

New Product Highlights

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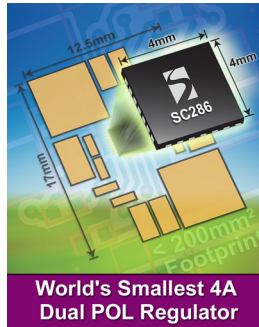
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World's Smallest 4A Dual POL Regulator

SC286

Power Management

World's Smallest 4A Dual-Channel POL Regulator

The SC286 is the world's smallest 4A, dual-channel point-of-load (POL) regulator. It comes in an ultra-small, low-profile 4 x 4 x 0.6mm package and offers 4-bit VID pins. This enables sourcing of one device for multiple sockets requiring up to 15 different output voltages from each of the two regulators. This equates to 225 preset output voltage combinations controlled by one extremely small power management chip.

The four on-chip VID pins can be used to pin-select the output voltages or for dynamic voltage scaling (DVS). They also eliminate the need for external feedback resistors, enabling an ultra-compact overall design footprint of $< 200mm^2$.

For the single-channel version of this device, see SC186, next page.

Key Features

- V_{IN} : 2.9V to 5.5V
- V_{OUT} : pin-programmable 0.8V to 3.3V
- Output current: up to 4A per channel
- 4 on-chip VID pins per channel
- 1.6MHz PWM switching frequency
- Efficiency up to 95%
- Auto PSAVE maximizes standby efficiency
- Fast transient response

Applications

- Networking and communications equipment
- Office automation equipment
- LCD TVs
- Power supply modules
- Notebook computing, desktop PCs
- Other embedded applications

Packaging

MLPQ-UT28 – 4 x 4 x 0.6mm

SC197

Power Management

Ultra-Small 500mA Dual POL Regulator Replaces LDOs with Higher Efficiency Alternative



The SC197 is a 500mA, dual-channel POL regulator in an ultra-small, low-profile 2 x 3 x 0.6mm package with an overall design solution footprint of just 80mm². The small size and footprint saves significant board space versus using two single-channel switchers and power efficiency up to 94% makes the SC197 a higher efficiency alternative to LDOs, particularly for portable products.

Like the SC286 and SC186, this device includes integrated 4-bit VID pins and loop compensation. A 3.5MHz fixed PWM switching frequency operation balances high efficiency and fast transient response, while enabling the SC197 to work with very small chip inductors.

Key Features

- V_{IN} : 2.9V to 5.5V
- V_{OUT} : pin-programmable 0.8V to 3.3V
- Output current: up to 500mA per channel
- 4 on-chip VID pins per channel
- 3.5MHz PWM switching frequency
- Efficiency up to 94%
- Auto PSAVE maximizes standby efficiency
- Fast transient response

Applications

- Portable medical equipment
- Smart meters
- Smart phones
- Digital cameras
- POS terminals
- Portable gaming consoles
- Personal navigation devices

Packaging

MLPQ-UT18 – 2 x 3 x 0.6mm

SC186

Power Management

4A Single-Channel POL Regulator



The SC186 is a single-channel version of the SC286, 4A POL regulator and offers the same rich feature set, including 15 preset output voltages to enable sourcing of just one device for multiple sockets requiring different output voltages (from 0.8V to 3.3V). Like the SC286, as the load decreases, this part automatically transitions into PSAVE mode to maximize standby efficiency.

The SC186 simplifies design by integrating the regulator, loop compensation components, power MOSFETs and MOSFET drivers on one chip. This eliminates the need for external loop compensation components, simplifying component selection and layout.

See page 1 for the SC286 dual-channel, 4A version of this device.

Key Features

- V_{IN} : 2.9V to 5.5V
- V_{OUT} : pin-programmable 0.8V to 3.3V
- Output current: up to 4A
- 4 on-chip VID pins
- 3.5MHz PWM switching frequency
- Efficiency up to 95%
- Auto PSAVE maximizes standby efficiency
- Fast transient response

Applications

- Networking and communications equipment
- Office automation equipment
- LCD TVs
- Power supply modules
- Notebook computing, desktop PCs
- White goods

Packaging

MLPQ-UT16 – 3 x 3 x 0.6mm

SC630A/632A

Power Management

World's Smallest 300mA Buck-Boost Regulator



The 3.3V, SC630A and 5V, SC632A are the world's smallest 300mA and 275mA (respectively) buck-boost charge pumps in a tiny, 2 x 2 x 0.6mm package. They are designed to be used with ultra-small, 2.2µF capacitors, making them far smaller and easier to use than conventional, inductor-based buck-boost regulators. This combination of tiny package and capacitor sizes results in an overall design footprint as small as 10mm².

These parts offer simple, efficient, low-noise solutions to boost voltage when the input is below the required output voltage and function as LDO linear regulators when the input voltage is greater than the output.

Key Features

- V_{IN} : 2.95V to 5.5V
- V_{OUT} : SC630A = 3.3V ±3%
SC632A = 5V ±3%
- Output current:
SC630A = 300mA, SC632A = 275mA
- Use small, 2.2µF capacitors
- Ultra-small footprint:
- 10mm² (0402, 1.0mm x 0.5mm caps)
- 15mm² (0603, 1.6mm x 0.8mm caps)
- 1MHz fixed frequency
- Source large current: up to 300mA

Applications

- Smart phones, tablets, media players
- Digital still and video cameras
- Compact flash/CF+ products
- Multi-LED backlit LCDs
- Modems, set top boxes
- USB On-the-Go

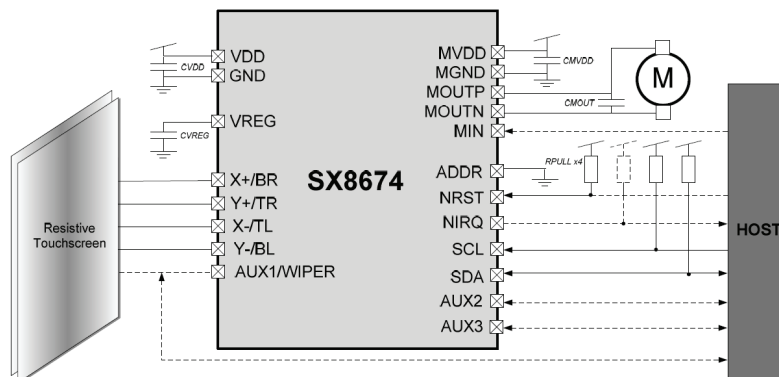
Packaging

MLPD-UT8 – 2 x 2 x 0.6mm

SX8674 / 8675 / 8676 / 8677 / 8678

Advanced Communications & Sensing

World's First Haptics Enabled, Multi-touch Resistive Touchscreen Controller with Proximity Sensing and $\pm 15\text{kV}$ ESD Protection



The SX8674, 8675, 8676, 8677 and 8678 belong to a family of high performance haptics enabled multi-touch 4/5-wire resistive touch screen controller with proximity detection, optimized for hand held applications such as mobile phones, portable music players, game machines, point-of-sales terminal and other consumer and industrial applications. They feature a wide input supply range from 2.3V to 3.6V.

Key Features

- Low Voltage Operation
 - 2.3V to 3.6V supply
 - Integrated Low Drop Out (LDO) regulator
- Low Power Consumption
 - 30 μA @2.3V 8ksp/s (ESR)
 - 0.4 μA shut-down current
- 4/5-Wire Touchscreen Interface
 - Precision, ratiometric 12-bit ADC
 - Up to 5000 (X-Y) coordinates/second (c/s)
 - Programmable digital filtering/averaging
 - Touch pressure measurement (4-Wire)
 - Programmable operating mode (Manual, Pen Detect, Pen Trigger)
- Capacitive Proximity Sensing (SX8674/76/77)
 - No additional components required
 - Uses resistive touchscreen or a simple conductive area as the sensor
 - >5 cm detection distance
 - 8 μA @ 200ms scan period
 - Fully programmable (sensitivity, etc)
 - Haptics driver for LRA and ERM (SX8674/75/77/78)
 - Haptics waveform generation control (I²C or PWM Input)
 - Short circuit protection
 - Early warning and over-temperature
 - Monitoring and protection

- 400kHz I²C serial interface
- Several host operating modes available
 - Maskable Interrupt Output (NIRQ)
 - Real-time events monitoring (AUX1-3)
 - Polling (I²C)
- Hardware, software, and Power-On reset
- Operating temperature range (-40 °C to +85 °C)
- 15kV HBM & IEC ESD protection

Applications

- Game machines, portable music players
- Mobile phones
- DSC, DVR, phones
- POS/POI terminals
- Touchscreen monitors

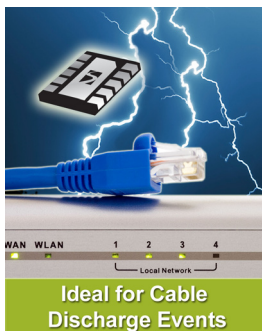
Packaging

Part Number	Package	Multi-touch	Prox	Haptics
SX8674IWLTRT	4x4mm QFN-20	x	x	Generic
SX8674ICSTRT	2.07x2.07mm WLCSP-19	x	x	Generic
SX8675IWLTRT	4x4mm QFN-20	x		Generic
SX8675ICSTRT	2.07x2.07mm WLCSP-19	x		Generic
SX8676IWLTRT	4x4mm QFN-20	x	x	
SX8676ICSTRT	2.07x2.07mm WLCSP-19	x	x	
SX8677IWLTRT	4x4mm QFN-20	x	x	Immersion
SX8677ICSTRT	2.07x2.07mm WLCSP-19	x	x	Immersion
SX8678IWLTRT	4x4mm QFN-20	x		Immersion
SX8678ICSTRT	2.07x2.07mm WLCSP-19	x		Immersion

RClamp® 0534N

Circuit Protection

Low Capacitance TVS for Surge and ESD Protection



The RClamp® 0534N is in a 10-pin SLP3020N10 package. It measures 3.0 x 2.0 x 0.60mm. The leads are finished with lead-free NiPdAu. The combination of small size, low capacitance, and high surge capability makes them ideal for use in applications such as 10/100 Ethernet, USB 2.0, and video interfaces.

Key Features

- ESD protection for high-speed data lines to
 - IEC 61000-4-2 (ESD) ±30kV (air), ±30kV (contact)
 - IEC 61000-4-4 (EFT) 40A (5/50ns)
 - IEC 61000-4-5 (Lightning) 25A (8/20µs)
- Array of surge rated diodes with internal TVS Diode
- Protects four I/O lines
- Low capacitance: 5pF (VR=0V)
- Low clamping voltage
- Low operating voltage: 5.0V

Applications

- USB 2.0 Power and Data Line Protection
- Video Graphics Cards
- Monitors and Flat Panel Displays
- Notebook Computers
- Networking Equipment

Packaging

SLP3020N10, 3.0 x 2.0 x 0.60 mm

RClamp® 0506T

Circuit Protection

Low Capacitance TVS for High-Speed Interfaces



The RClamp® 0506T has a maximum capacitance of only 0.80pF. This allows it to be used on circuits operating in excess of 2.0GHz without signal attenuation. They may be used to meet the ESD immunity requirements of IEC 61000-4-2, Level 4 (±15kV air, ±8kV contact discharge). Each device is designed to protect six lines operating up to 5 volts.

Key Features

- Transient protection for high-speed data lines to
 - IEC 61000-4-2 (ESD) ±15kV (air), ±8kV (contact)
 - IEC 61000-4-4 (EFT) 40A (5/50ns)
- Array of surge rated diodes with internal TVS Diode
- Small package
- Protects up to 6-Lines operating at 5V
- Low capacitance (<0.8pF)
- No insertion loss to 2.0GHz
- Low leakage current
- Low clamping voltage

Applications

- USB 3.0
- HDMI 1.4
- µSD Card Interfaces
- MMC Card Interfaces
- MDDI / mipi Interfaces

Packaging

SLP3313P6T 8L, 3.3 x 1.3 x 0.40 mm

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