down switching regulator	PDIP 18,SO-20	Industrial	8	55	0.5	50	3.5	No	2.7	200	true	Yes	SYNCHRONIZATION,VREF	100	300	100	300	-
L4976	1 A step down switching regulator	SO-16W	Industrial	8	55	0.5	50	1	No	2.7	-	false	No	-	100	300	-	-	-
L4978	2A Step down switching regulator	DIP-8,SO-16W	Industrial	8	55	3.3	50	2	No	2.7	300	true	Yes	-	100	300	-	-	-
L5970AD	Up to 1 A step down switching regulator	SO-8	Industrial	4.4	36	1.235	36	1	No	2.5	-	true	No	SYNCHRONIZATION,VREF	-	500	500	700	-
L5970D	Up to 1 A step down switching regulator	SO-8	Industrial	4.4	36	1.235	36	1	No	2.5	250	true	No	SYNCHRONIZATION,VREF	-	250	250	700	-
L5972D	2A switch step down switching regulator	SO-8	Industrial	4.4	36	1.235	36	1.5	No	2.5	250	false	No	SYNCHRONIZATION,VREF	-	250	250	700	-
L5973AD	2 A switch step down switching regulator	PowerSO-8	Industrial	4	36	1.235	36	1.5	No	2.5	500	true	No	SYNCHRONIZATION,VREF	-	500	500	700	-
L5973D	Up to 2 A step down switching regulator	PowerSO-8	Industrial	4	36	1.235	36	2	No	2.5	250	true	No	SYNCHRONIZATION,VREF	-	250	250	700	-
L5980	0.7 A step-down switching regulator	QFN-8L P 0.5 mm	Industrial	2.9	18	0.6	18	0.7	No	2.4	250	true	Yes	SYNCHRONIZATION,adj Fsw	250	1000	250	1000	-
L5981	1 A step-down switching regulator	QFN-8L P 0.5 mm	Industrial	2.9	18	0.6	18	1	No	2.4	250	true	Yes	SYNCHRONIZATION,adj Fsw	250	1000	250	1000	-
L5983	1.5 A step-down switching regulator	QFN-8L P 0.5 mm	Industrial	2.9	18	0.6	18	1.5	No	2.4	250	true	Yes	SYNCHRONIZATION,adj Fsw	250	1000	250	1000	-
L5985	2 A step-down switching regulator	QFN-8L P 0.5 mm	Industrial	2.9	18	0.6	18	2	No	2.4	250	true	Yes	SYNCHRONIZATION,adj Fsw	250	1000	250	1000	-
L5986	2.5 A step-down switching regulator	PowerSO-8	Industrial	2.9	18	0.6	18	2.5	No	2.4	250	true	Yes	SYNCHRONIZATION,adj Fsw	250	1000	250	1000	-
L5987	3 A step-down switching regulator	PowerSO-8,QFN-8L P 0.5 mm	Industrial	2.9	18	0.6	18	3	No	2	250	true	Yes	SYNCHRONIZATION,adj Fsw	250	1000	250	1000	-
L5988D	4 A continuous (more than 5 A pulsed) step-down switching regulator with synchronous rectification	HTSSOP16	Industrial	2.9	18	0.6	28	4	No	3	400	true	Yes	adj UVLO,Adj. current limit,SYNCHRONIZATION	100	1000	100	1000	-
L6902	Up to 1 A switching regulator with adjustable current limit	SO-8	Industrial	8	36	1.235	36	1	No	2.5	250	false	No	Adj. current limit	-	250	-	-	-40
L6926	High efficiency monolithic synchronous step-down regulator	MiniSO-8,QFN-8L P 0.5 mm	Industrial	2	5.5	0.6	5.5	0.8	Yes	0.3	600	true	yes	-	550	650	500	1400	-40

L6928	High efficiency monolithic synchronous step-down regulator	MiniSO-8,QFN-8L P 0.5 mm	Industrial	2	5.5	0.6	5.5	0.8	Yes	0.23	1400	true	Yes	Selectable low noise-consumption mode	1300	1500	1000	2000	-40
L6981	38 V, 1.5 A synchronous step-down converter with low quiescent current	SO-8	Industrial	3.5	38	0.85	38	1.5	Yes	0.017	400	true	Yes	Synchronization, OVP, Internal compensation	360	440	200	500	-40
L6982	38 V, 2 A synchronous step-down converter with low quiescent current	SO-8	Industrial	3.5	38	0.85	38	2	Yes	0.017	400	true	Yes	Synchronization, OVP, Internal compensation	360	440	200	500	-40
L6983	38 V, 3 A synchronous step-down converter with 17 µA quiescent current	QFPN 3X3X0.80 16L PITCH 0.50	Industrial	3.5	38	0.85	38	3	Yes	0.017	1000	true	Yes	Synchronization, OVP, Internal compensation	200	2200	200	2600	-40
L6983I	38 V 10W synchronous iso-buck converter for isolated applications	QFPN 3X3X0.80 16L PITCH 0.50	Industrial	4	38	-	-	3	Yes	-	-	true	Yes	Power good external synchronization	-	-	-	-	-40
L6984	36 V, 400 mA synchronous step-down switching regulator	DFN10 3X3,VDFFPN 4X4X1.0 10L PITCH 0.50	Industrial	4.5	36	0.9	28	0.4	Yes	0.1	250	true	Yes	PGOOD,Vbias,adj Fsw,Selectable low noise-consumption mode	250	600	-	-	-40
L6985F	38 V, 500 mA synchronous step-down switching regulator with 30 µA quiescent current	HTSSOP16	Industrial	4	38	0.85	38	0.5	Yes	0.03	250	true	Yes	adj Fsw, Selectable low noise-consumption mode	250	2000	250	2000	-40
L6986	38 V, 2 A synchronous step-down switching regulator with 30 µA quiescent current	HTSSOP16	Industrial	4	38	0.85	38	2	Yes	0.03	250	true	Yes	adj Fsw,Selectable low noise-consumption mode	250	2000	250	2000	-40
L6986F	38 V, 1.5 A synchronous step-down switching regulator with 30 µA quiescent current	HTSSOP16	Industrial	4	38	0.85	38	1.5	Yes	0.03	250	true	Yes	adj Fsw,Selectable low noise-consumption mode	250	2000	250	2000	-40
L6986H	38 V, 2 A synchronous step-down switching regulator with 30 µA quiescent current	HTSSOP16	Industrial	4	38	0.85	38	2	Yes	0.03	250	true	Yes	adj Fsw,Selectable low noise-consumption mode	250	2000	250	2000	-40
L6986I	38 V, 5W synchronous iso-buck converter	HTSSOP16	Industrial	4	38	0.85	38	2	Yes	0.03	250	true	Yes	adj Fsw,Fixed Voltage vers available,Selectable low noise-consumption mode	250	2000	250	2000	-40
L7980	2 A step-down switching regulator	PowerSO-8,QFN-8L P 0.5 mm	Industrial	4.5	28	0.6	28	2	No	2.4	250	true	Yes	SYNCHRONIZATION,adj Fsw	250	1000	250	1000	-
L7981	3 A step-down switching regulator	PowerSO-8,QFN-8L P 0.5 mm	Industrial	4.5	28	0.6	28	3	No	2.4	250	true	Yes	SYNCHRONIZATION,adj Fsw	250	1000	250	1000	-
L7983	60 V 300 mA synchronous step-down switching regulator with 10 µA quiescent current	DFN 3X3X0.8 10L PITCH 0.5	Industrial	3.5	60	0.85	60	0.3	Yes	0.01	1000	true	Yes	Synchronization, Spread Spectrum,OVP, Power Good	200	2000	180	2400	-40
L7985	2 A step-down switching regulator	DFN10 3X3,PowerSO-8	Industrial	4.5	38	0.6	38	2	No	2.4	250	true	Yes	SYNCHRONIZATION,adj Fsw	250	1000	250	1000	-
L7986	3 A step-down switching regulator	DFN10 3X3,PowerSO-8	Industrial	4.5	38	0.6	38	3	No	2.4	250	true	Yes	SYNCHRONIZATION,adj Fsw	250	1000	250	1000	-
L7986TA	3 A step-down switching regulator	PowerSO-8	Industrial	4.5	38	0.6	38	3	No	2.4	250	true	Yes	SYNCHRONIZATION,adj Fsw	250	1000	250	1000	-40
L7987	61 V 3 A asynchronous step-down switching regulator with adjustable current limitation	HTSSOP16	Industrial	4.5	61	0.8	61	3	No	1	250	true	Yes	Adj. current limit	250	1500	250	1500	-40
L7987L	61 V 2 A asynchronous step-down switching regulator with adjustable current limitation	HTSSOP16	Industrial	4.5	61	0.8	61	2	No	1	250	true	Yes	Adj. current limit	250	1500	250	1500	-40
PM8903A	3 A step-down monolithic switching regulator	QFN16 3x3	Industrial	2.8	6	0.6	3.6	3	Yes	5	1100	true	Fixed, 0.79 ms typ	Interleaving synchronization; pulse skipping mode	800	1100	800	1100	-25
PM8908	Monolithic buck converter for DDR memory termination	QFN20 3.5x4	Industrial	1	6	0.5	2	6	Yes	10	600	true	Fixed	Able to source and sink current; Programmable switching frequency; External reference	600000	2000000	-	-	-25
ST1PS01	400 mA nano-quiescent synchronous step-down converter with digital voltage selection and Power Good	CSP P 0.4 mm	Industrial	0.625	5.5	1.8	3.3	0.4	Yes	5.0E-4	-	true	Fixed	Output voltage Power Good, 100% duty cycle	-	-	-	-	-40
ST1PS02	400 mA nano-quiescent synchronous step-down converter with digital voltage selection, Power Good and AUX switch	MLPQ/QFN 1.7x2.0x0.55 12L P0.4	Industrial	1.8	5.5	1	3.3	0.4	Yes	5.0E-4	-	true	Fixed	Power Good and AUX switch	-	-	-	-	-40
ST1PS03	400 mA nano-quiescent synchronous step-down converter with digital voltage selection, Power Good and independent Load Switch	MLPQ/QFN 1.7x2.0x0.55 12L P0.4	Industrial	1.8	5.5	1.6	3.3	0.4	Yes	5.0E-4	-	true	Fixed	Power Good and Load switch	-	-	-	-	-40
ST1S03	1.5 A, 1.5 MHz adjustable, step-down switching regulator	DFN6 3x3	Industrial	2.7	16	0.8	5	1.5	No	2.5	1500	true	Yes	-	-	1500	-	-	-
ST1S06	Synchronous rectification with inhibit, 1.5 A, 1.5 MHz fixed or adjustable, step-down switching regulator	DFN6 3x3	Industrial	2.7	5.5	0.8	5	1.5	Yes	1.5	1500	true	yes	Fixed Voltage vers available	1200	1800	-	1800	-40
ST1S09	2 A, 1.5 MHz PWM step-down switching regulator with synchronous rectification	DFN6 3x3	Industrial	4.5	5.5	0.8	5	2	Yes	2.5	1500	true	Yes	PGOOD,Inhibit	1200	1800	-	1800	-40
ST1S12XX	Synchronous rectification with enable, 0.7 A, 1.7 MHz fixed or adjustable step-down switching regulator in TSOT23-5L	TSOT23-5L	Industrial	2.5	5.5	0.6	5	0.7	Yes	0.6	1700	true	Yes	Fixed Voltage vers available	1160	2000	1160	2000	-40
ST1S14	Up to 3 A step-down switching regulator	PowerSO-8	Industrial	5.5	48	0.8	48	3	No	2	-	true	Yes	PGOOD	-	1400	-	-	-

ST1S15	500 mA, 6 MHz synchronous step-down converter	CSP P 0.4 mm	Industrial	2.3	5.5	1.82	2.8	0.5	Yes	0.045	6000	true	Yes	Mode Pin for PWM	5400	6600	5400	6600	-40
ST1S30	3 A, 1.5 MHz PWM step-down switching regulator with synchronous rectification	DFN8 4x4	Industrial	2.7	6	0.8	5	3	Yes	2.5	1500	true	Yes	-	-	1500	-	-	-
ST1S31	3 A DC step-down switching regulator	VDFPN 8 3x3x1.0	Industrial	2.8	5.5	0.8	5.5	3	Yes	0.63	1500	true	Yes	PGOOD	1200	1900	-	-	-40
ST1S32	4 A DC step-down switching regulator	DFN8 4x4	Industrial	2.8	5.5	0.8	5.5	4	Yes	0.63	1500	true	Yes	PGOOD	1200	1900	-	-	-40
ST1S40	3 A DC step-down switching regulator	DFN8 4x4,PowerSO-8,SO-8	Industrial	4	18	0.8	18	3	Yes	2.5	850	true	Yes	-	-	850	-	-	-
ST1S41	4 A step-down switching regulator	DFN8 4x4,PowerSO-8	Industrial	4	18	0.8	18	4	Yes	1.5	850	true	Yes	-	-	850	-	-	-40
ST1S50	4 A Monolithic synchronous step-down converter with high efficiency at light load	DFN10 3X3	Industrial	4	18	0.8	16	4	Yes	0.38	500	true	Yes	PGOOD	400	600	-	-	-40
ST2S06	Dual synchronous rectification with reset or inhibit, 0.5 A, 1.5 MHz adjustable step-down switching regulator	QFN12 4x4	Industrial	2.5	5.5	0.8	5.5	0.5	Yes	1.2	1500	true	Yes	Reset,Inhibit,dual output	1200	1800	1200	1800	-40
ST2S08B	Dual synchronous rectification, 1.5 A, 1.5 MHz adjustable step-down switching regulator	QFN12 4x4	Industrial	3	5.5	0.8	4.675	1.5	Yes	1.5	1500	true	Yes	dual output	1200	1800	1200	1800	-40
STPD01	Programmable Buck Converter for USB Power Delivery	QFN-24L P 0.4 mm	Industrial	6	26.4	3	20	3	-	-	-	-	Yes	-	-	-	-	-	-40
AS974D	Up to 2.5 A step down switching regulator for automotive applications	PowerSO-8	Automotive	4	36	1.235	36	2.5	No	2.5	250	true	No	SYNCHRONIZATION,VREF	-	250	250	700	-40
L296	HIGH CURRENT SWITCHING REGULATORS	MW 15L	Industrial	9	46	5.1	40	4	No	66	100	true	Yes	-	100	200	100	200	-40
L4963	1.5 A SWITCHING REGULATOR	SO-20	Industrial	9	46	5.1	36	1.5	No	20	-	true	Yes	-	100	300	-	-	-
L4964	High current switching regulator	MW 15L	Industrial	9	46	5.1	38	4	No	66	-	true	Yes	-	-	100	-	-	-
L4970A	10 A switching regulator	MW 15L	Industrial	15	50	5.1	40	10	No	19	200	false	No	-	100	500	-	-	-
L4972	2 A SWITCHING REGULATOR	SO-20	Industrial	15	50	5.1	40	2	No	13	-	false	No	-	100	200	-	-	-
L4975A	5 A switching regulator	MW 15L	Industrial	15	50	5.1	40	5	No	19	200	false	No	-	500	500	100	500	-
ST1S10	3 A, 900 kHz, monolithic synchronous step-down regulator IC	DFN8 4x4,PowerSO-8	Industrial	2.7	18	0.8	16	3	Yes	1.5	900	true	Yes	-	-	900	400	1400	-40
STPOL01A	Synchronous DC-DC step-down converter	WFOFPN 4X5X0.6 28L PITCH 0.5	Industrial	4	16	0.5	3.75	13	Yes	1.5	750	-	Yes	-	-	-	-	-	-

Power Management / DC-DC Switching Converters /Buck-Boost Regulators

Part Number	General Description	Package	Input Voltage (V) min	Input Voltage (V) max	Regulated Output Voltage (V) min	Regulated Output Voltage (V) max	Output Current-Max (A) nom	Quiescent current (mA) typ	Synchronous rectification	Switching Frequency (kHz) typ	Oscillator Switching frequency (kHz) (Internal) max
MC34063AB	DC-DC CONVERTER CONTROL CIRCUITS	DIP-8,SO-8	3	40	1.25	38	1.5	2.5	No	33	100
MC34063AC	DC-DC CONVERTER CONTROL CIRCUITS	DIP-8,SO-8	3	40	1.25	38	1.5	2.5	No	33	100
MC34063EB	DC-DC CONVERTER CONTROL CIRCUITS	DIP-8,SO-8	3	40	1.25	38	1.5	2.5	No	33	100
MC34063EC	DC-DC CONVERTER CONTROL CIRCUITS	DIP-8,SO-8	3	40	1.25	38	1.5	2.5	No	33	100
STBB1-AXX	High efficiency single inductor dual mode buck-boost DC-DC converter with 2.3 A switches peak current	DFN10 3X3	2	5.5	1.2	5.5	1	0.6	Yes	1500	1500
STBB2	800 mA 2.5 MHz, high efficiency dual mode buck-boost DC-DC converter	CSP P 0.4 mm	2.4	5.5	1.2	4.5	0.8	0.05	Yes	2500	2500
STBB3J	2A, 2MHz, high efficiency dual mode buck-boost DC-DC converter	CSP P 0.4 mm	1.8	5.5	1.8	5.5	2	0.05	Yes	2000	2000
STBB3JCC	2A, high efficiency single inductor buck-boost DC-DC converter and High Brightness White LED Driver	CSP P 0.4 mm	1.8	5.5	0.1	5.5	2	0.05	Yes	2000	2000

Power Management / DC-DC Switching Converters / Multi-Output Controllers and Regulators

Part Number	General Description	Package	Number of Output nom	Input Voltage (V) min	Input Voltage (V) max	Output Current-Max (A) nom	Regulated Output Voltage (V) min	Regulated Output Voltage (V) max	Regulator Switching frequency (kHz) min	Regulator Switching frequency (kHz) max	Efficiency (%) nom	Grade	Oscillator Switching frequency (kHz) (Internal) max	Synchronous rectification	Quiescent current (mA) typ
PM6641	Monolithic VR for Chipset and DDR2/3 Supply for Ultra-Mobile PC (UMPC) Applications	VFQFPN 48 7x7x1.0 mm	4	2.7	5.5	2.5	0.8	2.5	500	1000	92	Industrial	1000	Yes	3
PM6680	2 adjustable output power controller for notebook PC chipset power	VFQFPN 32 5x5x1.0 mm	3	6	28	10	0.9	5	200	500	90	Industrial	500	Yes	0.33
PM6680A	Dual synchronous step down controller with adjustable output voltages plus LDO	VFQFPN 32 5x5x1.0 mm	3	6	36	10	0.9	5	200	500	95	Industrial	500	Yes	0.33
PM6686	Dual step-down controller with adjustable voltages, adjustable LDO and auxiliary charge pump controller for notebook	VFQFPN 32 5x5x1.0 mm	3	5.5	28	10	0.7	5.5	200	500	95	Industrial	500	Yes	0.36
STODD03	Monolithic 2 channel power management for high definition ODD with integrated power switch	QFN16 4x4	2	4	6	0.7	6.5	14	750	1500	90	Industrial	1500	Yes	1.6
STPMIC02	Power management IC, 2 E-fuses, 2 switching regulators	QFN.35.45.10-24L	2	4.3	13.2	3.5	0.77	3.78	-	-	-	Industrial	-	-	-
STPMIC07M	Power Management IC: 4 Buck regulators, 3 LDO, I2C Interface	UFQFPN-MR 3.2X4.2 48 (BUMPED),UFQFPN48	7	2.6	5.5	4	0.6	3.75	2000	2000	-	Industrial	-	Yes	0.049
STPMIC1	Highly integrated power management IC for micro processor units	WFQFN 44L 5X6X0.8 PITCH 0.4	14	2.8	5.5	2	0.6	3.9	2000	2000	95	Industrial	-	Yes	1.2
STPMIC06	Power Management IC:4 Buck regulators, PMBUS® Interface	QFN.50.50.06 40L	4	4.5	15.6	3	0.5	5.4	500	1500	-	Industrial	-	Yes	0.2

Power Management / DC-DC Switching Converters /Multi-phase Controllers

Part Number	General Description	Package	Recommended Input Voltage (V) min	Recommended Input Voltage (V) max	Supply Voltage (V) max	Supply Voltage (V) min	Output Voltage (V) max	Output Voltage (V) min	Peak Output Current (A) max	Recommended Oscillation Frequency (kHz) max	Key features	Oscillator Switching frequency (kHz) (Internal) min	Oscillator Switching frequency (kHz) (Internal) max
PM6764	4-/6-phase VR12.5 digital multiphase controller with PMBus™	VFQFPN 28 4x4x1.0	10.8	13.2	5.25	4.75	2.3	0.52	120	500	-	200	1000
PM6766	4-/6-phase VR12.5 digital multiphase controller with PMBus™	VFQFPN 40 5x5x1.0	10.8	13.2	5.25	4.75	2.3	0.52	220	500	-	200	1000
PM6779	M+N dual channel VR13HC Digital Multiphase controller with PMBUSTM	VFQFPN 40 5x5x1.0	8	13.2	3.1	3.5	2.3	0.8	250	500	-	200	1000
STRG06	Universal digital multicell controller with PMBus	QFN 68 8x8x1.0	40	60	5.5	4.5	-	-	-	-	Black box recorder, Intel VR13	-	-
PM6776	6+1 dual channel VR13 digital multiphase controller with PMBus™	VFQFPN 48 6x6x0.9	8	13.2	3.1	3.5	2.3	0.8	250	500	-	200	1000

Power Management / DC-DC Switching Converters /Single-phase Controllers

Part Number	General Description	Package	Input Voltage (V) min	Input Voltage (V) max	Output Voltage (V) min	Output Voltage (V) max	Peak Output Current (A) max	Recommended Oscillation Frequency (kHz) max	Key features	Oscillator Switching frequency (kHz) (Internal) min
A6727	Single-phase PWM controller for automotive applications	SO-8	1.5	19	0.8	-	30	300	-	300
A6727B	Automotive single-phase PWM controller	SO-8	1.5	19	0.8	-	30	300	-	300
L3751	Wide 6 V to 75 V input voltage synchronous buck controller	QFN 3.5X4.5X1.0 20L PITCH 0.50	6	75	-	-	-	-	-	100
L6726A	Single phase PWM controller	SO-8	-	-	0.8	-	30	270	-	270
PM6644	350 mA adjustable step-down regulator	VDFPN 10 3x3x1.0	4.5	25	0.9	6	0.35	600	-	200
PM6697H	VR13 single phase controller	VFQFPN 20 3x3	-	-	0.8	1.52	-	-	Intel VR13	-
TSM108	Step down controller with constant voltage/current	SO-14	-	-	-	-	-	-	-	-
L6739	Single-phase PWM controller with light-load efficiency optimization	VFQFPN 16 3x3x1.0	-	-	0.8	5	30	600	-	200

Display Supplies and Controllers

Overview

ST's portfolio of **display supplies and controllers** includes:

- **LCD/OLED** PSUs that simplify power-supply circuitry and maximize battery life for feature-rich portable products thanks to their embedded-energy saving features
- **VFD/LED** front panel controllers that integrate VFD/LED drivers, standby power management, a real-time clock (RTC) and key scan matrix in a single package

Power Management / Display Supplies and Controllers /LCD/OLED Display PSUs

Part Number	General Description	Package	Supply Voltage (V) min	Output Voltage (V) (Positive) min	Output Voltage (V) (Positive) max	Output Voltage (V) (Negative) min	Output Voltage (V) (Negative) max	Output voltage variation (%) (Positive) typ	Output voltage variation (%) (Negative) typ	Quiescent current (mA) typ	Efficiency (%) max	Switching Frequency (MHz) typ	Topology
STLDC08	Step-up controller for LED supply	VDFPN 10 3x3x1.0	0.8	6	18	-	-	-	-	0.8	80	-	Boost
STMP30	Power management for AMOLED display	WLCSP25 2.161X2.069X0.546M M 0.4P	2.5	4.6	5	-6.6	-0.8	-0.8, +0.8	-1.4, +1.4	4	92	1.5	-
STOD32A	300 mA triple DC-DC converter for powering AMOLED displays	VFQFPN 16L 3X3X0.55	2.9	4.56	4.63	4.8	0.8	-	-	-	-	-	-

Power Management / Display Supplies and Controllers /VFD/LED Front Panel Controllers

Part Number	General Description	Package	Supply Voltage (V) min	Supply Voltage (V) max
STLED316S	Serial-interfaced 6-digit LED controller with keyscan	SO-24	4.5	5.5

eFuses and hot-swap ICs

Overview

Hot-swap power management ICs are designed to control and protect electronic loads, reducing ownership costs of electronic devices and appliances during production and in the field.

They are ideal for all applications that need to perform **hot-plug/hot-swap operations** or require a high level of flexibility and reliability. In such applications, a complete and accurate control of the inrush current during startup/hot plug, along with overcurrent/overvoltage protections are crucial and can make the difference in terms of final **cost of maintenance** and cost of quality.

Compared to traditional protection devices, hot-swap power management ICs enable more versatile and simpler programming of protection parameters, such as overcurrent threshold and start-up time. Thanks to their Enable/fault pins, hot-swap power management ICs can be remotely reset after a fault, which helps to drastically **reduce the number of false-faults** and **equipment downtime**.

Within its hot-swap power management family, ST offers three main kinds of hot-swap controllers:

- **Electronic fuses (eFuses)**: they can replace larger conventional fuses or other protection devices such as resettable PTC fuses. Housed in **small plastic packages**, such as DFN and Flip-chip, they integrate a control logic and a power switch. E-fuses provide overvoltage and overcurrent protection and programmable soft-start time. Typical applications are HDD/SSD arrays and servers as well as industrial and network hot-swap boards.
- **DC Power breakers**: they provide **continuous monitoring** of the input power and interrupt the circuit in case of anomalous power consumption. The power limit is adjustable by the user. Used in home appliances and white goods, they **optimize the design** of power distribution systems, and **simplify the certification** flow to comply with international safety regulations.
- **Other hot-swap ICs**, such as programmable current limiters and controllers for external MOSFETs. They allow maximum configuration **flexibility**, and provide protection to high-power DC rails.

Power Management/Energy Harvesting and Solar Charging ICs

Part Number	General Description
SPV1040	High efficiency solar battery charger with embedded MPPT
SPV1050	Ultra low power energy harvester and battery charger with embedded MPPT and LDOs

Energy Harvesting and Solar Charging ICs

Overview

Energy harvesting and solar charging ICs from ST supply the Internet of Things ecosystem by extracting energy from ambient light or thermal differences to power small devices in applications such as wireless sensors for smart lighting, home and building automation, remote monitoring, presence detection and industrial equipment controls as well as **wearables and fitness sensors**.

These ICs make the small devices energy autonomous and protect the environment by reducing the use – and waste – of primary batteries, while reducing the heavy impact of cabling cost and enhancing flexibility in legacy buildings. Given their ability to “cut the cord” and replace primary batteries, hundreds of millions of these devices could be deployed in environments such as offices, buildings, hotels, industrial sites, airports, malls, remote monitoring infrastructures and wearable fitness / healthcare devices.

SPV1050 energy harvesting and SPV1040 high-efficiency solar battery charger

ST's **SPV1050** is an extremely high-efficiency power-management and battery-charger solution for wireless sensor nodes that harvests energy from both photovoltaic cells and thermoelectric generators (TEGs) operating up to 400 mW output power. The SPV1050 achieves impressive energy-conversion performance thanks to the embedded maximum power point tracking (MPPT) algorithm, by guarantying up to 99% of maximum power extracted from the harvesting available source. It is compatible with any battery chemistry, including thin-film solid state, super-capacitor, NiMH, NiCd and lithium-ion/lithium polymer. In fact, it applies the typical CC-CV charge profile to optimize the charge and to guarantee its lifetime and overall system safety.

The **SPV1040** is a monolithic solar energy harvester based on a step-up converter configuration optimized to work in outdoor conditions with an output power up to 3 W, and with embedded MPPT algorithm that operates over a 0.45 to 5.5 V input voltage range. The proprietary algorithm maximizes the energy extraction from the source and the transfer to the load is given by the very high conversion efficiency. Fundamental features like over-current, over-voltage and over-temperature guarantee battery and overall system safety and along with the other specs address some typical applications like outdoor environmental sensors, solar lanterns, garden and poles lighting, solar bags and portable mid power consumer.

High efficiency solar battery charger with embedded MPPT



Features

- 0.3 V to 5.5 V operating input voltage
- 140 mΩ internal synchronous rectifier
- 120 mΩ internal power active switch
- 100 kHz fixed PWM frequency
- Duty cycle controlled by MPPT algorithm
- Output voltage regulation, overcurrent and overtemperature protection
- Input source reverse polarity protection
- Built-in soft-start
- Up to 95% efficiency
- TSSOP8 package 3x4.4 mm

Applications

- Smart phones and GPS systems
- Wireless headsets
- Small appliances, sensors
- Portable media players
- Digital still cameras
- Toys and portable healthcare

Product status link	
SPV1040	
Product summary	
Order code	SPV1040T
Package	TSSOP8
Packing	Tube
Order code	SPV1040TR
Package	TSSOP8
Packing	Tape and reel
Product label	
 SUSTAINABLE TECHNOLOGY	

Description

The SPV1040 device is a low power, low voltage, monolithic step-up converter with an input voltage range from 0.3 V to 5.5 V, capable of maximizing the energy generated by solar cells (or fuel cells), where low input voltage handling capability is extremely important. Thanks to the embedded MPPT algorithm, even under varying environmental conditions (such as irradiation, dirt, temperature) the SPV1040 offers maximum efficiency in terms of power harvested from the cells and transferred to the output. The device employs a voltage regulation loop, which fixes the charging battery voltage via a resistor divider.

It is possible to set the maximum output current according to charging requirements by a sense resistor.

The SPV1040 protects itself and other application devices by stopping the PWM switching if either the maximum current threshold (up to 1.8 A_{pk}) is reached or the maximum temperature limit (up to 155 °C) is exceeded. An additional built-in feature of the SPV1040 is the input source reverse polarity protection, which prevents damage in case of reverse connection of the solar panel on the input.

1 Block diagram

Figure 1. Block diagram

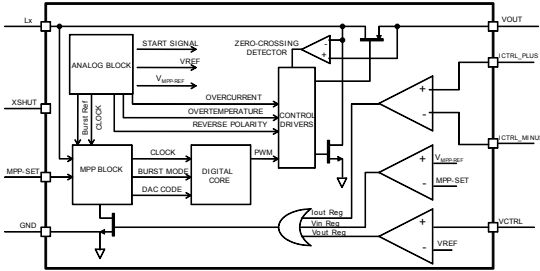
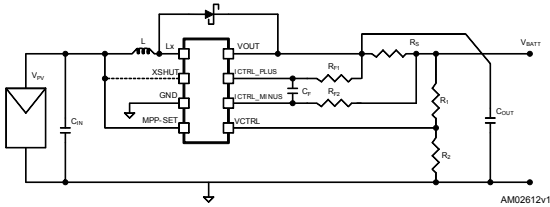


Figure 2. Simplified application circuit



Ultralow power energy harvester and battery charger



VFQFPN 3 x 3 x 1 mm 20L

Features

- Transformerless thermoelectric generators and PV modules energy harvester
- High efficiency for any harvesting source
- Up to 70 mA output current
- Fully integrated MOSFETs for Boost or Buck-boost configurations
- Selectable enable/disable MPPT functionality
- Programmable MPPT by external resistors
- 2.6 V to 5.3 V trimmable output overvoltage level ($\pm 1\%$ accuracy)
- 2.2 V to 3.6 V trimmable output undervoltage level ($\pm 1\%$ accuracy)
- Two fully independent LDOs (1.8 V and 3.3 V output)
- Enable/disable LDO pins
- Load disconnect function (by-pass transistor open) prior the first start-up (Cold Start) to avoid battery lifetime shortening
- Battery Connected and DC-DC switching open drain indication pins

Application

- Internet of things
- Remote control
- Fleet and livestock tracking
- Agriculture sensors
- Toll-pay
- Electronic labels
- Smart watch and wearable.

Product status link
SPV1050
Product label


Description

The **SPV1050** is an ultra-low power and high-efficiency power manager embedding four MOSFETs for boost or buck-boost DC-DC converter and an additional transistor for the load connection/disconnection.

An internal high accuracy MPPT algorithm can be used to maximize the power extracted from PV panel or TEG.

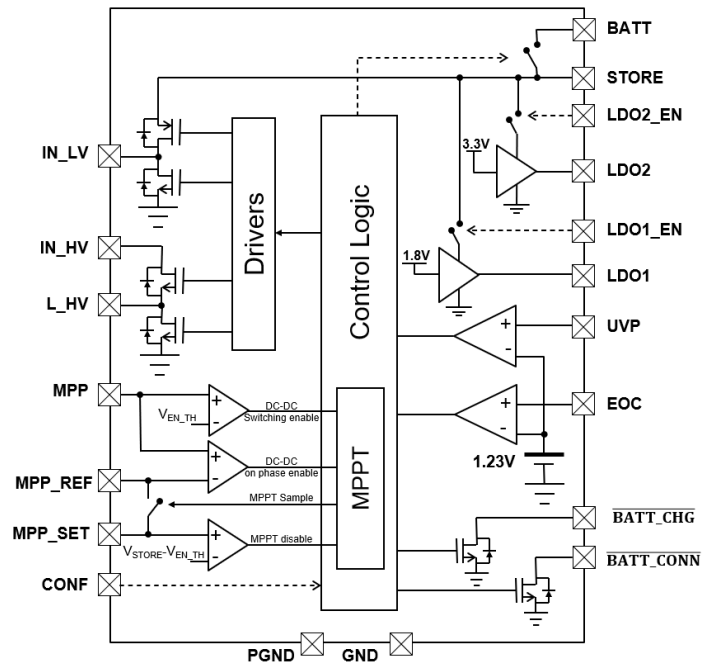
The internal logic works to guarantee tight monitoring of both the end-of-charge voltage (V_{EOC}) and the minimum battery voltage (V_{UVP}) by opening the pass-transistor at triggering of the V_{EOC} threshold or at triggering of the V_{UVP} threshold to preserve the battery life. Both the V_{EOC} and V_{UVP} thresholds can be trimmed by external resistors connected between the STORE rail and the EOC and UVP pins, respectively.

In boost configuration (CONF pin connected to the supply source), the IC requires 550 mV and 30 μ A to Cold start; while after the first start-up the input voltage can range between 150 mV and V_{EOC} . In buck-boost configuration (CONF pin connected to ground), the IC requires 2.6 V and 5 μ A at Cold start; while after the first start-up input voltage can range between 150 mV up to 18 V.

The STORE pin is available as unregulated voltage output (e.g. to supply by external LDO a micro-controller), while two fully independent LDOs (1.8 V and 3.3 V) are embedded for powering other companion ICs like MCU, sensors or RF transceivers. Both LDOs can be independently enabled through the related pins.

1 Block Diagram

Figure 1. Block diagram



Gallium Nitride (GaN) Power ICs

Overview

Integrated Smart GaNs

Gallium nitride (GaN) is revolutionizing the power engineering world by enabling high speed, increased efficiency and higher power density never before possible with silicon MOSFETs. Integrating GaN transistors and gate drivers, our advanced MasterGaN systems-in-package offer high efficiency due to their optimized gate drive layout, high power density and increased switching frequency due to minimal parasitic effects.

STDRIVE® GaN Drivers

The GaN drivers devices are half-bridge gate drivers for enhancement mode GaN FETs or N-channel power MOSFET.

High Voltage GaN Converters

The high voltage power converters is enriched by the introduction of GaN HEMT (high-electron-mobility transistor) technology. The use of a GaN transistor leads to higher power density, higher efficiency, higher switching frequency with consequent smaller and lighter PCB, simplifying the design of SMPS and improving the overall performances.



Power Management / Gallium Nitride (GaN) Power ICs/GaN Drivers

Part Number	General Description	Number of Channels nom	Package	Supply Voltage (V) max	Protection Option Type nom	Key features nom	Input configuration	Undervoltage lockout (V) (@ V _{CC ON}) nom	Undervoltage lockout (V) (@ V _{CC OFF}) nom	Operating Temperature (°C) min	Operating Temperature (°C) max
STDRIVEG600	High voltage half-bridge gate driver for GaN transistors	2	SO-16	20	4.5/4.2	Bootstrap diode	HIN	4.5	4.2	-40	150
STDRIVEG600W	High voltage half-bridge gate driver for GaN transistors	2	US WF V.I.	20	4.5/4.2	Bootstrap diode	HIN,LIN	4.5	4.2	-40	150

Power Management / Gallium Nitride (GaN) Power ICs/High Voltage GaN Converters

Part Number	General Description	Package	$R_{DS(on)}$ (Ω) max	Transistor Breakdown Voltage (V) min	Drain Current (A) nom
VIPERGAN100	Advanced quasi-resonant offline high voltage converter with E-mode GaN HEMT	GQFN5X6X1.0	0.3	650	3.5
VIPERGAN50	Advanced quasi-resonant offline high voltage converter with E-mode GaN HEMT	GQFN5X6X1.0	0.45	650	2.25
VIPERGAN65	Advanced quasi-resonant offline high voltage converter with E-mode GaN HEMT	GQFN5X6X1.0	0.345	650	3

Power Management / Gallium Nitride (GaN) Power ICs/Integrated Smart GaNs

Part Number	General Description	Number of Channels nom	Package	Supply Voltage (V) max	Protection Option Type nom	Key features nom	Output Current-Max (A) nom	Input configuration	Undervoltage lockout (V) nom	Undervoltage lockout (V) (@ V _{cc} ON) nom	Undervoltage lockout (V) (@ V _{cc} OFF) nom	Operating Temperature (°C) min	Operating Temperature (°C) max
MASTERGAN1	High power density 600V half-bridge driver with two enhancement mode GaN HEMTs	2	VFQFPN 9X9X1.0 31L PITCH 0.6MM	11	Undervoltage lockout, Interlocking function, overtemperature	Bootstrap diode,Optimized for asymmetrical topologies	10	HIN,LIN	9.2	4.5	4.2	-40	125
MASTERGAN1L	600 V half-bridge enhancement mode GaN HEMT with high voltage driver	-	VFQFPN 9X9X1.0 31L PITCH 0.6MM	-	Undervoltage lockout, Interlocking function, overtemperature	Bootstrap diode,Optimized for asymmetrical topologies	-	HIN,LIN	-	-	-	-	-
MASTERGAN2	High power density 600V Half bridge driver with two enhancement mode GaN HEMTs	2	VFQFPN 9X9X1.0 31L PITCH 0.6MM	11	Undervoltage lockout, Interlocking function, overtemperature	Bootstrap diode,Optimized for asymmetrical topologies	6.5	HIN,LIN	9.2	4.5	4.2	-40	125
MASTERGAN3	High power density 600 V Half bridge driver with two enhancement mode GaN HEMTs	2	VFQFPN 9X9X1.0 31L PITCH 0.6MM	11	Undervoltage lockout, Interlocking function, overtemperature	Bootstrap diode,Optimized for asymmetrical topologies	4	HIN,LIN	-	-	-	-	-
MASTERGAN4	High power density 600V half-bridge driver with two enhancement mode GaN HEMTs	2	VFQFPN 9X9X1.0 31L PITCH 0.6MM	11	Undervoltage lockout, Interlocking function, overtemperature	Bootstrap diode	6.5	HIN,LIN	9.2	4.5	4.2	-40	125
MASTERGAN4L	600 V half-bridge enhancement mode GaN HEMT with high voltage driver	-	VFQFPN 9X9X1.0 31L PITCH 0.6MM	-	Undervoltage lockout, Interlocking function, overtemperature	Bootstrap diode,Optimized for asymmetrical topologies	-	HIN,LIN	-	-	-	-	-
MASTERGAN5	High power density 600 V half-bridge driver with two enhancement mode GaN power HEMTs	2	VFQFPN 9X9X1.0 31L PITCH 0.6MM	11	Undervoltage lockout, Interlocking function, overtemperature	Bootstrap diode	4	HIN,LIN	-	-	-	-	-

Gate Drivers

Overview

A necessary companion for discrete power **MOSFETs and IGBTs** as well as digital – microcontrollers, DSPs and FPGs – or analog controllers in any switched-mode power converter **STDRIVE** gate drivers generate the necessary voltage and current level required to **accurately** and **efficiently** activate the power stage in industrial, consumer, computer and automotive applications.

With a range spanning from single- to half-bridge and multiple-channel drivers rated for either low- or high-voltage (up to 1500 V) applications, ST also offers galvanically-isolated gate driver ICs for safety and functional requirements, System-in-Package (SiP) solutions integrating high- and low-side gate drivers and MOSFET-based power stages, responding to the industrial market trend towards higher levels of integration and **lower development costs**.

In many cases, there is an **STDRIVE** perfectly designed to fit your switched-mode power converter design. **STDRIVE** comes with extensive evaluation hardware and software as well as a technical documentation toolbox to help **minimize time-to-market**.

Integrated Smart GaNs

Gallium nitride (GaN) is revolutionizing the power engineering world by enabling high speed, increased efficiency and higher power density never before possible with silicon MOSFETs. Integrating GaN transistors and gate drivers, our advanced MasterGaN systems-in-package offer high efficiency due to their optimized gate drive layout, high power density and increased switching frequency due to minimal parasitic effects.

Our MasterGaN platform including **MasterGaN1, MasterGaN2, MasterGaN3, MasterGaN4, MasterGaN5** is fully available to better address specific application requirements.

STDRIVE® GaN Drivers

The GaN drivers devices are half-bridge gate drivers for enhancement mode GaN FETs or N-channel power MOSFET

MasterGaN rides the new wave of GaN Power

Revolutionizing power engineering and pushing performance beyond ordinary silicon-based solutions with ST's MasterGaN, industry's first integrated solution with Silicon driver and two GaN power transistors in one package.

Power Management / Gate Drivers/High Voltage Half Bridge Gate Drivers

Part Number	General Description	Number of Channels nom	Package	Supply Voltage (V) max	Protection Option Type nom	Key features nom	Output Current-Max (A) nom	Power Switches Type (External)	Input configuration	Grade	Undervoltage lockout (V) (@ V _{cc} ON) nom	Undervoltage lockout (V) (@ V _{cc} OFF) nom
A6387	High-voltage high and low side driver for automotive applications	2	SO-8	17	Interlocking function,	Bootstrap diode	0.65	IGBTs,MOSFETs	HIN,LIN	Automotive	6	5.5
L6384E	High voltage high and low side driver with bootstrap diode	2	SO-8	17	Undervoltage lockout,	Adjustable deadtime,Bootstrap diode	0.65	IGBTs,MOSFETs	SD,Single IN	Industrial	12	10
L6385E	HV high and low side driver with embedded bootstrap diode	2	SO-8	17	Undervoltage lockout,	Bootstrap diode	0.65	IGBTs,MOSFETs	HIN,LIN	Industrial	9.6	8.3
L6386AD	HV High and low side driver with embedded comparator and bootstrap diode	2	SO-14	17	Undervoltage lockout, Comparator,	Bootstrap diode	0.65	IGBTs,MOSFETs	HIN,LIN,SD	Industrial	9.6	8.3
L6386E	HV high and low side driver with embedded comparator and bootstrap diode	2	SO-14	17	Undervoltage lockout, Comparator,	Bootstrap diode	0.65	IGBTs,MOSFETs	HIN,LIN,SD	Industrial	12	10
L6387E	High voltage high and low-side driver	2	SO-8	17	Undervoltage lockout, Interlocking function,	Bootstrap diode	0.65	IGBTs,MOSFETs	HIN,LIN	Industrial	6	5.5
L6388E	HV high and low side driver with embedded bootstrap diode	2	SO-8	17	Undervoltage lockout, Interlocking function,	Adjustable deadtime,Bootstrap diode	0.65	IGBTs,MOSFETs	HIN,LIN	Industrial	9.6	8.3
L6389E	High voltage high and low-side driver	2	SO-8	17	Undervoltage lockout, Interlocking function,	Adjustable deadtime,Bootstrap diode	0.65	IGBTs,MOSFETs	HIN,LIN	Industrial	9.6	8.3
L6390	High voltage high/ low-side driver	2	SO-16	20	Undervoltage lockout, Interlocking function, Comparator, Smart shutdown,	Adjustable deadtime,Bootstrap diode,Operational amplifier	0.43	IGBTs,MOSFETs	HIN,LIN,SD	Industrial	12	10.5
L6391	High voltage high and low-side driver	2	SO-14	20	Undervoltage lockout, Interlocking function, Comparator, Smart shutdown,	Adjustable deadtime,Bootstrap diode	0.43	IGBTs,MOSFETs	HIN,LIN,SD	Industrial	12	10.5
L6392	High voltage high and low-side driver	2	SO-14	20	Interlocking function,	Adjustable deadtime,Bootstrap diode,Operational amplifier	0.43	IGBTs,MOSFETs	HIN,LIN,SD	Industrial	12	10.5
L6393	Half bridge gate driver	2	SO-14	20	Comparator,	Adjustable deadtime,Bootstrap diode	0.43	IGBTs,MOSFETs	SD	Industrial	9.5	8
L6395	High voltage high and low-side driver	2	SO-8	20	-	Bootstrap diode	0.43	IGBTs,MOSFETs	HIN,LIN	Industrial	9.5	8.8
L6398	High voltage high and low-side driver	2	SO-8	20	Interlocking function,	Bootstrap diode	0.43	IGBTs,MOSFETs	HIN,LIN	Industrial	9.5	8.8
L6399	High voltage high and low-side driver	2	SO-8	20	Interlocking function,	Bootstrap diode	0.43	IGBTs,MOSFETs	HIN,LIN	Industrial	9.5	8
L6491	High voltage high and low-side 4 A gate driver	2	SO-14	20	Interlocking function, Comparator, Smart shutdown,	Adjustable deadtime,Bootstrap diode	4	IGBTs,MOSFETs	HIN,LIN,SD	Industrial	9.3	8.7
L6494	High voltage high and low-side 2 A gate driver	2	SO-14	20	Undervoltage lockout,	Adjustable deadtime,Bootstrap diode	2	IGBTs,MOSFETs	HIN,LIN,SD	Industrial	9.3	8.7
L6498	High voltage high and low-side 2 A gate driver	2	SO-14,SO-8	20	Undervoltage lockout, Interlocking function,	Bootstrap diode	2	IGBTs,MOSFETs	HIN,LIN,SD	Industrial	9.3	8.7
MASTERGAN1	High power density 600V half-bridge driver with two enhancement mode GaN HEMTs	2	VFQFPN 9X9X1.0 31L PITCH 0.6MM	11	Undervoltage lockout, Interlocking function, overtemperature	Bootstrap diode,Optimized for asymmetrical topologies	10	GaN	HIN,LIN	Industrial	4.5	4.2
MASTERGAN2	High power density 600V Half bridge driver with two enhancement mode GaN HEMTs	2	VFQFPN 9X9X1.0 31L PITCH 0.6MM	11	Undervoltage lockout, Interlocking function, overtemperature	Bootstrap diode,Optimized for asymmetrical topologies	6.5	GaN	HIN,LIN	Industrial	4.5	4.2
MASTERGAN3	High power density 600 V Half bridge driver with two enhancement mode GaN HEMTs	2	VFQFPN 9X9X1.0 31L PITCH 0.6MM	11	Undervoltage lockout, Interlocking function, overtemperature	Bootstrap diode,Optimized for asymmetrical topologies	4	GaN	HIN,LIN	Industrial	-	-
MASTERGAN4	High power density 600V half-bridge driver with two enhancement mode GaN HEMTs	2	VFQFPN 9X9X1.0 31L PITCH 0.6MM	11	Undervoltage lockout, Interlocking function, overtemperature	Bootstrap diode	6.5	GaN	HIN,LIN	Industrial	4.5	4.2
MASTERGAN5	High power density 600 V half-bridge driver with two enhancement mode GaN power HEMTs	2	VFQFPN 9X9X1.0 31L PITCH 0.6MM	11	Undervoltage lockout, Interlocking function, overtemperature	Bootstrap diode	4	GaN	HIN,LIN	Industrial	-	-

Power Management / Gate Drivers/Isolated Gate Drivers

Part Number	General Description	Number of Channels nom	Package	Supply Voltage (V) max	Protection Option Type nom	Key features nom	Output Current-Max (A) nom	Power Switches Type (External)	Input configuration	Grade	Undervoltage lockout (V) (@ V _{cc} ON) nom	Undervoltage lockout (V) (@ V _{cc} OFF) nom	Operating Temperature (°C) min	Operating Temperature (°C) max
STGAP1BS	Automotive galvanically isolated single gate driver	1	SO-24	36	-	-	5	-	SD	Automotive	-	-	-40	125
STGAP2D	Galvanically isolated 4 A half-bridge dual channel gate driver	2	SO-16	26	Shutdown protection	Thermal Shutdown	4	IGBTs,MOSFETs ,SIC	SD	Industrial	9.1	8.4	-40	125
STGAP2GS	Galvanically isolated 3 A single gate driver for Enhancement mode GaN FETs	1	SO 8 WIDE 300	-	Active Miller clamp, Shutdown protection	Thermal Shutdown	-	IGBTs,MOSFETs ,SIC	SD	Industrial	-	-	-40	125
STGAP2GSN	Isolated 3 A single gate driver for Enhancement mode GaN FETs	1	SO-8	-	Active Miller clamp, Shutdown protection	Thermal Shutdown	-	IGBTs,MOSFETs ,SIC	SD	Industrial	-	-	-40	125
STGAP2HD	Galvanically isolated 4 A dual gate driver	2	SSOP 32 LEAD 300 MIL PKG .0315 P	26	Active Miller clamp, Undervoltage lockout, Thermal shutdown, Interlocking function	-	4	IGBTs,MOSFETs	Brake,SD	Industrial	9.1	8.4	-40	125
STGAP2HS	Galvanically isolated 4 A single gate driver	1	SO 8 WIDE 300	26	Active Miller clamp, Undervoltage lockout, Thermal shutdown, Interlocking function	-	4	IGBTs,MOSFETs	SD	Industrial	9.1	8.4	-40	125
STGAP2S	Galvanically isolated 4 A single gate driver	1	SO-8	26	Active Miller clamp, Shutdown protection	Thermal Shutdown	4	IGBTs,MOSFETs ,SIC	SD	Industrial	9.1	8.4	-40	125
STGAP2SICD	Galvanically isolated 4 A dual gate driver	2	SSOP 32 LEAD 300 MIL PKG .0315 P	26	Shutdown protection	Thermal Shutdown	4	SIC	SD	Industrial	-	-	-	-
STGAP2SICS	Galvanically isolated 4 A single gate driver for SIC MOSFETs	1	SO 8 WIDE 300	26	Active Miller clamp, Undervoltage lockout, Thermal shutdown, Interlocking function	-	4	SIC	SD	Industrial	15.5	14.8	-40	125
STGAP2SICSA	Galvanically isolated 4 A single gate driver for SIC MOSFETs	1	SO 8 WIDE 300	-	Active Miller clamp, Undervoltage lockout, Thermal shutdown, Interlocking function	-	4	SIC	SD	Automotive	-	-	-	-
STGAP2SICSAN	Galvanically isolated 4 A single gate driver for SIC MOSFETs	1	SO-8	-	Active Miller clamp, Undervoltage lockout, Thermal shutdown, Interlocking function	-	4	SIC	SD	Automotive	-	-	-	-
STGAP2SICSN	Galvanically isolated 4 A single gate driver for SIC MOSFETs	1	SO-8	26	Undervoltage lockout, Thermal shutdown, Miller clamp option,	-	4	SIC	HIN,LIN	Industrial	15.5	14.8	-40	125
STGAP4S	Automotive advanced isolated gate driver for IGBTs and SIC MOSFETs	1	SSOP 36 LD 300 MIL .0315 PITCH	32	Active Miller clamp, Desaturation detection, Overcurrent detection, VCE Clamp protection, Temperature warning, shutdown protection, Undervoltage lockout, Overvoltage lockout	Adjustable deadtime,Diagnostic,Overcurrent protection,Programmable dead-time,Thermal Shutdown	-	IGBTs,MOSFETs ,SIC	-	Automotive	2.9	2.85	-40	125
STGAP1AS	Automotive galvanically isolated single gate driver	1	SO-24	36	Active Miller clamp, Desaturation detection, Overcurrent detection, 2-level turn-off, VCE overvoltage protection, Temperature warning, shutdown protection, Undervoltage lockout, Overvoltage lockout,	Adjustable deadtime,Thermal Shutdown	5	IGBTs,MOSFETs ,SIC	SD	Automotive	4.1	3.8	-40	125

Power Management / Gate Drivers/Multiple Channel Drivers

Part Number	General Description	Number of Channels nom	Package	Supply Voltage (V) max	Protection Option Type nom	Key features nom	Output Current-Max (A) nom	Power Switches Type (External)	Input configuration	Grade	Undervoltage lockout (V) (@ V _{cc ON}) nom	Undervoltage lockout (V) (@ V _{cc OFF}) nom	Undervoltage lockout (V) nom	Operating Temperature (°C) min	Operating Temperature (°C) max
PM8834	4 A dual low side MOSFET driver	-	MINI SO8,SO-8	-	-	-	-	-	-	Industrial	-	-	-	-40	105
STDRIVE101	Triple half-bridge gate driver	6	QFN-24L	75	Overcurrent comparator, Adjustable short circuit threshold, Undervoltage lockout, Thermal shutdown	Adjustable deadtime, Bootstrap diode	0.6	IGBTs, MOSFETs	-	Industrial	5.5	5.4	5	-40	125
STDRIVE601	Triple half-bridge high-voltage gate driver	3	SO-28	20	Shutdown protection, Undervoltage lockout, Interlocking function	Bootstrap diode, Overcurrent protection	0.35	IGBTs, MOSFETs	-	Industrial	8.5	8	8	-40	125
STGAP2D	Galvanically isolated 4 A half-bridge dual channel gate driver	2	SO-16	26	Shutdown protection	Thermal Shutdown	4	IGBTs, MOSFETs, SiC	SD	Industrial	9.1	8.4	-	-40	125
STGAP2HD	Galvanically isolated 4 A dual gate driver	2	SSOP 32 LEAD 300 MIL PKG .0315 P	26	Active Miller clamp, Undervoltage lockout, Thermal shutdown, Interlocking function	-	4	IGBTs, MOSFETs	Brake, SD	Industrial	9.1	8.4	-	-40	125
STGAP2SICD	Galvanically isolated 4 A dual gate driver	2	SSOP 32 LEAD 300 MIL PKG .0315 P	26	Shutdown protection	Thermal Shutdown	4	SiC	SD	Industrial	-	-	-	-	-
TD310	Triple IGBT/MOS driver with current sense	3	SO-16	16	Undervoltage lockout, Comparator	Operational amplifier	-	-	-	Industrial	-	-	-	-40	125

Power Management / Gate Drivers/Single Channel Drivers

Part Number	General Description	Number of Channels nom	Package	Supply Voltage (V) max	Protection Option Type nom	Key features nom	Output Current-Max (A) nom	Power Switches Type (External)	Input configuration	Grade	Undervoltage lockout (V) (@ V _{cc} ON) nom	Undervoltage lockout (V) (@ V _{cc} OFF) nom	Operating Temperature (°C) min	Operating Temperature (°C) max
PM8841	1A low-side gate driver	1	SOT23-5L	18	Undervoltage lockout	-	1	MOSFETs	SD	Industrial	1.5	1	-40	125
PM8851	1A Low Side Gate Driver with configurable asymmetric sink/source	1	SOT23-6L	18	Undervoltage lockout	-	1	MOSFETs	SD	Industrial	1.5	1	-40	125
STGAP1BS	Automotive galvanically isolated single gate driver	1	SO-24	36	-	-	5	-	SD	Automotive	-	-	-40	125
STGAP2GS	Galvanically isolated 3 A single gate driver for Enhancement mode GaN FETs	1	SO 8 WIDE 300	-	Active Miller clamp, Shutdown protection	Thermal Shutdown	-	IGBTs,MOSFETs ,SiC	SD	Industrial	-	-	-40	125
STGAP2GSN	Isolated 3 A single gate driver for Enhancement mode GaN FETs	1	SO-8	-	Active Miller clamp, Shutdown protection	Thermal Shutdown	-	IGBTs,MOSFETs ,SiC	SD	Industrial	-	-	-40	125
STGAP2HS	Galvanically isolated 4 A single gate driver	1	SO 8 WIDE 300	26	Active Miller clamp, Undervoltage lockout, Thermal shutdown, Interlocking function	-	4	IGBTs,MOSFETs	SD	Industrial	9.1	8.4	-40	125
STGAP2S	Galvanically isolated 4 A single gate driver	1	SO-8	26	Active Miller clamp, Shutdown protection	Thermal Shutdown	4	IGBTs,MOSFETs ,SiC	SD	Industrial	9.1	8.4	-40	125
STGAP2SICS	Galvanically isolated 4 A single gate driver for SiC MOSFETs	1	SO 8 WIDE 300	26	Active Miller clamp, Undervoltage lockout, Thermal shutdown, Interlocking function	-	4	SiC	SD	Industrial	15.5	14.8	-40	125
STGAP2SICSA	Galvanically isolated 4 A single gate driver for SiC MOSFETs	1	SO 8 WIDE 300	-	Active Miller clamp, Undervoltage lockout, Thermal shutdown, Interlocking function	-	4	SiC	SD	Automotive	-	-	-	-
STGAP2SICSAN	Galvanically isolated 4 A single gate driver for SiC MOSFETs	1	SO-8	-	Active Miller clamp, Undervoltage lockout, Thermal shutdown, Interlocking function	-	4	SiC	SD	Automotive	-	-	-	-
STGAP2SICSN	Galvanically isolated 4 A single gate driver for SiC MOSFETs	1	SO-8	26	Undervoltage lockout, Thermal shutdown, Miller clamp option,	-	4	SiC	HIN,LIN	Industrial	15.5	14.8	-40	125
STGAP4S	Automotive advanced isolated gate driver for IGBTs and SiC MOSFETs	1	SSOP 36 LD 300 MIL .0315 PITCH	32	Active Miller clamp, Desaturation detection, Overcurrent detection, VCE Clamp protection, Temperature warning, shutdown protection, Undervoltage lockout, Overvoltage lockout	Adjustable deadtime,Diagnostic,Overcurrent protection,Programmable dead-time,Thermal Shutdown	-	IGBTs,MOSFETs ,SiC	-	Automotive	2.9	2.85	-40	125
TD350E	Advanced IGBT/MOSFET driver	1	SO-14	26	Undervoltage lockout, Active Miller clamp, 2-level turn-off, Desaturation detection,	-	2.3	IGBTs,MOSFETs	-	Industrial	-	-	-40	125
TD351	Advanced IGBT/MOSFET driver	1	SO-8	26	Undervoltage lockout, Active Miller clamp, 2-level turn-off,	-	1.7	IGBTs,MOSFETs	-	Industrial	-	-	-40	125
TD352	Advanced IGBT/MOSFET driver	1	SO-8	26	Undervoltage lockout, Active Miller clamp, Desaturation detection	Adjustable deadtime	1.7	IGBTs,MOSFETs	-	Industrial	-	-	-40	125
STGAP1AS	Automotive galvanically isolated single gate driver	1	SO-24	36	Active Miller clamp, Desaturation detection, Overcurrent detection, 2-level turn-off, VCE overvoltage protection, Temperature warning, shutdown protection, Undervoltage lockout, Overvoltage lockout,	Adjustable deadtime,Thermal Shutdown	5	IGBTs,MOSFETs ,SiC	SD	Automotive	4.1	3.8	-40	125

Power Management/High-density Power Drivers

Part Number	General Description	R _{DS(on)} (Ω) typ	Supply Voltage (V) min	Supply Voltage (V) max	Output Current-Max (A) RMS max	Output Current-Max (A) max peak	Operating Temperature (°C) min	Operating Temperature (°C) max	Package
PWD13F60	High-density power driver - high voltage full bridge with integrated gate driver	0.32	6.5	17	8	32	-40	125	QFN 10X13
PWD5F60	High-density power driver - High voltage full bridge with integrated comparators	1.38	10	20	3.5	14	-40	125	QFN.150.70.10-46L

High-density Power Drivers

Overview

Gate drivers, FETs and protection circuitry integrated into a single package to drive loads in industrial and home-appliance applications, with increased power density per cm².

ST's **high-density power drivers** are System in Package (SiP) solutions integrating in compact QFN packages the STDRIVE gate drivers and MOSFET-based power stages, responding to the industrial market trend towards higher levels of integration and lower development costs.

ST's high-density power drivers enable high power density with a smaller footprint for customers to save valuable board space and reduce the overall bill of material (BOM) cost. They also help reduce development time and eliminate EMI issues at the PCB level because the components are already integrated and tuned at the ST factory, enabling faster time to market.

System-in-Package Delivers Space Savings with Flexibility and Safety in High-Voltage Brushed DC Motor Applications

PWD5F60 integrates a 600V/3.5A single-phase MOSFET bridge with gate drivers, bootstrap diodes, protection features and two comparators in a 15mm x 7mm outline. The thermally efficient System-in-Package occupies 60% less board real-estate than discrete components, while boosting reliability and simplifying design and assembly

Complete full-bridge system-in-package includes MOSFETs, gate drivers, and protection features to save space, simplify design, and streamline assembly

The PWD13F60 System-in-Package (SiP) contains a complete 600V/8A single-phase, high-voltage, MOSFET full-bridge power driver in a 13 x 11 mm outline package, saving bill-of-materials costs and board space in industrial motor drives, lamp ballasts, power supplies, converters, and inverters.

- > BOM space and cost saving both during the design and system assembling
 - 600 V full-bridge system-in-package
 - Bootstrap diodes embedded inside gate drivers for reliable switching and low EMI
- > Suitable for a wide range of industrial applications
 - 8 A and 320 mΩ embedded n-channel power MOSFETs
- > Easy interfacing with microcontrollers, DSP units or Hall effect sensors
 - 3.3 and 15 V compatible inputs with hysteresis and pull-down resistors
- > Maximum protection
 - Integrated cross-conduction and under-voltage lock-out protections

Power Management/High-density Power Drivers

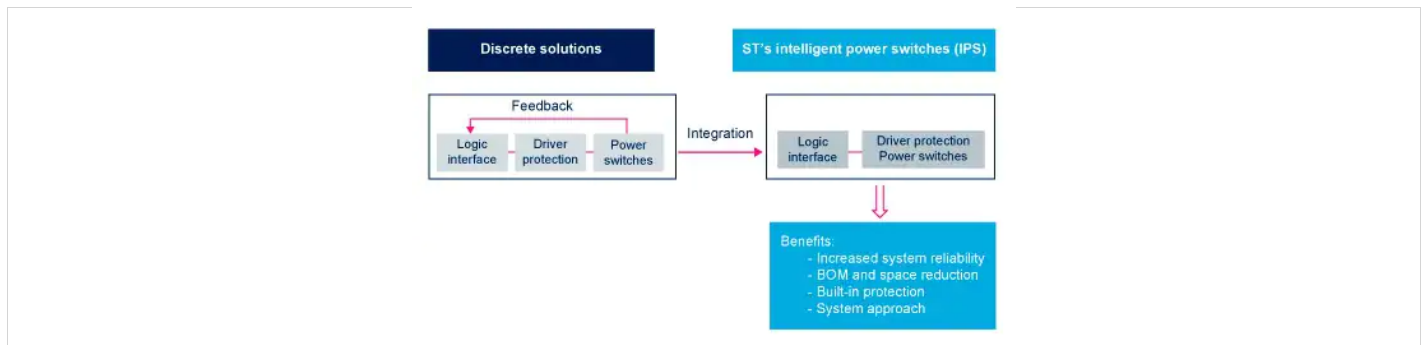
Part Number	General Description	R _{DS(on)} (Ω) typ	Supply Voltage (V) min	Supply Voltage (V) max	Output Current-Max (A) RMS max	Output Current-Max (A) max peak	Operating Temperature (°C) min	Operating Temperature (°C) max	Package
PWD13F60	High-density power driver - high voltage full bridge with integrated gate driver	0.32	6.5	17	8	32	-40	125	QFN 10X13
PWD5F60	High-density power driver - High voltage full bridge with integrated comparators	1.38	10	20	3.5	14	-40	125	QFN.150.70.10-46L

Intelligent Power Switches

Overview

ST offers a series of intelligent power switches (IPS) for high-side and low-side configurations. These devices integrate the control section (logic interface, drivers, diagnostic and protection features) and the power stage on the same chip, with benefits in terms of compactness, increased system reliability and cost effectiveness.

ST's IPS can be used in combination with any industrial load, resistive, inductive or capacitive.



Highly-efficient dual-channel high-side switches with extended diagnostics and embedded smart load management

ST's new series of Intelligent Power Switches (IPS) offer a unique smart load management feature enabling to drive any kind of load properly including resistive, inductive, or capacitive loads. The IPS2050H and IPS2050H-32 offer outstanding robustness and the widest supply voltage range up to 65V for the best reliability. The ICs differ by current limitation levels, which are in both cases selectable, ranging from 2.5A up to 23A.

The embedded power stages ensure very efficient operation with the smallest power dissipation thanks to the 25mΩ ON resistance.

The switches are fully compliant to IEC 61000-4-2, IEC 61000-4-4 and IEC 61000-4-5 specifications for ESD, fast-transient burst and surge achieving high EMC immunity.

Power Management / Intelligent Power Switches /High and Low Side Switches

Part Number	General Description	Package	Grade	Supply Voltage (V) max	Supply Voltage (V) min	Supply Voltage (V) typ	Input Voltage Max (V) nom	Output Current-Max (A) nom	Number of Devices typ
TDE1707	0.5 A Intelligent Power Switch	SO-8	Industrial	48	24	6	50	0.7	1
TDE1708DFT	Intelligent Power Switch	VDFPN 8 4x4x1.0	Industrial	48	6	24	50	0.25	1

Power Management / Intelligent Power Switches /High Side Switches

Part Number	General Description	Package	Supply Voltage (V) min	R _{DS(on)} (mΩ) max	Input Current (mA) max	Output Current-Max (A) nom	Supply Voltage (V) max	Transistor Breakdown Voltage (V) max	Rise Time nom	Turn-On Delay Time nom	Turn-Off Delay Time nom
IPS1025H	High efficiency, high-side switch with extended diagnostic and smart driving for capacitive loads	PowerSSO 24,VFQFPN 48L 8.0 X 6.0 X .90 PITCH	8	25	0.5	2.5	60	65	30	13	60
IPS1025H-32	High efficiency, high-side switch with extended diagnostics and smart driving for capacitive loads	PowerSSO 24,VFQFPN 48L 8.0 X 6.0 X .90 PITCH	8	25	0.5	5.7	60	65	30	13	60
IPS1025HF	High efficiency, high-side switch with extended diagnostics, smart driving for capacitive loads and short propagation delay at power-on	PowerSSO 24,VFQFPN 48L 8.0 X 6.0 X .90 PITCH	8.65	25	0.5	2.5	60	65	30	13	60
IPS160H	Single high-side switch	PowerSSO 12	8	60	10	2.6	60	65	10	-	-
IPS160HF	Single channel high-side switches	PowerSSO 12	8	60	10	2.6	60	65	10	-	-
IPS161H	Single high-side switch	PowerSSO 12	8	60	10	0.7	60	65	10	-	-
IPS161HF	Single channel high-side switches	PowerSSO 12	8	60	10	0.7	60	65	10	-	-
IPS2050H	High efficiency, high-side switch with extended diagnostics and smart driving for capacitive loads	PowerSSO 24,VFQFPN 48L 8.0 X 6.0 X .90 PITCH	8	50	0.5	2.5	60	65	25	14	33
IPS2050H-32	High efficiency, high-side switch with extended diagnostics and smart driving for capacitive loads	PowerSSO 24,VFQFPN 48L 8.0 X 6.0 X .90 PITCH	8	50	0.5	5.7	60	65	25	14	33
IPS8160HQ	0.5A Octal high side driver	VFQFPN 48L 8.0 X 6.0 X .90 PITCH	10.5	160	12	0.7	36	45	25	100	150
IPS8160HQ-1	1.0A Octal high side driver	VFQFPN 48L 8.0 X 6.0 X .90 PITCH	10.5	160	12	1	36	45	25	100	150
ISO808	Galvanic isolated octal high-side power solid state relay for high inductive loads	PowerSO 36,TFQFPN 11.0X9.0X1.05 32L	9.2	260	10	0.7	36	45	19	15	43
ISO808-1	Galvanic isolated octal high-side power solid state relay for high inductive loads	PowerSO 36,TFQFPN 11.0X9.0X1.05 32L	9.2	260	10	1	36	45	19	15	43
ISO808A	Galvanic isolated octal high-side power solid state relay with SPI interface for high inductive loads	PowerSO 36,TFQFPN 11.0X9.0X1.05 32L	9.2	260	10	0.7	36	45	19	15	43
ISO808A-1	Galvanic isolated octal high-side power solid state relay with SPI interface for high inductive loads	PowerSO 36,TFQFPN 11.0X9.0X1.05 32L	9.2	260	10	1	36	45	19	15	43
ISO8200AQ	Galvanic Isolated Octal High Side Smart Power Solid State Relay with SPI interface	TFQFPN 11.0X9.0X1.05 32L	10.5	200	5	0.5	36	45	5	17	22

ISO8200B	Galvanic isolated octal high side smart power solid state relay	PowerSO 36	10.5	200	5	0.5	36	45	5	17	22
ISO8200BQ	Galvanic isolated octal high-side smart power solid state-relay	TFQFPN 11.0X9.0X1.05 32L	10.5	200	5	0.5	36	45	5	17	22
L6370	2.5A High Side Driver Intelligent Power Switch	PowerSO-20	4	100	-	2.6	35	50	20	25	25
L6374	INDUSTRIAL QUAD LINE DRIVER	SO-20	10.8	4000	-	0.11	35	40	0.12	1	1
L6375S	0.5A Industrial Intelligent Power Switch	SO-8	8	400	-	0.75	35	40	20	5	5
L6376	0.5A High Side Driver Quad Intelligent Power Switch	PowerSO-20	9.5	640	-	0.65	35	40	3.8	1	1
L6377	0.5A High Side Driver Intelligent Power Switch	SO-14	8	400	-	0.75	35	40	20	5	5
TDE1747	Interface circuit - relay and lamp-driver	SO-14	8	-	-	0.48	45	50	0.4	1.2	8
TDE1798DP	0.5A Intelligent Power Switch	DIP-8	6	-	-	0.7	35	50	0.6	1	10
TDE1897R	0.5A high-side driver industrial intelligent power switch	SO-20	18	400	-	0.75	35	50	-	100	20
TDE1898C	0.5A high-side driver industrial intelligent power switch	SO-20	18	400	-	0.75	35	50	-	100	20
TDE3247	Interface circuit (relay and lamp driver)	SO-14	8	-	-	0.25	45	50	0.4	1.2	8
VN330SP-E	Quad high side smart power solid state relay	PowerSO-10	10	320	-	0.7	36	45	50	30	20
VN340SP-33-E	Quad high side smart power solid state relay	PowerSO-10	10	200	-	1	36	45	94	52	34
VN340SP-E	Quad high side smart power solid state relay	PowerSO-10	10	200	-	0.7	36	45	94	52	34
VN540SP-E	Single high-side smart power solid state relay	PowerSO-10	10	50	-	2.8	36	45	60	40	60
VN751PT	High side driver	PPACK 5	5.5	60	-	2.7	36	45	-	12	35
VN751S	High side driver	SO-8	5.5	60	-	2.7	36	45	-	12	35
VN808-32-E	Octal channel high side driver	PowerSO 36	10.5	150	-	1	45	45	50	50	75
VN808-E	Octal channel high side driver	PowerSO 36	10.5	150	-	0.7	45	45	50	50	75
VN808CM-32-E	Octal channel high side driver	PowerSO 36	10.5	160	-	1	45	45	50	50	75
VN808CM-E	Octal channel high side driver	PowerSO 36	10.5	160	-	0.7	45	45	50	50	75
VNI2140J	Dual high side smart power solid state relay	PowerSSO 12	9	80	-	1	36	45	10	20	30
VNI4140K	Quad high-side smart power solid-state relay	PowerSSO 24	10.5	80	-	0.7	36	45	10	20	30
VNI4140K-32	Quad high side smart power solid state relay	PowerSSO 24	10.5	80	4	1	36	45	10	20	30
VNI8200XP	Octal high side smart power solid state relay with serial/parallel selectable interface on chip	PowerSSO 36	10.5	110	-	0.7	36	45	50	50	34
VNI8200XP-32	Octal high side smart power solid state relay with serial/parallel selectable interface on chip	PowerSSO 36	10.5	110	-	1	36	45	50	50	34
VNQ860-E	Quad Channel High Side Driver	SO-20	5.5	270	-	0.35	36	41	-	10	40
VNQ860SP-E	Quad channel high side driver	PowerSO-10	5.5	270	-	0.35	36	41	-	10	40

Power Management / Intelligent Power Switches /Low Side Switches

Part Number	General Description	Package	Grade	Supply Voltage (V) min	Supply Voltage (V) max	Output Current-Max (A) nom
IPS4260L	Quad low-side intelligent power switch	HTSSOP20	Industrial	-0.3	55	2

LED Drivers

Overview

ST offers a large portfolio of energy-efficient DC/DC powered **LED driver ICs** for general lighting, display LED backlighting, automotive exterior and interior lighting, RGB and monochromatic **LED drivers** for signage and traffic signals.

Ideal for both parallel and series configurations, our LED driver portfolio enables high-efficiency, high-current accuracy, low-noise and small-size solutions. Topologies include buck regulator, boost regulator, offline LED drivers, linear LED supply, programmable multi-channels with high dimming capability.

Our LED driver portfolio includes:

- Boost Current Regulators for LED
- Buck Current Regulators for LED
- Flash LED supply
- LED Array Drivers
- LED Matrix Drivers
- Linear Current Regulators
- Offline LED Drivers
 - HVLED

Programmable 12-channel RGB-LED Driver with high current accuracy

With patented features to prevent distracting artefacts in “color-chasing” or “deep breathing” LED animation effects, LED1202 enables smoother and more natural interactions with smart-home devices, wearable electronics, and small appliances.

The output current can be adjusted separately for each channel by 8-bit analog dimming control up to 20 mA per channel and 12-bit internal PWM dimming control. With 12 output channels, a single LED1202 can drive four RGB LEDs running up to eight programmable patterns and stored sequences. An innovative synchronization feature allows connecting up to eight LED1202 drivers to control larger LED arrays.

The STEVAL-LLL007V1 evaluation kit is available to support evaluation of the LED1202 and aids development of new products and lighting sequences.

All-in-one high-voltage LED-lighting control chip for efficient dimming, enhanced accuracy and fast start-up

The HVLED001B contains high-voltage startup and sensing circuitry that simplifies connection to the AC line. Its advanced features support multi-platform reuse and compliance with the latest lighting regulations, and include:

- Very accurate line and load regulation over wide range to ensure constant output voltage or output current
- Constant output voltage regulation, with no need of optocoupler, ensures voltage remains below recognized 60V safe limit, improving the application robustness
- Frequency foldback for improved efficiency and regulation at light load with good efficiency at medium load
- Accurate and smooth dimming
- Power-conversion efficiency greater than 90%
- No-load power consumption less than 100mW
- Power factor greater than 0.9, Total Harmonic Distortion (THD) below 10%
- Low EMI at light load and medium load
- Built-in over-current, input over-voltage, brownout, and optocoupler failure protection
- ST's smart Auto-Reload Timer (ART) ensures latch-free protection for enhanced safety

New LED driver with direct switch control

The ALED8102S is a low-voltage, **8 low-side channel LED driver**. It guarantees up to 20 V output-driving capability and allows users to connect several LEDs in series. In the output stage, the 8 regulated current sources provide 5 to 100 mA constant current to drive the LEDs. Housed in the power-efficient HTSSOP package, the device also features a thermal protection that forces the device in shutdown in case of over-current.

The STEVAL-ILL090V1 evaluation board based on the ALED8102SXTTR LED driver is available, the **board implements two automotive scenarios**:

- an **ambient light** scenario, based on three RGB LEDs with configurable brightness and color;
- a **motorcycle rear light**, with two orange LED strips (representing the arrow lights) placed side by side separated by a red LED circle (simulating the position/stop lights).

Power Management / LED Drivers/Boost Current Regulators for LED

Part Number	General Description	Grade	Package	Input Voltage (V) min	Input Voltage (V) max	Output Channels max	Output Current (mA) (Each Channel) max	Output current accuracy (%) typ	Quiescent current (mA) typ	Switching Frequency (kHz) min	Switching Frequency (kHz) max	Number of LEDs max	Other Features	Operating Temperature (°C) min	Operating Temperature (°C) max
ALED6001	Automotive grade PWM-dimmable single channel LED driver with integrated boost controller	Automotive	HTSSOP16	5.5	36	1	-	4	1	100	1000	18	Boost, buck-boost and Sepic topologies, analog and PWM dimming, high side LED current sensing , LED overcurrent protection	-40	150
ALED7707	6-row 85 mA LEDs driver with boost regulator for LCD panel backlights	Automotive	VFQFPN 24 5x5x1.0	4.5	36	6	85	3	1	200	1000	60	External synch	-40	150
ALED7709	Automotive LED driver 4-channel 200 mA with a DC-DC controller	Automotive	QFPN 5X5X0.90 24L PITCH 0.65 A.G	4	42	4	200	2	1	-	-	-	-	-40	150
LED6001	PWM-dimmable single channel LED driver with integrated boost controller	Industrial	HTSSOP16	5.5	36	1	-	4	1	100	1000	18	Boost, buck-boost and Sepic topologies, analog and PWM dimming, high side LED current sensing , LED overcurrent protection	-	-
LED7706	LED driver with boost regulator, 6-rows 30 mA, for LCD panels backlight	Industrial	QFN-24L	4.5	36	6	-	2	1	250	1000	60	External synch	-	-
LED7707	LED driver with boost regulator, 6-rows 85 mA, for LCD panels backlight	Industrial	QFN-24L	4.5	36	6	85	2	1	250	1000	60	External synch	-40	150
LED7708	16 channels x 85 mA LED driver with boost controller and 4-wire serial interface	Industrial	VFQFPN 48 7x7x1.0 mm	3.6	36	16	85	2	4	200,250	1000	160	External synch	-40	150
STLA02	White LED driver for display backlight	Industrial	VFDFPN 6 2x2x0.75	2.5	18	1	20	5	2	1700	2700	6	Overvoltage protection	-40	85
STLD40D	White LED power supply for large display backlight	Industrial	VFDFPN 8 3x3x1.0	3	5.5	1	20	5	0.4	-	-	10	Enable pin with PWM dimming control	-40	85
STP4CMP	Low voltage 4-channel constant current LED driver with charge pump	Industrial	VFQFPN 20 3.2x1.8x0.5	2.7	5.5	4	30	7	-	-	-	4	Integrated charge pump, individual constant current control	-40	85

Power Management / LED Drivers/Buck Current Regulators for LED

Part Number	General Description	Package	Input Voltage (V) min	Input Voltage (V) max	Output Current-Max (A) nom	Feedback voltage accuracy typ	Feedback voltage (V) nom	Synchronous rectification	Dimming Control	Inhibit Pin	Regulated Output Voltage (V) max	Oscillator Switching frequency (kHz) (Internal) min	Oscillator Switching frequency (kHz) (Internal) max	Soft-start	Other Features	Operating Junction Temperature (°C) min	Operating Junction Temperature (°C) max
A5975AD	Up to 2.5 A step down switching regulator for automotive applications	PowerSO-8	4	36	2.5	-	-	No	-	true	36	500	500	No	SYNCHRONIZATION,VREF	-	-
A5975D	Up to 3 A step down switching regulator for automotive applications	PowerSO-8	4	36	3	-	-	No	-	true	36	250	250	No	SYNCHRONIZATION,VREF	-	-
ALED6000	Automotive 3A single channel LED driver with integrated DC-DC converter	HTSSOP16	4.5	61	-	-	-	-	-	-	-	-	-	-	Dimming pin, Enable pin, Adjustable soft start, Adjustable current limitation, Auto recovery thermal shutdown, High efficiency at light load	-	-
LS970AD	Up to 1 A step down switching regulator	SO-8	4.4	36	1	-	-	No	-	true	36	-	500	No	SYNCHRONIZATION,VREF	-	-
LS972D	2A switch step down switching regulator	SO-8	4.4	36	1.5	-	-	No	-	false	36	-	250	No	SYNCHRONIZATION,VREF	-	-
LS973AD	2 A switch step down switching regulator	PowerSO-8	4	36	1.5	-	-	No	-	true	36	-	500	No	SYNCHRONIZATION,VREF	-	-
LS973D	Up to 2 A step down switching regulator	PowerSO-8	4	36	2	-	-	No	-	true	36	-	250	No	SYNCHRONIZATION,VREF	-	-
LS980	0.7 A step-down switching regulator	QFN-8L P 0.5 mm	2.9	18	0.7	-	-	No	-	true	18	250	1000	Yes	SYNCHRONIZATION,adj Fsw	-	-
LS981	1 A step-down switching regulator	QFN-8L P 0.5 mm	2.9	18	1	-	-	No	-	true	18	250	1000	Yes	SYNCHRONIZATION,adj Fsw	-	-
LS983	1.5 A step-down switching regulator	QFN-8L P 0.5 mm	2.9	18	1.5	-	-	No	-	true	18	250	1000	Yes	SYNCHRONIZATION,adj Fsw	-	-
LS985	2 A step-down switching regulator	QFN-8L P 0.5 mm	2.9	18	2	-	-	No	-	true	18	250	1000	Yes	SYNCHRONIZATION,adj Fsw	-	-
LS986	2.5 A step-down switching regulator	PowerSO-8	2.9	18	2.5	-	-	No	-	true	18	250	1000	Yes	SYNCHRONIZATION,adj Fsw	-	-
LS987	3 A step-down switching regulator	PowerSO-8,QFN-8L P 0.5 mm	2.9	18	3	-	-	No	-	true	18	250	1000	Yes	SYNCHRONIZATION,adj Fsw	-	-
LS988D	4 A continuous (more than 5 A pulsed) step-down switching regulator with synchronous rectification	HTSSOP16	2.9	18	4	-	-	No	-	true	28	100	1000	Yes	adj UVLO,Adj. current limit,SYNCHRONIZATION	-	-
L7980	2 A step-down switching regulator	PowerSO-8,QFN-8L P 0.5 mm	4.5	28	2	-	-	No	-	true	28	250	1000	Yes	SYNCHRONIZATION,adj Fsw	-	-
L7981	3 A step-down switching regulator	PowerSO-8,QFN-8L P 0.5 mm	4.5	28	3	-	-	No	-	true	28	250	1000	Yes	SYNCHRONIZATION,adj Fsw	-	-
L7986TA	3 A step-down switching regulator	PowerSO-8	4.5	38	3	-	-	No	-	true	38	250	1000	Yes	SYNCHRONIZATION,adj Fsw	-	-
LED2000	3 A monolithic step-down current source with synchronous rectification	SO-8,VDFPN 8 4x4x1.0	3	18	3	7	0.1	Yes	PWM	false	18	850	850	Yes	Peak current mode architecture, Embedded compensation network, Internal current limiting, Ceramic output capacitor compliant, Thermal shutdown	-40	150
LED2001	4 A monolithic step-down current source with synchronous rectification	PowerSO-8,VDFPN 8 4x4x1.0	3	18	4	7	0.1	Yes	PWM	false	18	850	850	Yes	Peak current mode architecture, Embedded compensation network, Internal current limiting, Ceramic output capacitor compliant, Thermal shutdown	-40	125
LED5000	3 A monolithic step-down current source with dimming capability	PowerSO-8	5.5	48	3	3	0.2	No	PWM	true	43	850	850	Yes	Alternative topology supported	-40	150
LED6000	3 A, 61 V monolithic current source with dimming capability	HTSSOP16	4.5	61	3	3	0.2	No	PWM	true	61	250	15000	Yes	SYNCH; ADJ. ILIM; ADJ. FSW	-40	150
ST1CC40	3 A monolithic step-down current source with synchronous rectification	SO-8,VDFPN 8 4x4x1.0	3	18	3	7	0.1	Yes	None	true	18	850	850	Yes	Peak current mode architecture, Embedded compensation network, Internal current limiting, Ceramic output capacitor compliant, Thermal shutdown, Inhibit pin	-40	150

Power Management / LED Drivers/LED Array Drivers

Part Number	General Description	Grade	Package	Input Voltage (V) min	Input Voltage (V) max	Output Channels max	Output Current-Max (mA) (Each Channel)	Output current accuracy (%) typ	Quiescent current (mA) typ	Other Features	Operating Temperature (°C) min	Operating Temperature (°C) max
ALED1262ZT	Automotive-grade 12-channel LED driver with open detection, local dimming, busdriven and standalone operations	Automotive	HTSSOP24	5.5	38	-	60	3	-	-	-40	150
ALED1642GW	16 Channels LED driver with error detection, current gain control and 12/16 bit-PWM brightness control for automotive applications	Automotive	HTSSOP24	3	5.5	16	-	3	0.2	Error detection, gain control and PWM brightness control	-40	150
ALED8102S	8 Channels LED driver with direct switch control	Automotive	HTSSOP16	3	5	-	-	-	7	-	-	-
LED1202	12-Channel Low Quiescent Current LED Driver	Industrial	WFQFPN 3X3X0.60 20L PITCH 0.5,WLCSP MSL1	-	5	12	-	-	-	-	-	-
LED1642GW	16 Channels LED driver with Error detection, Current Gain Control and 12/16 bit PWM Brightness control	Industrial	HTSSOP24,QFN- 24L,QSOP24,TSSOP 24	3	5.5	16	-	3	-	Error detection, gain control and PWM brightness control	-40	125
LED2472G	24-Channels LED driver with LED error detection and gain control	Industrial	TQFP 48 7x7x1.0,VFQFPN 40 5x5x1.0	3	5.5	24	-	3	-	Error detection and gain control	-	-
LED8102S	8 Channels LED driver with direct switch control	Industrial	HTSSOP16	3	5	-	-	-	7	-	-	-
STAP08DP05	Low voltage 8-bit constant current LED sink driver with output error detection for automotive applications	Automotive	HTSSOP16	3	5.5	8	-	4	4	Full Error Output Detection, TSD, UVLO	-40	125
STAP16DPPS05	Low voltage 16-bit constant current LED sink driver with output error detection and auto power-saving for automotive applications	Automotive	HTSSOP24	3	5.5	16	-	4	0.2	Full Error Output Detection, auto power saving, TSD, UVLO	-40	125
STAP16DPS05	Low voltage 16-bit constant current LED sink driver with output error detection and auto power-saving for automotive applications	Automotive	HTSSOP24	3	5.5	16	-	4	0.2	Full Error Output Detection, auto power saving, TSD, UVLO	-40	125
STP08CP05	Low-voltage, low current power 8-bit shift register	Industrial	HTSSOP16,SO- 16,TSSOP-16L	3	5.5	8	100	2.75	4	Constant current control, TSD, UVLO	-40	125
STP08DP05	Low-voltage 8-bit constant current LED sink with full outputs error detection	Industrial	HTSSOP16,SO- 16,TSSOP-16L	3	5.5	8	100	3	4	Full Error Output Detection, TSD, UVLO	-40	125
STP16CP05	Low-voltage 16-bit constant current LED sink driver	Industrial	HTSSOP24,SO- 24,TSSOP 24	3	5.5	16	100	3	4	Constant Current Control, TSD, UVLO	-40	125
STP16CPC05	Low voltage 16-bit constant current LED sink driver	Industrial	HTSSOP24,SO-24	3	5.5	16	100	3	4	Constant Current Control, TSD, UVLO	-40	125
STP16CPC26	Low voltage 16-bit constant current LED sink driver	Industrial	HTSSOP24,QSOP24,S O-24,TSSOP 24	3	5.5	16	90	3	4	Constant Current Control, TSD, UVLO, Balanced TON/TOFF, suitability to very noisy applications	-40	150
STP16CPP05	Low-voltage 16-bit constant current LED sink driver	Industrial	HTSSOP24,SO- 24,TSSOP 24	3	5.5	16	40	1.2	5.4	Constant Current Control, TSD, UVLO	-40	125
STP16CPPS05	Low voltage 16-bit constant current LED sink driver with auto power-saving	Industrial	HTSSOP24,TSSOP 24	3	5.5	16	40	1.2	5.4	Constant current control, auto power saving, TSD, UVLO	-40	125
STP16CPS05	Low-voltage 16-bit constant current LED sink driver with auto-power saving	Industrial	HTSSOP24,SO- 24,TSSOP 24	3	5.5	16	100	3	5	Full Error Output Detection, Constant current control, TSD, power saving	-40	125
STP16DP05	Low-voltage 16-bit constant current LED sink driver with outputs error detection	Industrial	HTSSOP24,QSOP24,S O-24,TSSOP 24	3	5.5	16	100	3	5	Full error output detection, TSD, UVLO	-40	125
STP16DPP05	Low voltage 16-bit constant current LED sink driver with output error detection	Industrial	HTSSOP24,SO- 24,TSSOP 24	3	5.5	16	40	1.2	5.4	Constant current control, full outputs error detection, TSD, UVLO	-40	125
STP16DPPS05	Low-voltage 16-bit constant current LED sink driver with outputs error detection and auto-power saving	Industrial	HTSSOP24,SO- 24,TSSOP 24	3	5.5	16	40	1.2	5.4	Constant current control, full outputs error detection, auto power saving, TSD, UVLO	-40	125
STP16DPS05	Low voltage 16-bit constant current LED sink driver with outputs error detection	Industrial	HTSSOP24,SO- 24,TSSOP 24	3	5.5	16	100	3	5	Constant current control, full outputs error detection, auto power saving, TSD, UVLO	-	-
STP24DP05	24-bit constant current LED sink driver with output error detection	Industrial	TQFP 48 7x7x1.0	3	5.5	24	80	3	9	Full error output detection, TSD, UVLO	-	-

STPIC6C595	Power logic 8-bit shift register	Industrial	SO-16,TSSOP-16L	4.5	5.5	8	100	-	-	Low RDS(ON), 8-bit shift-register with 100mA DMOS outputs	-40	125
STPIC6D595	Power logic 8-bit shift register	Industrial	SO-16,TSSOP-16L	4.5	5.5	8	100	-	-	Low RDS(ON), 8-bit shift-register with 100 mA DMOS outputs	-40	125
STP04CM05	4-bit constant current power-LED sink driver	Industrial	HTSSOP16	3	5.5	4	400	1	1	High current power LED drive, TSD, UVLO, POR	-40	125

Power Management / LED Drivers/LED Matrix Drivers

Part Number	General Description	Package	Input Voltage (V) min	Input Voltage (V) max	Output Channels max	Output Current-Max (A) nom	Output current accuracy (%) typ	Switching Frequency (kHz) typ
LED7706	LED driver with boost regulator, 6-rows 30 mA, for LCD panels backlight	QFN-24L	4.5	36	6	30	2	660
LED7707	LED driver with boost regulator, 6-rows 85 mA, for LCD panels backlight	QFN-24L	4.5	36	6	0.085	2	660
LED7708	16 channels x 85 mA LED driver with boost controller and 4-wire serial interface	VFQFPN 48 7x7x1.0 mm	3.6	36	16	0.085	2	610
STLED524	Intelligent matrix LED display driver	Chip Scale Package 0.4mm pitch	2.7	5.5	24	25	7.5	600

Power Management / LED Drivers/Linear Current Regulators

Part Number	General Description	Input Voltage (V) min	Input Voltage (V) max	Output Current (mA) max	Output current accuracy (%) typ	Number of LEDs max	LED Configuration	Package	Other Features
STCS05	0.5A MAX CONSTANT CURRENT LED DRIVER	4.5	40	500	10	10	Serial	SO-8	-
STCS05A	0.5 A max constant current LED driver	4.5	40	500	10	10	Serial	SO-8	Slop control with external cap
STCS1	1.5A MAX CONSTANT CURRENT LED DRIVER	4.5	40	1500	10	10	Serial	PowerSO-8,QFN-8L P 0.5 mm	-
STCS1A	1.5A MAX CONSTANT CURRENT LED DRIVER	4.5	40	1500	10	10	Serial	PowerSO-8,QFN-8L P 0.5 mm	Slop control with external cap
STCS2	2A MAX CONSTANT CURRENT LED DRIVER	4.5	40	2000	10	10	Serial	PowerSO-10	-
STCS2A	2A MAX CONSTANT CURRENT LED DRIVER	4.5	40	2000	10	10	Serial	PowerSO-10	Slop control with external cap

Lighting ICs

Overview

Based on its 30-year experience in power conversion and high-voltage technology, ST offers a wide portfolio of solutions for electronic ballasts, ranging from high-voltage ballast controllers for analog solutions (with or without embedded PFC), to complete power management units with integrated drivers and voltage regulator for digital platforms.

All these ICs have a 600 V high and low gate driver section to efficiently and cost-effectively drive the power MOSFETs needed to drive the lamp.

Power Management / Lighting ICs/Ballast Co

Part Number	Package	Grade
L6382D	SO-20	Industrial
L6382D5	SO-20	Industrial
L6571	SO-8	Industrial
L6574	PDIP 16,SO-16	Industrial

Power Management / Lighting ICs/Digital Power Control Drivers

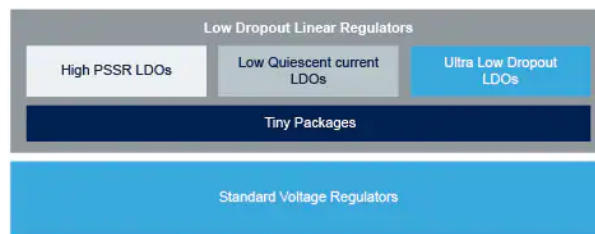
Part Number	General Description	Package	Supply Voltage (V) min	Supply Voltage (V) max	Operating Temperature (°C) min	Operating Temperature (°C) max	SMED Number nom	Hardware DALI	A/D Converter	Comparator	Flash Size (kB) (Prog)	RAM Size (kB)	EEPROM Size (kB) nom	Other Functions
STLUX325A	Digital controllers for lighting and power conversion applications with up to 6 programmable PWM generators, 96 MHz PLL, DALI	VFQFPN 32 5x5x1.0 mm	3	5.5	-40	105	6	Yes	8 channels	4	32	2	1	T sensor
STLUX385A	Digital controllers for lighting and power conversion applications with up to 6 programmable PWM generators, 96 MHz PLL, DALI	TSSOP 38	3	5.5	-40	105	6	Yes	8 channels	4	32	2	1	T sensor

Linear Voltage Regulators

Overview

ST offers one of the widest selection of fixed and adjustable **linear voltage regulators**. Beside a complete portfolio of Industry **Standard regulators** for both Positive and Negative output, we offer an ever-expanding range of High performance **LDO regulators** addressing all the major trends in the industry.

Among our products, you can find the optimal combination of low dropout voltage and quiescent current - for the highest efficiency design - or dynamic performances for the best transient response, ripple rejection and low noise. All this coupled with a choice of the smallest form factor packages for size conscious applications.



New 200 mA and 1.2A LDOs support up to 18 V input voltage

The LDK320 and LDL212 complete ST's family of cost-effective LDOs, offering an optimal combination of low dropout voltage, low quiescent current and remarkable dynamic performance at a favorable price.

Thanks to the wide input voltage operating range, as high as 18 V, they can be used as post-regulators in consumer applications (TVs, STBs), home appliances and industrial control modules, or directly attached to medium voltage battery packs in laptops and other battery-operated equipment. The LDK320 is also available in a 0.5% high accuracy version.

Both products are available in tiny packages allowing designers to save PCB space and build smaller systems.

STLQ015 ultra-low quiescent current linear regulators

The STLQ015 ultra-low consumption LDOs provide up to 150 mA current from an input voltage ranging from 1.5 to 5.5 V. They feature a quiescent current of just 1.4 μA at the maximum load and a standby current of typically 1 nA, extending the battery lifetime in those applications requiring very long standby time. Requiring only two small external capacitors, they provide a cost-effective and space-saving solution for powering microcontrollers in portable and battery-powered systems, electronic sensors, home medical instruments and portable entertainment gadgets. The STLQ015 LDOs are available in a wide range of output voltages, from 0.8 V to 3.3 V in 100 mV steps.

Power Management / Linear Voltage Regulators/Low Dropout (LDO) Linear Regulators

Part Number	General Description	Package	Grade	DC Input voltage (V) max	Output Voltage (V) nom	Output Current (A) nom	Adjustable Regulated Output Voltage	Supply Voltage Rejection Ratio (dB) (@ 10kHz) typ	Dropout Voltage (V) nom	Output Tolerance typ	Quiescent current (mA) typ	Operating Temperature (°C) min	Operating Temperature (°C) max
KFXX	Very low drop voltage regulators with inhibit	DPAK,SO-8	Industrial	20	2.5,3,3.5,8	0.5	false	60	0.4	2	0.5	-40	125
KITLDO0221	High-performance LDO Sample Kit	CARD	Industrial	-	3.3	-	-	-	-	-	-	-	-
L4931	Very low drop voltage regulators with inhibit	DPAK,PPACK 5,SO-8,TO-92	Automotive,Industrial	20	12,3,3,3.5,5	0.25	false	55	0.4	1	0.6	-40	125
L4940	1.5 A very low drop voltage regulator IC	D2PAK,TO-220	Industrial	17	12,5,8.5	1.5	false	46	0.45	2	5	-40	150
L4941	Very low drop 1A regulator	DPAK,TO-220	Industrial	16	5	1	false	44	0.45	4	4	-40	150
LD29080	800 mA fixed and adjustable output very low drop voltage regulator	DPAK,PPACK 5	Industrial	13	1.8,2.5,3.3,5	0.8	false,true	65	0.4	1	14	-40	125
LD29150	1.5 A, very low drop voltage regulators	DPAK,PPACK 5	Industrial	13	1.8,2.5,3.3,5	1.5	false,true	65	0.4	1	30	-40	125
LD29300	3 A, very low drop voltage regulators	P2PAK	Industrial	13	-	3	true	60	0.4	1	45	-40	125
LD2980	Ultra low drop voltage regulators compatible with low ESR output capacitors	SOT23-5L	Industrial	16	1.8,3,3,3,5	0.05	false	60	0.12	0.5,1	0.08	-40	125
LD2981	Ultra low drop voltage regulators with inhibit low ESR output	SOT-89,SOT23-5L	Industrial	16	3,3,3,5	0.1	false	60	0.17	0.75	0.08	-40	125
LD2985	Very low drop and low noise voltage regulator with inhibit function	SOT23-5L	Industrial	16	1.8,2.5,2.8,3,3,1,3,3,5	0.15	false	65	0.28	1.5,2.5	0.08	-40	125
LD39015	150 mA low quiescent current low noise voltage regulator	SOT23-5L	Industrial	5.5	0.8,1,1,2,1.25,1.5,1.8,2.5,3,3	0.15	false	62	0.08	2	0.018	-40	125
LD39015J	150 mA low quiescent current low noise voltage regulator	CSP P 0.5 mm	Industrial	5.5	1.2	0.15	false	67	0.09	2	0.02	-40	125
LD39020	200 mA very low quiescent current Linear regulator IC	DFN4 1x1,SOT23-5L	Industrial	5.5	0.8,1,1,1.3,1.5,1.8,1.85,2,1,2.5,2.8,3,3,1,3,2,3,3,4,7	0.2	false	67	0.2	0.5	0.1	-40	125
LD39030	300 mA very low quiescent current linear regulator IC	DFN4 1x1	Industrial	5.5	1.05,1.2,1.8,2,8,3,3	0.3	false	60,62	0.3	0.5,2	0.02	-40	125
LD39050	500 mA low quiescent current and low noise voltage regulator	DFN6 2x2,DFN6 3x3	Industrial	5.5	1,2,5,3,3	0.5	true	62	0.2	2	0.02	-40	125
LD39100	1 A low quiescent current low noise voltage regulator	DFN6 3x3	Automotive,Industrial	5.5	1.2,1.8,2.5,3,3	1	true	62	0.2	2	0.02	-40	125
LD39115J	150 mA low quiescent current low noise voltage regulator	CSP P 0.4 mm	Industrial	5.5	1.2,1.4,1.5,1.8,2.5,2.8,3,3,3	0.15	false	67	0.09	2	0.02	-40	125
LD39130S	300 mA very low quiescent current Linear regulator IC with automatic Green mode	DFN6 1.2x1.3,Flip-Chip 4	Industrial	5.5	1,1,2,1.8,2.5,2.9,3,3,3,4,1	0.3	false,true	65	0.3	1	0.001	-40	85
LD39150	Ultra low drop BiCMOS voltage regulator	DFN6 3x3,DPAK,PPACK 5	Industrial	6	2.5,3,3	1.5	false,true	40	0.2	1.5	1	-40	125
LD39200	2 A high PSRR ultra low drop linear regulator with reverse current protection	DFN6 3x3,DFN8 4x4	Industrial	6	3.3	2	false,true	60	0.135	1	1	-40	125

LD3985	Ultra low drop-low noise BiCMOS voltage regulators low ESR capacitors compatible	SOT23-5L	Industrial	6	1.22,1.8,2.5,2.7,2.8,2.9,3.3,3.4,7	0.15	false	50	0.06	2	0.085	-40	125
LD49100	1 A, low quiescent current, low-noise voltage regulator with soft start - Automotive grade	DFN6 3x3	Automotive	5.5	1.1,2,1.5,1.8,2.5,3.3	1	true	65	0.2	2	0.02	-40	125
LD56020	Low input voltage 200 mA ultra low dropout linear regulator	CSP P 0.35 mm,SOT23-5L	Industrial	5.5	1.1	0.2	-	60	0.06	1	0.018	-40	85
LD56050	500 mA ultra-low dropout linear regulator with bias supply	DFN4 1.2x1.2	Industrial	5.5	-	0.5	-	70	0.08	0.5	0.27	-40	85
LD56100	1 A very low dropout fast transient ultra-low noise linear regulator	DFN8 1.2x1.6	Industrial	5.5	1.5,1.8,2.8,3,3.3	1	false	68	0.12	1	0.1	-40	85
LD57100	1 A ultra low-dropout LDO with bias	WLCSP MSL1	Industrial	5.5	1.05,1.1,1.2	1	true	68	0.4	0.5	0.035	-40	85
LD59015	150 mA low noise high PSRR linear voltage regulator	SOT323-5L	Industrial	5.5	1.2,1.5,1.8,2.5,3,3.3	0.15	false	76	0.15	1.8	0.031	-40	125
LD59030	300 mA very low dropout linear regulator IC	DFN4 1x1	Industrial	5.5	1.8,2.5,2.8,3,3.3	0.3	false	65	0.155	1	0.028	-40	125
LD59100	1A Ultra Low-Dropout regulator with Reverse Current Protection	DFN8 3x3	Industrial	5.5	-	1	true	70	0.2	1	0.14	-40	125
LD59150	1.5 A Low Dropout Linear Regulator with Programmable Soft-Start	VFQFPN 3X3X0.85 10L PITCH 0.50 A	Automotive,Industrial	5.5	-	1.5	true	72	0.065	0.5	0.88	-40	125
LDBL20	200 mA very low quiescent current linear regulator IC in (0.47x0.47) mm ² ST STAMP™ package	STSTAMP	Industrial	5.5	1.2,1.8,2.5,3,3	0.2	false	80	0.2	1.5	0.02	-40	125
LDCL015	150 mA capless ultra low drop linear regulator ICs	SOT23-5L	Industrial	5.5	3.3	0.15	false,true	51	0.05	2	0.12	-40	125
LDF	1 A Very low drop voltage regulator	DFN6 2x2,DFN6 3x3	Industrial	16	-	1	true	55	0.5	1	0.2	-40	125
LDFM	500 mA very low drop voltage regulator	DFN6 2x2,DFN6 3x3	Industrial	16	-	0.5	false,true	55	0.125	2	0.2	-40	125
LDK120	200 mA low quiescent current very low noise LDO	DFN6 1.2x1.3,SOT23-5L,SOT323-5L	Industrial	5.5	0.8,1,1.1,1.2,1.5,1.8,2.5,2.8,2.9,3,3.1,3.2,3.3,3.5	0.2	false,true	36	0.1	2	0.03	-40	125
LDK130	300 mA low quiescent current very low noise LDO (automotive for SOT23-5L package)	DFN6 1.2x1.3,SOT23-5L,SOT323-5L	Automotive,Industrial	5.5	0.8,1,1.1,1.2,1.5,1.8,2.2,2.5,2.8,2.9,3,3.2,3.3	0.3	false,true	35	0.2	2	0.03	-40	125
LDK220	200 mA low quiescent current and low noise LDO	DFN6 1.2x1.3,SOT-89,SOT23-5L,SOT323-5L	Industrial	13.2	2.5,2.7,3,3.2,3.3,3.6,4,5	0.2	false,true	36	0.1	2	0.03	-40	125
LDK320	200 mA low quiescent current and high PSRR voltage regulator	SOT-89,SOT23-5L	Industrial	18	1.5,1.8,12,2.5,3,3.3,3.6,5	0.2	false,true	48	0.1	0.5,2	0.06	-40	125
LDK715	High input voltage 85 mA LDO linear regulator	DFN8 3x3,SOT23-5L	Industrial	24	3.3,4,2,5	0.085	false	53	0.5	2	0.005	-40	125

LDL1117	1.2 A High PSRR low dropout linear voltage regulator	SOT-223	Industrial	18	1.185,1.5,1.8,2.5,3,3.3	1.2	false	60	0.35	1	0.25	-40	125
LDL112	1.2 A low quiescent current LDO with reverse current protection	DFN6 2x2,DFN6 3x3,PPACK 5,SO-8	Industrial	5.5	1.1,1.2,1.5,1.8,2.5,3,3.3	1.2	false,true	46	0.3	2	0.035	-40	125
LDL212	1.2A Low Drop Linear Regulator IC	DFN6 2x2,DFN6 3x3,SO-8	Industrial	18	1.2,1.5,1.8,2.5,3,3.3,5	1.2	false,true	75	0.35	2	0.25	-40	125
LDLN025	250 mA ultra-low noise LDO	CSP P 0.35 mm,DFN4 1x1,SOT23-5L	Industrial	5.5	1.2,1.8,2.5,2.8,2.9,2.925,3,3.2,3.3,5	0.25	false	75	0.12	2	0.012	-40	125
LDLN030	300 mA ultra-low noise LDO with Power Good and Soft Start	TSOT23-5L	Industrial	5.5	3.3	0.3	false	75	0.1	2	0.016	-40	125
LDLN050	500 mA, high performance low dropout linear regulator	VDFPN 8L 3X3 0.85 PITCH 0.65	Industrial	6.5	-	0.5	-	68	0.19	2	0.048	-40	125
LDO40L	400 mA, 38 V low-dropout regulator, with 45 μ A quiescent current	DFN6 3x3	Automotive	38	3.3,5	0.4	true	45	0.14	1	0.045	-40	125
LDS3985	Very low drop and low noise BiCMOS 300 mA voltage regulator	DFN6 3x3,SOT23-5L	Automotive,Industrial	6	1.5,1.8,2.5,3,3.3	0.3	false	50	0.15	3	0.085	-40	125
LEXX	Very low-dropout voltage regulator with inhibit function	SO-8,TO-92	Industrial	20	3,3,3,4,5,5	0.1	false	60	0.2	1,2	0.5	-40	125
LFXX	Very low drop voltage regulator with inhibit	DPAK,PPACK 5,TO-220,TO-220FP	Automotive,Industrial	16	1.5,1.8,12,2.5,3,3.5,6,8,8.5,9	0.5	false	65	0.45	1	0.5	-40	125
LK112	Low noise and low drop voltage regulator with shutdown function	SOT23-5L	Industrial	14	1.5,1.8,2.5,3,3.5,6,8	0.15	false	55	0.29	2	0.175	-40	125
LK112S	Low noise and low drop voltage regulator with shutdown function	SOT23-5L	Industrial	14	1.8,3,3,5	0.2	false	55	0.35	2	0.175	-40	125
LM2931	Very low drop voltage regulators with inhibit function	DPAK,SO-8,TO-92	Industrial	40	3,3,5	0.1	false,true	62	0.25	5	2.5	-40	125
ST1L05	Very low quiescent BiCMOS voltage regulator	DFN6 3x3,DFN8 4x4	Industrial	5.5	2.5,3,3	1.3	false,true	62	0.3	2	0.35	0	125
ST1L08	800 mA ultra low drop, high PSRR voltage regulator	DFN8 2x3	Industrial	5.5	1.2,3,3	0.8	false,true	62	0.09	2	0.1	-40	125
ST715	High input voltage, 85 mA LDO linear regulator	DFN8 3x3,SOT23-5L,SOT323-5L	Industrial	24	2.5,3,3	0.085	false,true	53	0.5	4,5	0.0055	-40	125
ST716	24 V input, 170 °C high temperature, 25 mA LDO linear regulator	SOT323-5L	Industrial	24	3.3	-	-	53	0.5	-	-	-40	170
ST730	300 mA, 28 V low-dropout voltage regulator, with 5 μ A quiescent current	SOT23-5L	Industrial	28	-	0.3	-	42	0.6	0.5	0.005	-40	125
ST732	300mA, 28 V low-dropout voltage regulator, with 5 μ A quiescent current	SOT23-5L	Industrial	28	-	0.3	-	-	0.35	2	0.006	-40	125
STLQ015	150 mA - ultra low quiescent current linear voltage regulator	SOT23-5L	Industrial	5.5	1.2,1.5,1.8,2.1,2.5,2.8,3,3.1,3.3	0.15	false	30	0.112	2	0.001	-40	125
STLQ020	200 mA ultra-low quiescent current LDO	CSP P 0.4 mm,SOT323-5L,VDFPN 2X2X1.0 6L PITCH 0.5	Industrial	5.5	1.8,2.5,3,3.3	0.2	false,true	50	0.16	2	3.0E-4	-40	125

STLQ50	50mA, 3µA Supply current low drop linear regulator	SOT323-5L	Industrial	12	1.8,2.5,3.3,5	0.05	false,true	20	0.2	2	0.003	-40	150
LD39030SJ	300 mA low quiescent current soft-start, low noise voltage regulator	CSP P 0.4 mm	Industrial	5.5	1.1,1.2,1.5,1.8,2.5,2.8,3.3	0.3	false	62	0.2	2	0.02	-40	125
LDLN015	150 mA - ultra low noise - high PSRR linear voltage regulator IC	DFN6 2x2	Industrial	5.5	1.1,1.2,1.5,1.8,2.5,2.8,3.3	0.15	false	89	0.086	1	0.017	-40	125

Power Management / Linear Voltage Regulators/Standard Voltage Regulators

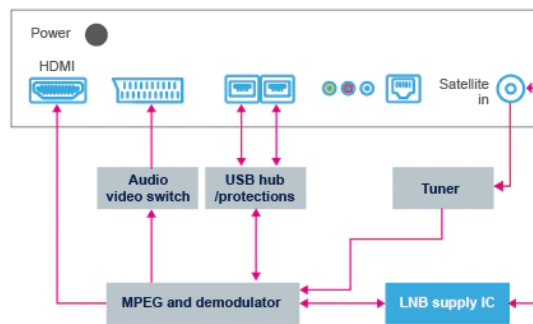
Part Number	General Description	Package	Grade	DC Input voltage (V) max	Output Voltage (V) nom	Output Current (A) nom	Adjustable Regulated Output Voltage	Dropout Voltage (V) nom	Output Tolerance typ	Quiescent current (mA) typ	Operating Temperature (°C) min	Operating Temperature (°C) max
L78	Positive voltage regulator ICs	D2PAK,DPAK,TO-220,TO-220FP	Industrial	35	12,15,18,24,5,6,8,9	1.5	false	2	2,4	8	-40,0	125
L78L	Positive voltage regulators	SO-8,SOT-89,TO-92	Industrial	30	10,12,15,18,24,3.3,5,6,8,9	0.1	false	1.7	2,4,8	6	-40,0	125
L78M	Precision 500 mA regulators	DPAK,TO-220,TO-220FP	Industrial	35	10,12,15,24,5,6,8,9	0.5	false	2	2,4	6	-40,0	125,150
L79	Negative voltage regulators	D2PAK,TO-220,TO-220FP	Industrial	-35	-12,-15,-5,-8	1.5	false	1.1,1.4	2,4	3	0	125,150
L79L	Negative voltage regulators	SO-8,SOT-89,TO-92	Industrial	-30	-12,-15,-5,-8	0.1	false	1.7	4	6	-40,0	125
LD1084	5 A low-drop positive voltage regulator adjustable	TO-220	Industrial	30	-	5	true	1.3	1	5	-40	125
LD1085	3 A low drop positive voltage regulator: adjustable and fixed	D2PAK,TO-220,TO-220FP	Industrial	30	1.8,2.5,3.3,5	3	false,true	1.3	1	5	-40	125
LD1086	1.5 A adjustable and fixed low drop positive voltage regulator	D2PAK,DFN8 4x4,DPAK,TO-220	Automotive,Industrial	30	1.8,3.3,5	1.5	false,true	1.3	1	5	-40	125
LD1117	Adjustable and fixed low drop positive voltage regulator	DPAK,SO-8,SOT-223,TO-220	Industrial	15	1.2,1.8,2.5,3.3,5	0.8	false,true	1.1,1.15	2	5	0	125
LD1117A	Low drop fixed and adjustable positive voltage regulators	DPAK,SOT-223,TO-220	Industrial	15	1.2,1.8,3.3	1	false,true	1.15	2	5	0	125
LM217	1.2 V to 37 V adjustable voltage regulators	D2PAK,TO-220	Industrial	40	-	1.5	true	2	4	3.5	-25	150
LM217L	Low current 1.2 to 37 V adjustable voltage regulator	SO-8,TO-92	Industrial	40	-	0.1	true	2	4	3.5	-40	125
LM217M	Medium current 1.2 to 37 V adjustable voltage regulator	DPAK,SOT-223	Industrial	40	-	0.5	true	2	4	3.5	-40	125
LM317	1.2 V to 37 V adjustable voltage regulators	D2PAK,TO-220,TO-220FP	Industrial	40	-	1.5	true	2	4	3.5	-40,0	125
LM317L	Low current 1.2 to 37 V adjustable voltage regulator	SO-8,TO-92	Industrial	40	-	0.1	true	2	4	3.5	0	125
LM317M	Medium current 1.2 to 37 V adjustable voltage regulator	DPAK,SOT-223	Industrial	40	-	0.5	true	2	4	3.5	0	125
LM337	Three-terminal adjustable negative voltage regulators	TO-220	Industrial	-40	-	1.5	true	2	3	1.5	0	125

PB137	Positive voltage regulator for battery charger	TO-220	Industrial	40	13.7	1.5	false	2.1	1	4	0	150
L78S	positive voltage regulator	TO-220	Industrial	35	10,12,15,18,24,5,7.5,9	2	false	2	4	8	0	150

LNB supplies

Overview

ST's **LNB** (low-noise block) **supply ICs** are intended for analog and digital satellite receivers/sat-TV, sat-PC cards, and are compliant with the latest international satellite standards (DTV, Eutelsat), offering flexibility of bidirectional DiSEqC™ 2.0 communications. **LNB supply IC** are highly-efficient monolithic linear and switching ICs specifically designed to provide both power and interface signals to the LNB downconverter placed on the antenna dish, via the coaxial cable.



Power Management / LNB supplies/Switching LNB supply ICs

Part Number	Supply Voltage (V) min	Supply Voltage (V) max	Regulated Output Voltage (V) min	Regulated Output Voltage (V) max	Output Current-Max (A) max	Tone amplitude (V) typ
LNBH23L	8	15	13.3	19.2	0.65	0.65
LNBH24L	8	15	13.3	19.2	1	0.65
LNBH25	8	16	13.3	20.483	1	0.675
LNBH25L	8	16	13	19.15	0.75	0.675
LNBH25LS	8	15	13	19.15	0.75	0.675
LNBH25S	8	16	13	20.483	1	0.675
LNBH26	8	16	13	20.483	1	0.675
LNBH26L	8	16	13	19.15	0.75	0.675
LNBH26LS	8	16	13	19.15	0.75	0.675
LNBH26S	8	16	13	20.483	1	0.675
LNBH29	8	17.5	13	18.817	0.55	0.675
LNBH30	8	16	11.8	16	0.75	-

Photovoltaic ICs

Overview

ST's portfolio of photovoltaic ICs includes both cool bypass switches designed to improve the reliability of panel electronics, and DC-DC converters with built-in MPPT which maximize power conversion of solar panels independently of temperature and the amount of solar irradiation.

Power Over Ethernet ICs

Overview

Power over Ethernet (PoE) is a widely adopted technology used to transfer both data and electrical power over an RJ-45 cable.

ST offers solutions for PoE applications, on the powered devices (PD) side, compliant with both the more recent IEEE 802.3at specification, commonly known as PoE+, and the former IEEE 802.3af (PoE).

The design of power supply sections for all powered devices can be greatly simplified with the PM880x family, integrating a PoE interface and a current-mode PWM controller. The PoE interface incorporates all the functions required by the communication standard, including detection, classification, undervoltage lockout (UVLO) and in-rush current limitation.



Power Management/Power Over Ethernet Ics

Part Number	General Description	Package	Communication standards supported	Signature resistor	Internal DC-DC converter	R _{DS(on)} (Ω) typ	Inrush Current (mA) max	Input Current (mA) max	Topology
PM8800	Integrated IEEE 802.3af compliant PoE-PD interface and PWM controller with support of external source	HTSSOP16	IEEE802.3at, Type 1	Yes	true	0.5	440	800	Flyback
PM8803	High-efficiency, IEEE 802.3at compliant integrated PoE-PD interface and PWM controller	HTSSOP20	IEEE802.3at, Type 1 2	NO	true	0.45	140	1000	Isolated Flyback
PM8804	PWM peak current mode controller for PoE and telecom systems	VFQFPN 16 3x3x1.0	-	-	-	-	-	-	Flyback,Forward
PM8805	IEEE 802.3bt PoE-PD interface with embedded dual active bridge	QFN 8x8x1 43L P 0.5 6 Dice pad	IEEE802.3bt, IEEE 802.3at	External	false	0.45	140	2000	-

Voltage References

Overview

ST offers a wide range of fixed and adjustable voltage references ranging from general-purpose high-power shunts, suitable for industrial, automotive and SMPS applications, to high-precision and low-consumption shunt and series devices, suitable for battery-powered applications.

ST's portfolio of precision voltage references include:

- High-power adjustable shunt references, with a maximum cathode current of 100 mA and an adjustable output voltage from 0.6 to 36 V.
- Micropower shunt and series references, dedicated to portable applications, with a minimum cathode current (shunt) as low as 40 μ A, minimum quiescent current of 5 μ A (series) and an initial accuracy as good as 0.1%.

Power Management/Voltage References

Part Number	General Description	Package	Grade	Reference Voltage (V) nom	Cathode to Anode voltage (V) max	Operating cathode current (mA) max	Operating cathode current (mA) min	Temperature coefficient of VREF max	Static impedance max	Adjustable Regulated Output Voltage nom	Precision (%) typ	Operating Temperature (°C) max	Operating Temperature (°C) min
LM4040	Precision micropower shunt voltage reference	SOT23,SOT323-5L	Industrial	2.048,2.5,3,4.096,5	-	-	-	-	-	-	0.1,0.2,0.5,1	125	-40
LM4041	Precision micropower shunt voltage reference	SOT23,SOT323-5L	Industrial	1.225	-	12	0.04	120	0.4	false	0.1,0.2,0.5,1	125,85	-40
TL1431	Adjustable Voltage Reference	SO-8,SOT23,SOT23-5L,SOT323-6L,TO-92	Automotive,Industrial	2.5	36	100	1	100	0.5	true	0.25,0.4	105,70	-20,-40
TL431	Adjustable micropower shunt voltage reference	SO-8,SOT23,SOT23-5L,SOT323-6L,TO-92	Automotive,Industrial	2.5	36	100	1	100	0.5	true	1,2	105,125,70	-40,0
TL432	Adjustable voltage reference	SOT23	Industrial	2.5	36	100	1	100	0.5	true	1,2	105,125	-40
TLVH431	Adjustable Shunt voltage reference	SOT23,SOT23-5L,SOT323-6L	Industrial	1.24	18	60	0.1	100	0.62	true	0.25,0.5,1.5	125	-40
TS2431	Adjustable Shunt Voltage Reference	SOT23	Industrial	2.5	24	100	1	100	0.75	true	0.5,1,2	105	-40
TS33	Micropower high precision series voltage reference	SOT23,SOT323,VFQFPN 1.5X1.5X0.55 8L PITCH 0.5	Industrial	1.25,3	-	-	0.4	30	0.2	false	0.15	125	-40
TS3431	1.24 V adjustable shunt voltage reference	SOT23	Industrial	1.24	24	100	0.4	100	0.2	true	0.25,0.5,1	125	-40
TS4040	1.225V micropower shunt voltage reference	SOT23	Industrial	2.5	-	15	0.065	150	0.6	false	1,2	85	-40
TS4041	Micropower Shunt Voltage Reference	SOT23	Industrial	1.225	-	12	0.04	150	0.5	false	0.5,1,2	85	-40
TS4061	Precision micropower shunt voltage reference	SOT23,SOT323	Industrial	1.225,1.25	-	15	0.065	100	0.6	false	0.1,0.2	85	-40
TS4061V	Precision micropower shunt voltage reference	SOT323-5L	Industrial	2.048	-	-	0.01	70	0.3	false	0.2	85	-40
TS431	Adjustable shunt voltage reference IC (automotive for SOT23-5)	SOT23-5L,TO-92	Automotive,Industrial	1.24	6	30	0.06	100	0.4	true	0.5,1,2	125	-40
TS432	1.24 V adjustable shunt voltage reference	SOT23	Industrial	1.24	10	12	0.06	100	0.5	true	0.5,1	85	-40
TS4431	1.224V Open Collector Shunt Voltage Reference	SOT23-5L	Industrial	1.224	-	20	0	100	0.5	false	0.5	85	-40
TS4436	Adjustable 0.6V Open Collector Shunt Voltage Reference	SOT323-5L	Industrial	0.6	10	20	0.25	150	0.62	true	0.5,1	85	-40
TS821	1.225V micropower shunt voltage reference	SOT23	Industrial	1.225	-	12	0.045	120	0.5	false	0.5	85	-40
TS822	2.5V micropower shunt voltage reference	SOT23	Industrial	2.5	-	15	0.05	100	0.6	false	1,2	85	-40
TS824-1.2	High Thermal Stability Micropower Shunt Voltage Reference	SOT23	Industrial	1.225	-	12	0.04	50	0.7	false	1	85	-40
TS824-2.5	High Thermal Stability Micropower Shunt Voltage Reference	SOT23	Industrial	2.5	-	15	0.06	50	0.6	false	0.5,1	85	-40

Wireless Charger ICs

Overview

As the world's leading supplier for wireless power solutions, ST wireless battery charger ICs cover all major standards and technologies across a complete portfolio of transmitter and receiver chipsets.

Our advanced wireless battery charging solutions currently feature in many mid- to high-power applications, including a wide variety of market solutions like fast charging smartphones, wearables, hearables, medical applications, and industrial tools.

Our solutions are optimized for different applications and are compliant with Wireless Power Consortium (WPC) Qi standards and other major wireless charging standards.

ST wireless power solutions enable high-power charging at improved speeds and contribute to better overall user experience, while critical safety features ensure the end-consumer remains protected.

Breakthrough innovations such as adaptive rectifier configuration (ARC) mode help our customers build great products with wireless power, while our proprietary ST Super Charge (STSC) protocol enables fast charging up to the maximum 100 W power-transfer rate.



Your competitive advantages with ST wireless charger ICs

- Market proven wireless power ICs implemented by the largest smartphone makers in the world
- Innovative solutions with industry-first features
- Fast time-to-market optimized by our unique wireless power software and development ecosystem.
- Highest wireless power IC performance from the inventor of BCD technology, which is used by chipmakers around the world
- Strong partnerships with the Wireless Power Consortium (WPC) and the largest wireless power coil makers

Applications



Wearables

Fitness trackers
Smart and sports
watches



Smartphones, tablets and eReaders



Asset Tracking

Indoor localization and
warehouse logistics
Goods guarantee
Disposables

Product types:



Wireless charger receivers

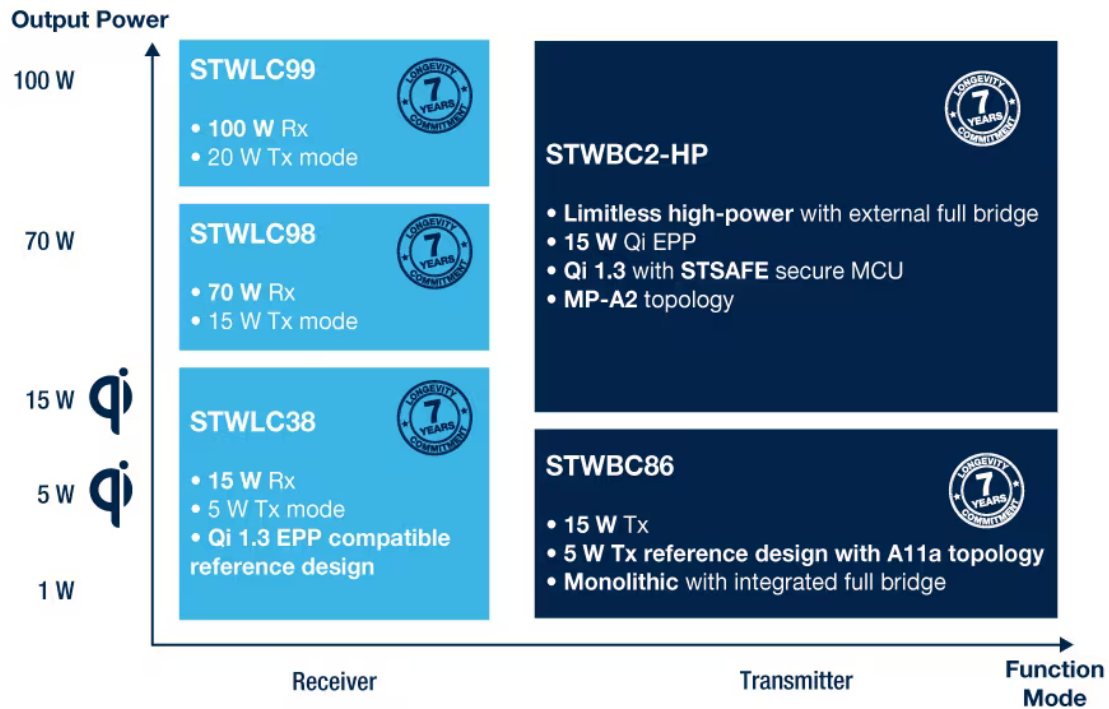
Qi-compliant wireless charging ICs with higher efficiency and enhanced safety for a wide range of applications.



Wireless charger transmitters

Qi-compliant transmitters ensure fast and stable single and multicoil wireless charging for applications from 2.5 W to 100 W.

Discover our portfolio



Benefits:

Qi wireless charging

- Qi standard compliance ensures a consistent, safe, and simple user experience with other Qi-certified products

Foreign object detection (FOD)

- FOD provides detection accuracy and ensures the security of the charging operation to avoid overheating

Spatial freedom

- Proprietary adaptive rectifier configuration (ARC) mode enhances detection distance by up to 50% in all directions

Fast charging

- Extended power profile (EPP) speeds up charging time by up to three times

High efficiency

- Excellent efficiency performance with built-in power management capability

Protection features

- Protection features such as on-chip thermal management, overvoltage, and overcurrent protection to prevent overheating

Reverse charging mode

- Receivers can operate as a wireless transmitter without any change in hardware design

Better designs

- Eliminating the charging socket can save space and allow sealing against water or dust and improve product life

Reduced BOM

- Simplifying implementation of wireless power transmitter systems through reduction of discrete components

Communication interfaces

- Inbuilt I²C, UART, SPI, and GPIO interfaces allow easy configuration of parameters

Characteristics

	Function mode	Output power (W)	Package	Key features
STWLC38	Receiver	15W	WLCSP40	<ul style="list-style-type: none"> • Up to 5W output power in Tx mode • Qi 1.3 compliant • ARC mode • I²C • 32-bit, 64 MHz Arm® Cortex® M0+ • 32kB RRAM, 16 KB SRAM, 64kB ROM
STWLC98	Receiver	70W	WLCSP90	<ul style="list-style-type: none"> • Up to 15W output power in Tx mode • Qi 1.3 compliant • ARC mode • I²C • 32bit, 64Mhz Arm® Cortex® M3 core • 16KB FTP, 16KB RAM, 80KB ROM
STWLC99	Receiver	100W	WLCSP121	<ul style="list-style-type: none"> • Up to 25W output power in Tx mode • Qi 1.3 compliant • ARC mode • I²C • 64Mhz 32bit Arm® Cortex® M0+ core • 12KB FTP, 8KB RAM, 48KB ROM
STWBC86	Transmitter	5W	WLCSP72	<ul style="list-style-type: none"> • Qi 1.2.4 compatible • Up to 5W output power transfer on the receiver side • I²C • 32-bit, 64MHz Arm® Cortex® core • 8KB SRAM, 8KB FTP
STWBC2-HP	Transmitter	100W	VFQFPN68	<ul style="list-style-type: none"> • Qi 1.3 compliant • VIN 4.1V–24V • 32-bit, 64Mhz Arm® Cortex® M0+ core • 128KB flash, 32KB SRAM • I²C, UART, SPI, GPIOs

Power Management/Wireless Charger ICs

Part Number	General Description	Function Mode	Package	Output Power (W) typ	Communication protocol	Grade	Input Voltage (V) max	Operating Temperature (°C) min	Operating Temperature (°C) max	Output Voltage (V) max
STWBC2-HP	Qi-compatible inductive wireless charger power transmitter for up to 100W applications	Transmitter	VFQFPN 8X8X1.0 68LPITCH0.4 ROUTA	100	Qi 1.3	Industrial	24	-40	105	-
STWBC86	Qi-compatible inductive wireless charger power transmitter for up to 5W applications	Transmitter	STWLC68	5	Qi 1.2.4	Industrial	20	-40	85	-
STWLC38	Qi-compliant inductive wireless charger power receiver for up to 15W applications	Receiver	WLCSP40 2.126X3.327X0.546 0.4P 0	15	Qi 1.3	Industrial	-	-40	85	12
STWLC98	Qi-compliant inductive wireless charger power receiver for 70W applications	Receiver	WLCSP 4.289X3.869X0.47 90 0.4PIT	70	Qi 1.3	Industrial	20	-40	85	20
STWLC99	Qi-compliant inductive wireless charger power receiver for 100W applications	Receiver	WLCSP121 4.859X4.859X0.47 0.4P 0	100	Qi 1.3	Industrial	20	-40	85	20
STWLC68	Qi-compliant inductive wireless power receiver for 5W applications	Receiver	STWLC68	5	Qi 1.2	Industrial	5	-40	85	-
STWLC88	Qi-compliant inductive wireless charger power receiver for 50W applications	Receiver	WLCSP 4.077X4.490X0.471 110 0.4P	50	Qi 1.2	Industrial	20	-40	85	-

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