Automotive Selector Guide

Semtech Automotive Solutions, helping you drive the future of automotive design with our Touch Controllers, Cable Drivers, Instrument Clusters, Key Fobs, Seatback Infotainment, Switching Regulators in EMI-Sensitive Console Applications, LED Lighting, and Drive Train Power Supplies.

www.semtech.com/applications/automotive-apps
Semtech Corporation is a leading supplier of analog and mixed-signal semiconductor platforms for high-end consumer, enterprise computing, communications and industrial applications. Our vision is to be the global leader in analog and mixed-signal platforms enabling architectural and performance differentiation. Semtech, publicly traded since 1967, is listed on the NASDAQ Global Select Market under the symbol SMTC and has more than 32 sales and application support offices in 14 countries as well as representatives and distribution support locations in more than 30 countries.

Semtech is dedicated to providing proprietary platforms differentiated by innovation, size, efficiency, performance and reach. Our solutions are used in some of the most innovative systems and products in the fastest growing markets today. These markets include smartphones, LCD TVs, notebooks, tablets, smart grid, automotive, automatic meter reading, medical, wireless infrastructure, PON, Internet of Things, optical transport and datacenters.

More than 5,000 customers worldwide rely on our diverse product portfolio and world class technology roadmap for solutions in low-power wireless communications, optical data transport, video broadcasting, power management, circuit protection, touch sensing, and more making Semtech one of the most balanced semiconductor companies in the industry.

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find us, like us, follow us
Automotive manufacturers are facing increasing demand for technology that improves the safety, comfort and performance of passenger and commercial automobiles - especially when targeting a tech-savvy market permeated by digital devices.

While virtually unheard of a few years ago, features such as automotive infotainment components, brake assist, lane-departure warning and parking-assist cameras have become commonplace in today’s vehicles. Drivers routinely expect their cars to be equipped with digital devices that enable them to control the cabin environment while staying focused on the road. These devices include touchscreen or voice activated controls for navigation, heating and cooling, phone or internet access, and radio and music players.

In order to meet the needs of an increasingly complex automotive market, design engineers rely on Semtech’s feature-rich, highly integrated products. Our products offer design flexibility with low power, small package, high efficiency, improved reliability and a lower overall system cost.

Semtech’s automotive product line was created with the needs of automotive design engineers in mind. By partnering with Semtech, you will receive high-quality products, knowledgeable support, and our commitment to meet and exceed your next design challenge. Our knowledge of today’s markets and dedication to your success will give you the confidence and freedom to create the solutions your customers.
OUR EXPANDING COMMITMENT

As the automotive market demand increases so does our commitment to power, protect and connect you with the ideal IC solutions. Semtech has provided ICs for the automotive industry for many years and, our devices are used in applications ranging from protecting sensitive electronics to in-cabin lighting and touch screen human interface. We are continuously working to expand our list of certified products to better serve our automotive customers, and we can prioritize part qualification based on demand in order to meet customer needs.

### Power Management

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC183CQ</td>
<td>2.5MHz, 2A Synchronous Step-Down Switching Regulator</td>
</tr>
<tr>
<td>SC4501Q</td>
<td>2 Amp, 2 MHz Boost Switching Regulator with Soft-Start</td>
</tr>
<tr>
<td>SC220Q</td>
<td>20MHz, 650mA, X-EMI™ Enabled Synchronous Step-Down Regulator</td>
</tr>
<tr>
<td>SC441A</td>
<td>High-Efficiency Integrated Boost Driver For 4-Strings Of 150mA LEDs</td>
</tr>
<tr>
<td>SC508A</td>
<td>Wide Input Range (4.5V to 46V) EcoSpeed® Buck Controller With Integrated LDO</td>
</tr>
<tr>
<td>SC5012Q</td>
<td>High-Brightness LED Driver for 150mA x 4 -strings 5,000:1 PWM Dimming I²C Control</td>
</tr>
</tbody>
</table>

### Circuit Protection

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>SLVU2.8Q</td>
<td>Analog Video</td>
</tr>
<tr>
<td>RCclamp®0512TQ</td>
<td>USB, LVDS, Ethernet</td>
</tr>
<tr>
<td>RCclamp®0524PQ</td>
<td>HDMI, MHL</td>
</tr>
<tr>
<td>RCclamp®0582BQ</td>
<td>Single Pair Ethernet, USB 2.0</td>
</tr>
<tr>
<td>µClamp®0571P</td>
<td>Vbus/DC lines</td>
</tr>
<tr>
<td>µClamp®3311PQ</td>
<td>Multimedia Touchpoint</td>
</tr>
<tr>
<td>µClamp®0511PQ</td>
<td>Keypads, ESD Sensitive Touch point</td>
</tr>
<tr>
<td>RCclamp®2574NQ</td>
<td>Ethernet, LVDS</td>
</tr>
<tr>
<td>RCclamp®1521PQ</td>
<td>Antenna</td>
</tr>
<tr>
<td>RCclamp®2431TQ</td>
<td>Antenna, CAN Bus</td>
</tr>
<tr>
<td>RCclamp®0531TQ</td>
<td>Antenna, CAN Bus Single Pair Ethernet, USB</td>
</tr>
<tr>
<td>EClamp®2357NQ</td>
<td>SD Card</td>
</tr>
</tbody>
</table>
Dashboard Electronics, USB & Audio Ports

LED Drivers
- **SC441A** - High-Efficiency Integrated Boost Driver For 4-Strings Of 150mA LEDs
- **SC443** - High Efficiency Integrated Boost Driver for 3-Strings of 30mA LEDs
- **SC445** - High Efficiency Integrated Boost Driver for 4-Strings of 150mA LEDs
- **SC446** - High Efficiency Integrated Boost Driver for 3-Strings of 100mA LEDs
- **SC2597** - Low Voltage DDR Termination Regulator
- **SC4524/5** - Maximum 28V input, with high efficiency and tight output voltage regulation
- **SC4541** - Single String LED Driver with High Side Sense
- **SC5010/H** - High-Efficiency Phase Shifted 8-CH LED Driver With I2C Control
- **SC5012Q** - High-Brightness LED Driver for 150mA x 4-strings 5,000:1 PWM Dimming I2C Control
- **SC5014/A** - High-Efficiency 4-CH/2-CH LED Driver With I2C Control
- **SC9301** - 10A EcoSpeed® Integrated FET Regulator with 5V LDO and Hiccup Restart

Switching Regulators
- **SC220Q** - 20MHz, 650mA, X-EMI™ Enabled Synchronous Step-Down Regulator

ESD Protection
- **RClamp® 0582BQ** - Single Pair Ethernet Protection
- **RClamp® 0512TQ** - USB, LVDS, Ethernet
- **RClamp® 0524PQ** - HDMI, MHL
- **EClamp® 2357NQ** - SD Card Protection
- **µClamp® 0511PQ** - Audio, AUX port

Antenna Protection
- **RClamp® 0531TQ** - 5V Bidirectional ESD Protection
- **RClamp® 2431TQ** - 24V Bidirectional ESD Protection
- **RClamp® 1531TQ** - 15V Bidirectional ESD Protection

Networking, Computing & Power Supply
- **SC508A** - Wide Input Range (4.5V to 46V) EcoSpeed® Buck Controller With Integrated LDO
- **SC414** - Wide Input Range (3V to 28V) 6A EcoSpeed® Synchronous Buck Regulator
- **SC402B** - Wide Input Range (3V to 28V) 10A EcoSpeed® Synchronous Buck Regulator
- **SC174** - Low Input Voltage (3V to 5.5V) 4A EcoSpeed® Synchronous Buck Regulator
- **SC284** - Low Input Voltage (2.9V to 5.5V) Dual 1.8A Synchronous Buck Regulator with 15 Selectable Output Voltages Per Channel

Networking Protection
- **RClamp® 2574NQ**
- **RClamp® 3374N** - ESD & Surge Protection For Ethernet Interfaces
- **RClamp® 0512TQ** - ESD protection on high-speed ports
Audio, Navigation, Infotainment & Power

**Cable Drivers**
- **GS1678** - High-Speed Video Cable Driver Solution
- **SDI SerDes**
  - **GS1661A** - Multi-rate SDI Integrated Receiver For High-Speed, Low Latency, Video Transmission Solutions
  - **GS1662** - SDI Transmitter For High-Speed, Low Latency, Video Transmission Solutions
- **Adaptive Cable Equalizer**
  - **GS1674** - High-speed BiCMOS Integrated Circuit Design For Video Cable Equalization
- **SC441A** - High-Efficiency Integrated Boost Driver For 4-Strings Of 150mA LEDs
- **SC5010/H** - High-Efficiency Phase Shifted 8-CH LED Driver With I²C Control
- **SC5014/A** - High-Efficiency 4-CH/2-CH LED Driver With I²C Control
- **SC5012Q** - High-Brightness LED Driver for 150mA x 4-strings 5,000:1 PWM Dimming I²C Control

**Switching Regulators**
- **SC508A** - Wide Input Range (4.5V to 46V) EcoSpeed® Buck Controller With Integrated LDO
- **SC4028** - Wide Input Range (3V to 28V) 10A EcoSpeed® Synchronous Buck Regulator
- **SC187** - Low Input Voltage (2.9V to 5.5V) 2.2MHz Synchronous Buck Regulator With 15 Selectable Output Voltages
- **SC174** - Low Input Voltage (3V to 5.5V) 4A EcoSpeed® Synchronous Buck Regulator
- **SC284** - Low Input Voltage (2.9V to 5.5V) Dual 1.8A Synchronous Buck Regulator with 15 Selectable Output Voltages Per Channel
- **SC4501** - 2A, 2MHz Boost Regulator with Programmable Soft-Start
- **SC220Q** - 20MHz, 650mA, X-EMI™ Enabled Synchronous Step-Down Regulator

**Capacitive Touch Controllers**
- **SX8633** - Low-Power, Capacitive Button Touch
- **SX8634** - Low-Power, Capacitive Button & Slider Touch
- **SX8635** - Low-Power, Capacitive Button & Wheel Touch

**Resistive Touch Controllers**
- **SX8654** - Haptics Enabled 4/5-Wire Resistive Touchscreen Controller
- **SX8656** - Haptics Enabled 4/5-Wire Resistive Touchscreen Controller
- **SX8658** - Haptics Enabled 4/5-Wire Resistive Touchscreen Controller
- **SX8675** - Haptics Enabled Multitouch 4/5-Wire Resistive Touchscreen Controller
- **SX8677** - Haptics Enabled Multitouch 4/5-Wire Resistive Touchscreen Controller
- **SX8678** - Haptics Enabled Multitouch 4/5-Wire Resistive Touchscreen Controller

**Protection**
- **µClamp® 0511PQ, 3311PQ, 0531TQ** - Multimedia Touchpoint Protection, Audio Protection
- **RClamp® 0524PQ** - HDMI, MHL

Indicates Semtech AEC-Q100 Qualified Part
Backup Camera & Analog Video

Remote Keyless Entry

Wireless Charging

Interior & Exterior LED Lighting

Switching Regulators

Boost LED Drivers

RF Receivers

RF Transceivers

SC441A - High-Efficiency Integrated Boost Driver for 4-Strings Of 150mA LEDs

SC187 - Low Input Voltage (2.9V to 5.5V) 4A, 2.2MHz Synchronous Buck Controller With 15 Selectable Output Voltages

SC451A - Single String LED Driver with High Side Sense

SX1239 - Low-Power Integrated UHF Receiver

SC446 - High Efficiency Integrated Boost Driver for 3-Strings of 100mA LEDs

SX1231 - Low-Power Integrated UHF Transceiver

SC174 - Low Input Voltage (3V to 5.5V) 4A EcoSpeed® Synchronous Buck Regulator

SC442 - 10-Channel High Efficiency LED Driver

SC443 - High Efficiency Integrated Boost Driver for 3-Strings of 30mA LEDs

SC4540 - Single String 10 LED Driver

SC440 - Single String Of 150mA LEDs

SC4501Q - 2 Amp, 2 MHz Boost Switching Regulator with Soft-Start

SC508A - Wide Input Range (4.5V to 46V) EcoSpeed® Buck Controller With Integrated LDO

SC4541 - Single String LED Driver with High Side Sense

SC446 - High Efficiency Integrated Boost Driver For 4-Strings Of 150mA LEDs

SC442 - 10-Channel High Efficiency LED Driver

SC4540 - Single String Of 150mA LEDs

SC4501Q - 2 Amp, 2 MHz Boost Switching Regulator with Soft-Start

SC284 - Low Input Voltage (2.9V to 5.5V) Dual 1.8A Synchronous Buck Regulator with 15 Selectable Output Voltages Per Channel

SC442 - 10-Channel High Efficiency LED Driver

SC4500 - Single String Of 150mA LEDs

SC4501Q - 2 Amp, 2 MHz Boost Switching Regulator with Soft-Start

SC446 - High Efficiency Integrated Boost Driver For 3-Strings Of 100mA LEDs

SC443 - High Efficiency Integrated Boost Driver for 3-Strings of 30mA LEDs

SC4540 - Single String Of 150mA LEDs

SC4501Q - 2 Amp, 2 MHz Boost Switching Regulator with Soft-Start

SC446 - High Efficiency Integrated Boost Driver For 3-Strings Of 100mA LEDs

SC443 - High Efficiency Integrated Boost Driver for 3-Strings of 30mA LEDs

SC4540 - Single String Of 150mA LEDs

SC4501Q - 2 Amp, 2 MHz Boost Switching Regulator with Soft-Start

SC446 - High Efficiency Integrated Boost Driver For 3-Strings Of 100mA LEDs

SC443 - High Efficiency Integrated Boost Driver for 3-Strings of 30mA LEDs

SC4540 - Single String Of 150mA LEDs

SC4501Q - 2 Amp, 2 MHz Boost Switching Regulator with Soft-Start

SC446 - High Efficiency Integrated Boost Driver For 3-Strings Of 100mA LEDs

SC443 - High Efficiency Integrated Boost Driver for 3-Strings of 30mA LEDs

SC4540 - Single String Of 150mA LEDs

SC4501Q - 2 Amp, 2 MHz Boost Switching Regulator with Soft-Start

SC446 - High Efficiency Integrated Boost Driver For 3-Strings Of 100mA LEDs

SC443 - High Efficiency Integrated Boost Driver for 3-Strings of 30mA LEDs

SC4540 - Single String Of 150mA LEDs

SC4501Q - 2 Amp, 2 MHz Boost Switching Regulator with Soft-Start

SC446 - High Efficiency Integrated Boost Driver For 3-Strings Of 100mA LEDs

SC443 - High Efficiency Integrated Boost Driver for 3-Strings of 30mA LEDs

SC4540 - Single String Of 150mA LEDs

SC4501Q - 2 Amp, 2 MHz Boost Switching Regulator with Soft-Start

SC446 - High Efficiency Integrated Boost Driver For 3-Strings Of 100mA LEDs

SC443 - High Efficiency Integrated Boost Driver for 3-Strings of 30mA LEDs

SC4540 - Single String Of 150mA LEDs

SC4501Q - 2 Amp, 2 MHz Boost Switching Regulator with Soft-Start

SC446 - High Efficiency Integrated Boost Driver For 3-Strings Of 100mA LEDs

SC443 - High Efficiency Integrated Boost Driver for 3-Strings of 30mA LEDs

SC4540 - Single String Of 150mA LEDs

SC4501Q - 2 Amp, 2 MHz Boost Switching Regulator with Soft-Start
### Automotive Transient Voltage (TVS) Protection Family

<table>
<thead>
<tr>
<th>Interface to Protect</th>
<th>Part Number</th>
<th>$V_{se}$</th>
<th>Lines</th>
<th>ESD Rating (air/contact)</th>
<th>Surge (8x20us)</th>
<th>Cap (pF)</th>
<th>Pkg Size (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Standard Ethernet</strong></td>
<td>RClamp® 2574NQ</td>
<td>2.5V</td>
<td>4</td>
<td>±30kV / ±30kV</td>
<td>40A</td>
<td>1.7pF</td>
<td>3.0x2.0x0.6</td>
</tr>
<tr>
<td></td>
<td>RClamp® 3374N</td>
<td>3.3V</td>
<td>4</td>
<td>±30kV / ±30kV</td>
<td>40A</td>
<td>1.7pF</td>
<td>3.0x2.0x0.65</td>
</tr>
<tr>
<td><strong>2-Wire Ethernet Single Twisted Pair</strong></td>
<td>RClamp® 0512TQ</td>
<td>5V</td>
<td>2</td>
<td>±30kV / ±30kV</td>
<td>20A</td>
<td>2pF</td>
<td>1.0x0.6x0.58</td>
</tr>
<tr>
<td></td>
<td>RClamp® 0582BQ</td>
<td>5V</td>
<td>3</td>
<td>±30kV / ±25kV</td>
<td>15A</td>
<td>1.2pF</td>
<td>1.6x1.6x0.75</td>
</tr>
<tr>
<td></td>
<td>RClamp® 0531TQ</td>
<td>5V</td>
<td>1</td>
<td>±20kV / ±12kV</td>
<td>4A</td>
<td>0.5pF</td>
<td>1.0x0.6x0.5</td>
</tr>
<tr>
<td><strong>LVDS Links</strong></td>
<td>RClamp® 2574NQ</td>
<td>2.5V</td>
<td>4</td>
<td>±30kV / ±30kV</td>
<td>40A</td>
<td>1.7pF</td>
<td>3.0x2.0x0.6</td>
</tr>
<tr>
<td></td>
<td>RClamp® 3324P</td>
<td>3.3V</td>
<td>4</td>
<td>±17kV / ±20kV</td>
<td>4.5A</td>
<td>0.6pF</td>
<td>2.5x1.0x0.5</td>
</tr>
<tr>
<td></td>
<td>RClamp® 3552T</td>
<td>3.5V</td>
<td>2</td>
<td>±12kV / ±17kV</td>
<td>4A</td>
<td>0.4pF</td>
<td>1.0x0.6x0.4</td>
</tr>
<tr>
<td><strong>USB 3.0</strong></td>
<td>RClamp® 3346P</td>
<td>3.3V</td>
<td>6</td>
<td>±17kV / ±20kV</td>
<td>4.5A</td>
<td>0.65pF</td>
<td>2.7x0.8x0.5</td>
</tr>
<tr>
<td></td>
<td>RClamp® 3324P</td>
<td>3.3V</td>
<td>4</td>
<td>±17kV / ±20kV</td>
<td>4.5A</td>
<td>0.6pF</td>
<td>2.5x1.0x0.5</td>
</tr>
<tr>
<td></td>
<td>RClamp® 3552T</td>
<td>3.5V</td>
<td>2</td>
<td>±12kV / ±17kV</td>
<td>4A</td>
<td>0.4pF</td>
<td>1.0x0.6x0.4</td>
</tr>
<tr>
<td><strong>USB 2.0</strong></td>
<td>RClamp® 0582N</td>
<td>5V</td>
<td>3</td>
<td>±20kV / ±12kV</td>
<td>5A</td>
<td>0.5pF</td>
<td>1.2x1.0x0.58</td>
</tr>
<tr>
<td></td>
<td>RClamp® 0512TQ</td>
<td>5V</td>
<td>2</td>
<td>±30kV / ±30kV</td>
<td>20A</td>
<td>2pF</td>
<td>1.0x0.6x0.58</td>
</tr>
<tr>
<td></td>
<td>RClamp® 0582BQ</td>
<td>5V</td>
<td>2</td>
<td>±30kV / ±25kV</td>
<td>15A</td>
<td>1.2pF</td>
<td>1.6x1.6x0.75</td>
</tr>
<tr>
<td></td>
<td>EClin® 8052P</td>
<td>5V</td>
<td>2</td>
<td>±25kV / ±30kV</td>
<td>6A</td>
<td>1.2pF</td>
<td>1.9x1.7x0.55</td>
</tr>
<tr>
<td><strong>Antenna Interfaces</strong></td>
<td>RClamp® 0531TQ</td>
<td>5V</td>
<td>1</td>
<td>±20kV / ±12kV</td>
<td>4A</td>
<td>0.5pF</td>
<td>1.0x0.6x0.5</td>
</tr>
<tr>
<td></td>
<td>RClamp® 1521PQ</td>
<td>15V</td>
<td>1</td>
<td>±15kV / ±8kV</td>
<td>4A</td>
<td>0.3pF</td>
<td>1.0x0.6x0.5</td>
</tr>
<tr>
<td></td>
<td>RClamp® 2431TQ</td>
<td>24V</td>
<td>1</td>
<td>±13kV / ±8kV</td>
<td>2A</td>
<td>0.35pF</td>
<td>1.0x0.6x0.5</td>
</tr>
<tr>
<td><strong>Audio</strong></td>
<td>µClamp® 0511P</td>
<td>5V</td>
<td>1</td>
<td>±30kV / ±30kV</td>
<td>12A</td>
<td>75pF</td>
<td>1.0x0.6x0.5</td>
</tr>
<tr>
<td></td>
<td>µClamp® 3601P</td>
<td>36V</td>
<td>1</td>
<td>±20kV / ±15kV</td>
<td>2A</td>
<td>25pF</td>
<td>1.0x0.6x0.5</td>
</tr>
<tr>
<td></td>
<td>µClamp® 2671P</td>
<td>26V</td>
<td>1</td>
<td>±30kV / ±30kV</td>
<td>23A</td>
<td>155pF</td>
<td>1.6x1.0x0.57</td>
</tr>
<tr>
<td><strong>HDMI, MPPI, MHL</strong></td>
<td>EClin® 8052P</td>
<td>5V</td>
<td>2</td>
<td>±25kV / ±30kV</td>
<td>6A</td>
<td>1.2pF</td>
<td>1.9x1.7x0.55</td>
</tr>
<tr>
<td><strong>Analog Video</strong></td>
<td>SLVU2.8Q</td>
<td>2.8V</td>
<td>2</td>
<td>±25kV / ±30kV</td>
<td>24A</td>
<td>100pF</td>
<td>2.9x2.37x0.90</td>
</tr>
<tr>
<td><strong>Keypads, Touchbuttons, Control Lines</strong></td>
<td>RClin® 0524PQ</td>
<td>5V</td>
<td>4</td>
<td>±25kV / ±20kV</td>
<td>5A</td>
<td>0.6pF</td>
<td>2.5 x 1.0 x 0.5mm</td>
</tr>
<tr>
<td></td>
<td>µClamp® 0301P</td>
<td>3.0V</td>
<td>1</td>
<td>±25kV / ±30kV</td>
<td>5A</td>
<td>12pF</td>
<td>1.0x0.6x0.5</td>
</tr>
<tr>
<td></td>
<td>µClamp® 3311P</td>
<td>3.3V</td>
<td>1</td>
<td>±25kV / ±30kV</td>
<td>5A</td>
<td>12pF</td>
<td>1.0x0.6x0.5</td>
</tr>
<tr>
<td></td>
<td>µClamp® 0511P</td>
<td>5V</td>
<td>2</td>
<td>±30kV / ±30kV</td>
<td>12A</td>
<td>75pF</td>
<td>1.0x0.6x0.5</td>
</tr>
</tbody>
</table>

### Qualified Single-line DC Bus Protection

<table>
<thead>
<tr>
<th>Typ Application</th>
<th>Part Number</th>
<th>$V_{se}$</th>
<th>Lines</th>
<th>ESD Rating (air/contact)</th>
<th>Surge (8x20us)</th>
<th>Cap (pF)</th>
<th>Pkg Size (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Single-line DC Bus Protection</strong></td>
<td>µClamp® 0571P</td>
<td>5V</td>
<td>1</td>
<td>±30kV / ±30kV</td>
<td>80A</td>
<td>675pF</td>
<td>1.6x1.0x0.57</td>
</tr>
<tr>
<td></td>
<td>µClamp® 0871P</td>
<td>8V</td>
<td>1</td>
<td>±30kV / ±30kV</td>
<td>65A</td>
<td>475pF</td>
<td>1.6x1.0x0.57</td>
</tr>
<tr>
<td></td>
<td>µClamp® 1071P</td>
<td>10V</td>
<td>1</td>
<td>±30kV / ±30kV</td>
<td>60A</td>
<td>350pF</td>
<td>1.6x1.0x0.57</td>
</tr>
<tr>
<td></td>
<td>µClamp® 1271P</td>
<td>12V</td>
<td>1</td>
<td>±30kV / ±30kV</td>
<td>45A</td>
<td>275pF</td>
<td>1.6x1.0x0.57</td>
</tr>
<tr>
<td></td>
<td>µClamp® 1571P</td>
<td>15V</td>
<td>1</td>
<td>±30kV / ±30kV</td>
<td>40A</td>
<td>220pF</td>
<td>1.6x1.0x0.57</td>
</tr>
<tr>
<td></td>
<td>µClamp® 1871P</td>
<td>18V</td>
<td>1</td>
<td>±30kV / ±30kV</td>
<td>35A</td>
<td>220pF</td>
<td>1.6x1.0x0.57</td>
</tr>
<tr>
<td></td>
<td>µClamp® 2271P</td>
<td>22V</td>
<td>1</td>
<td>±30kV / ±30kV</td>
<td>25A</td>
<td>165pF</td>
<td>1.6x1.0x0.57</td>
</tr>
<tr>
<td></td>
<td>µClamp® 2671P</td>
<td>26V</td>
<td>1</td>
<td>±30kV / ±30kV</td>
<td>23A</td>
<td>155pF</td>
<td>1.6x1.0x0.57</td>
</tr>
<tr>
<td></td>
<td>µClamp® 3671P</td>
<td>36V</td>
<td>1</td>
<td>±30kV / ±30kV</td>
<td>18A</td>
<td>150pF</td>
<td>1.6x1.0x0.57</td>
</tr>
</tbody>
</table>

### Filter Devices - TVS + EMC Filter

<table>
<thead>
<tr>
<th>Typ Application</th>
<th>Part Number</th>
<th>$V_{se}$</th>
<th>Lines</th>
<th>ESD Rating (air/contact)</th>
<th>Filter Type</th>
<th>Cap (pF)</th>
<th>Pkg Size (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SD Card</strong></td>
<td>EClin® 2410PQ</td>
<td>5V</td>
<td>6</td>
<td>±17kV / ±12kV</td>
<td>SD Card Termination</td>
<td>15pF</td>
<td>4.0x1.6x0.5</td>
</tr>
<tr>
<td></td>
<td>EClin® 2357NQ</td>
<td>5V</td>
<td>6</td>
<td>±20kV / ±12kV</td>
<td>RC filter SD Card Termination</td>
<td>20pF</td>
<td>3.0x3.0x0.6</td>
</tr>
</tbody>
</table>
TVS Protection - Features & Benefits

Semtech provides TVS (Transient Voltage Suppression) diodes that safeguard low voltage circuits against damage or latch-up caused by electrostatic discharge (ESD), lightning, and other destructive voltage transients. Our circuit protection devices feature low clamping voltage, low capacitance, and low leakage current. Furthermore, we meet the industry’s toughest transient immunity standards.

**LOW CAPACITANCE**

Provides robust protection while preserving signal integrity in high-speed video and data interfaces

**LOW LEAKAGE**

Increases battery life in handheld electronic devices

**LOWER WORKING VOLTAGE**

Reduces stress energy to protected IC

**KEY FEATURES**

- ESD protection
- ESD-EMI filter protection
- High-current lightning protection
- Low capacitance ESD protection
- Low voltage ESD protection

**PRODUCTS**

**TClamp** = TransClamp
High Surge lightning current handling capability

**RClamp** = RailClamp
Low capacitance for high speed applications

**µClamp** = MicroClamp
Single TVS or TVS arrays for general purpose
Standard TVS Process

**EClamp** = EMIClamp
ESD and EMI protection with integrated inductor or resistor

**LOW CLAMPING VOLTAGE**

Better protection and less stress on transceiver
RF / Wireless & Long Range RFIC Solutions

LOW-POWER INTEGRATED UHF TRANSCEIVERS, TRANSMITTERS AND RECEIVERS

Semtech wireless RF transceivers, transmitters and receivers are designed with a highly integrated architecture allowing for a minimum external component count while maintaining RF design flexibility.

Operating in the license-free ISM (Industry Scientific and Medical) bands, our devices comply with relevant European and North American standards. What makes our ISM band RF devices unique is their extremely low current consumption of only 3mA in full active mode. Our RF devices are used in wireless security systems, sensor networks, industrial monitoring, meter reading, home automation and remote wireless control applications.

The SX1239 is a highly integrated RF receiver capable of operation over a wide frequency range, including the 433,868 and 915MHz license-free ISM frequency bands. Its highly integrated architecture allows for a minimum of external components while maintaining maximum design flexibility.

FEATURES & BENEFITS

- High sensitivity: down to -120dBm at 1.2kbps
- High selectivity: 16-tap FIR channel filter
- Bullet-proof front end: IIP3 = -18dBm, IIP2 = +35dBm, 80dB blocking immunity, no image frequency response
- Low current: Rx = 16mA, 100nA register retention
- Constant RF performance over voltage range of chip
- FSK bit rates up to 300kb/s
- Fully integrated synthesizer with a resolution of 61Hz
- FSK, GFSK, MSK, GMSK and OOK demodulation
- Built-in bit synchronizer performing clock recovery
- Incoming sync word recognition
- 115dB+ dynamic range RSSI
- Automatic RF sense with ultra-fast AFC
- Packet engine with CRC, AES-128 encryption and 66-byte FIFO
- Built-in temperature sensor and low battery indicator

PARTNER SOLUTIONS

Complete solutions with RF, MCU and software protocol stacks.

Freescale
- TRX SoC – SX1231 + MCU (MC12311)
- Multiple SW protocols including WMBus

Microchip
- TX SoC – SX1243 + PIC (PIC12LF1840T & PIC12F529T)
- SX1211* module w/ mesh networking solution
- Sell rebranded SX1211 (MRF89XAM9A)

APPLICATIONS

- Wireless sensor networks
- Wireless alarm and security systems
- Monitoring and control
- TPMS (tire pressure monitoring)
- RKE (remote keyless entry)

<table>
<thead>
<tr>
<th>Part Number</th>
<th>TX / RX</th>
<th>Band (MHz)</th>
<th>TX Power (dBm)</th>
<th>Modulation</th>
<th>Max Bit Rate (kbps)</th>
<th>RX Sensitivity (dBm)</th>
<th>Link Budget (dB)</th>
<th>TX Current (mA)</th>
<th>RX Current (mA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SX1230</td>
<td>TX</td>
<td>290-1020</td>
<td>-18 ~ 17</td>
<td>G/F/MSK &amp; OOK</td>
<td>300 (FSK) 32.7 (OOK)</td>
<td>–</td>
<td>–</td>
<td>33mA@10dBm</td>
<td>–</td>
</tr>
<tr>
<td>SX1243</td>
<td>TX</td>
<td>310-928</td>
<td>0 &amp; 10</td>
<td>FSK/OOK/ASK</td>
<td>100</td>
<td>–</td>
<td>–</td>
<td>15mA@10dBm</td>
<td>–</td>
</tr>
<tr>
<td>SX1239</td>
<td>RX</td>
<td>290-1020</td>
<td>–</td>
<td>G/F/MSK &amp; OOK</td>
<td>300 (FSK) 32.7 (OOK)</td>
<td>-120</td>
<td>–</td>
<td>–</td>
<td>16</td>
</tr>
<tr>
<td>SX1231</td>
<td>TX / RX</td>
<td>290-1020</td>
<td>-18 ~ 17</td>
<td>G/F/MSK &amp; OOK</td>
<td>300 (FSK) 32.7 (OOK)</td>
<td>-120</td>
<td>137</td>
<td>33mA@10dBm</td>
<td>16</td>
</tr>
<tr>
<td>SX1276</td>
<td>TX / RX</td>
<td>137-1020</td>
<td>+20</td>
<td>LoRa®, GFSK, OOK</td>
<td>300kbps (FSK) 32.7kbps (OOK)</td>
<td>-156</td>
<td>-176</td>
<td>29mA@13dBm</td>
<td>10.8</td>
</tr>
</tbody>
</table>

Indicates Semtech AEC-Q100 Qualified Part
Wireless Charging Solutions for Automotive

WIRELESS POWER TRANSMITTERS AND RECEIVERS

Semtech offers wireless power transmitter and receiver platforms for both direct and indirect charge applications in both standards compliant and non-compliant systems. Semtech is a member of the Wireless Power Consortium (WPC), Power Matters Alliance (PMA) and the Alliance for Wireless Power (A4WP), and is active in helping shape the future standards for wireless power.

FEATURES & BENEFITS

Optimized Dual-mode (PMA + WPC Qi®):
- Transmitter solution on a single hardware platform

Support for Tri-mode
- WPC Qi®, PMA and A4WP-Rezence applications

Firmware-based solution for ultimate flexibility:
- Easy updates to support standard revisions
- Integrate custom firmware for proprietary applications
- Multi-coil support allows freedom of positioning

Fully compatible with automotive environment:
- Fixed-frequency operation reduces EMI to minimize interference with other systems
- Operates on 6 - 16V input supply; option to work up to 24V
- Can be protected from load dump, double battery and reverse battery
- Can be integrated into the automotive communications infrastructure
- AEC-Q100 certified

BLOCK DIAGRAM

Semtech’s Triune Products and Infineon Technologies have formed a strategic relationship to expand wireless charging in automotive applications.

AEC-Q100 Qualified

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Type</th>
<th>$V_{in}$</th>
<th>Iout Max (A)</th>
<th>PowerGood flag</th>
<th>Enable</th>
<th>Soft Start</th>
<th>SSAVE</th>
<th>Package (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC4501Q</td>
<td>Regulator</td>
<td>1.4</td>
<td>16</td>
<td>2</td>
<td>No</td>
<td>Yes</td>
<td>Programmable</td>
<td>No</td>
</tr>
</tbody>
</table>

For further inquires, please contact Semtech Sales Rep directly.
Power Management Solutions - EcoSpeed®

46V ECOSPEED® DC-DC BUCK CONTROLLER WITH INTEGRATED LDO - AEC-Q100 QUALIFIED

The SC508/SC508A is a synchronous EcoSpeed® buck controller, which incorporates Semtech’s advanced, patented adaptive on-time control architecture to provide excellent light-load efficiency and fast transient response.

FEATURES & BENEFITS

- **Power system**
  - Input voltage 4.5V to 46V
  - Integrated bootstrap switch
  - Fixed 5V LDO output 200mA
  - 1% reference tolerance -40 to +85 °C
  - Selectable internal/external bias power supply
  - EcoSpeed® architecture with pseudo-fixed frequency adaptive on-time control
- **Logic input and output control**
  - Independent EN control for LDO and switcher
  - Programmable Soft-Start time
  - Programmable VIN UVLO threshold
  - Power-Good output
  - Selectable power-save mode
  - Programmable ultrasonic power-save mode
- **Protection**
  - Automatic restart on fault shutdown
  - Over-voltage and under-voltage
  - TC compensated RDS (ON) sensed current limit
  - Thermal shutdown
  - Smart power-save
  - Pre-bias start-up
- **Capacitor types**: SP, POSCAP, OSCON and ceramic
- **Package**: MLPQ-20, 3.0mm x 3.0mm
- **Lead-free and halogen-free**
- **RoHS and WEEE compliant**

APPLICATIONS

- Office automation and computing
- Networking and telecommunication equipment
- Point-of-load power supplies and module replacement
- Automotive applications

### DDR1 to DDR4 Memory Termination LDO Regulator

<table>
<thead>
<tr>
<th>Part Number</th>
<th>$V_{DD}$ (V)</th>
<th>$V_{DDQ}$ (V)</th>
<th>$V_{TT}$ (V)</th>
<th>$I_{VT}$ (A)</th>
<th>DDR Type</th>
<th>Package</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC2597</td>
<td>2.35 - 3.6</td>
<td>1-3.6</td>
<td>0.5 - 1.8</td>
<td>±1%</td>
<td>1,2,3,4</td>
<td>SOIC-8 EDP</td>
<td>Integrated DDR VTT LDO with on-board buffered reference, remote sense. Also provides an accuracy of +/-1% over temperature</td>
</tr>
</tbody>
</table>

### Power management

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Type</th>
<th>$V_{in}$ (V)</th>
<th>$I_{out}$ (A)</th>
<th>Power- Good flag</th>
<th>Enable</th>
<th>Soft Start</th>
<th>PSAVE</th>
<th>Package (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC220Q</td>
<td>Regulator</td>
<td>2.7 - 5.5</td>
<td>0.65</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Regular</td>
<td>SOIC-8 EDP</td>
</tr>
<tr>
<td>SC195</td>
<td>Regulator</td>
<td>2.9 - 5.5</td>
<td>0.5</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Automatic</td>
<td>MLPQ UT8,1.5x1.5x0.6</td>
</tr>
<tr>
<td>SC183CQ</td>
<td>Regulator</td>
<td>2.9 - 5.5</td>
<td>2</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>MLPD-10, 3.0x3.0x1.0</td>
</tr>
<tr>
<td>SC187</td>
<td>Regulator</td>
<td>2.9 - 5.5</td>
<td>4</td>
<td>Yes</td>
<td>Yes</td>
<td>Programmable</td>
<td>No</td>
<td>MLPQ UT16, 3.0x3.0x0.6</td>
</tr>
<tr>
<td>SC284</td>
<td>Regulator</td>
<td>2.9 - 5.5</td>
<td>1.8/1.8</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>MLPQ-UT20, 3.0x3.0x0.6</td>
</tr>
<tr>
<td>SC174</td>
<td>Regulator</td>
<td>3 - 5.5</td>
<td>4</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Ultrasonic</td>
<td>MLPD 10, 3.0x3.0x1.0</td>
</tr>
<tr>
<td>SC4501Q</td>
<td>Regulator</td>
<td>1.4 - 16</td>
<td>2 **</td>
<td>No</td>
<td>Yes</td>
<td>Programmable</td>
<td>No</td>
<td>10 Pin - MLPD, 3.0x3.0</td>
</tr>
<tr>
<td>SC4524/5</td>
<td>Regulator</td>
<td>3 - 28</td>
<td>2/3</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>SOIC-8 EDP</td>
</tr>
<tr>
<td>SC3303</td>
<td>Regulator</td>
<td>5.5 - 28</td>
<td>3</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Ultrasonic</td>
<td>MLPD 10, 3.0x3.0x1.0</td>
</tr>
<tr>
<td>SC414</td>
<td>Regulator</td>
<td>3 - 28</td>
<td>6</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Ultrasonic</td>
<td>MLPQ 28, 4.0x4.0x1.0</td>
</tr>
<tr>
<td>SC9301</td>
<td>Regulator</td>
<td>3 - 28</td>
<td>10</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>MLPQ-32, 5.0x5.0</td>
</tr>
<tr>
<td>SC508A</td>
<td>Controller</td>
<td>4.5 - 46</td>
<td>30</td>
<td>Yes</td>
<td>Yes</td>
<td>Programmable</td>
<td>Ultrasonic or Regular</td>
<td>MLPQ ~UT20, 4.0x4.0x1.0</td>
</tr>
</tbody>
</table>

*Indicates Semtech AEC-Q100 Qualified Part ** Switch current limit
### Power Management Solutions - LED Drivers

#### HIGH BRIGHTNESS 4-CHANNEL 150MA/CH. LED DRIVER WITH PHASE-SHIFTING - AEC-Q100 QUALIFIED

The SC5210Q is a high brightness 4-Channel LED driver that prevents false registering of short circuit fault. It enables ultra-thin display panels and eliminates audible noise, water fall effect and reduces EMI. The dimming profile is smooth with no visible steps. It also has I2C interface and low quiescent current. It is perfect for Automotive LCD Backlight and industrial displays.

### FEATURES & BENEFITS

- **V_{IN}** Range 4.5V to 45V
- **V_{OUT}** up to 65V
- 2.2μH Inductor
- Up to 150mA/Channel
- Adj Switch frequency 200kHz-2.2MHz
- Optional True Disconnect FET
- Channel Matching: 1%
- PWM Dimming (100Hz–30KHz)
- 9 or 10 Bit Dimming Resolution
- Phase Shifted Operation
- Optional VSYNC / HSYNC / FSYNC
- I2C Control / Configuration
- 6μA Shutdown Current
- Extensive Protection (Adj OVP, OCP, UVLO, Open/Short LED)
- 4x4mm 24 lead QFN
- “Q” is AEC-Q100, Grade-2, Qualified Version

### APPLICATIONS

- Automotive
- Medium-sized LCD panel
- Notebook display
- Sub-notebook and tablet computer displays
- Portable media players

### LED Driver

<table>
<thead>
<tr>
<th>Part Number</th>
<th>V_{IN} (V)</th>
<th>V_{OUT} (V)</th>
<th>f_{SW} (MHz)</th>
<th>Max # LEDs</th>
<th># LED Strings</th>
<th>Current Per LED String</th>
<th>Total Current</th>
<th>Dimming</th>
<th>Package</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC441A</td>
<td>4.5</td>
<td>21</td>
<td>36</td>
<td>0.7</td>
<td>40</td>
<td>10</td>
<td>150</td>
<td>600</td>
<td>TSSOP-20 EDP</td>
<td>Open/Short LED string disable, OCP, OTP, OVP and FFLAG</td>
</tr>
<tr>
<td>SC443</td>
<td>4.5</td>
<td>27</td>
<td>42</td>
<td>0.2–1.2</td>
<td>36</td>
<td>3</td>
<td>12</td>
<td>30</td>
<td>MLP-UT-16</td>
<td>PWM up to 50kHz</td>
</tr>
<tr>
<td>SC445</td>
<td>4.5</td>
<td>27</td>
<td>42</td>
<td>0.7</td>
<td>40</td>
<td>4</td>
<td>10</td>
<td>150</td>
<td>TSSOP-20</td>
<td>PWM up to 50kHz</td>
</tr>
<tr>
<td>SC446</td>
<td>4.5</td>
<td>27</td>
<td>42</td>
<td>0.8</td>
<td>36</td>
<td>3</td>
<td>12</td>
<td>100</td>
<td>TSSOP-16</td>
<td>PWM up to 50kHz</td>
</tr>
<tr>
<td>SC4541</td>
<td>2.9</td>
<td>22</td>
<td>25</td>
<td>2</td>
<td>27</td>
<td>1</td>
<td>7</td>
<td>100/200</td>
<td>SOT23</td>
<td>High side sense for single wire connection</td>
</tr>
<tr>
<td>SC5010/H</td>
<td>4.5</td>
<td>27</td>
<td>50</td>
<td>Adj. to 2.2</td>
<td>112</td>
<td>2</td>
<td>8</td>
<td>30/50</td>
<td>QFN-28</td>
<td>Phase shifted, PWM/IC dimming, extensive protection</td>
</tr>
<tr>
<td>SC5014</td>
<td>4.5</td>
<td>27</td>
<td>50</td>
<td>Adj. to 2.2</td>
<td>56</td>
<td>4</td>
<td>14</td>
<td>120</td>
<td>MLPQ-20</td>
<td>Phase shifted, PWM/IC dimming, extensive protection</td>
</tr>
<tr>
<td>SC5014A</td>
<td>4.5</td>
<td>27</td>
<td>50</td>
<td>Adj. to 2.2</td>
<td>28</td>
<td>2</td>
<td>14</td>
<td>240</td>
<td>MLPQ-20</td>
<td>PWM / IC dimming, extensive protection</td>
</tr>
<tr>
<td>SC5012/Q</td>
<td>4.5</td>
<td>45</td>
<td>65</td>
<td>Adj. to 2.2</td>
<td>68</td>
<td>4</td>
<td>17</td>
<td>150</td>
<td>MLPQ-24</td>
<td>5,000:1 PWM Dimming IC control extensive protection</td>
</tr>
</tbody>
</table>

*Indicates Semtech AEC-Q100 Qualified Part*
HAPTICS ENABLED 4/5-WIRE RESISTIVE TOUCHSCREEN CONTROLLER WITH PROXIMITY SENSING

The SX8654/74 belong to a family of high performance haptics enabled 4/5-wire Multitouch screen controllers with proximity detection optimized for hand-held applications such as mobile phones, portable music players, game machines, point-of-sales terminal, and other consumer, industrial and automotive applications. They feature a wide input supply range from 2.3V to 3.6V.

FEATURES & BENEFITS

- Low voltage operation
- Low-power consumption
- 4/5-wire touchscreen interface
- Capacitive proximity sensing (SX8654/56/74/76)
- Haptics driver for LRA and ERM (SX8654/55/74/75)
- 400kHz I²C serial interface
- Several host operating modes available
- Hardware, software, and power-on reset
- -40°C to +85°C operating temp. range
- 15kV HBM and IEC ESD protection
- Small footprint packages
- Pb and halogen free, RoHS/WEEE compliant

APPLICATIONS

- DSC, DVR, phones
- POS/POI terminals
- Automotives
- Touch-screen monitors
- Mobile phones
- Game machines
- Portable music players

<table>
<thead>
<tr>
<th>Haptics Enabled 4/5-Wire</th>
<th>Part Number</th>
<th>Touch Panel</th>
<th>Resolution</th>
<th>Interface (mm)</th>
<th>Power Consumption (µA)</th>
<th>On-chip-ESD Protection (+/– kV)</th>
<th>Multi-touch</th>
<th>Proximity Sensing</th>
<th>Haptics</th>
<th>Package (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SX8650</td>
<td>4-wire</td>
<td>12-bit</td>
<td>I²C</td>
<td>0.4</td>
<td>25kV Air 15kV Contact</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>QFN 3.0x3.0</td>
</tr>
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<td>SX8651</td>
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Touch Button Solutions

LOWEST POWER CAPACITIVE TOUCH SENSORS WITH ENHANCED LED DRIVERS AND PROXIMITY SENSING

Semtech’s touch sensor platform enables sensing through a thick overlay material as well as proximity detection with an extended range (>10cm) all in a tiny footprint with zero components per input. The low-power consumption and advanced, built-in LED drivers make it the ideal solution for a wide range of sensing applications in mobile phones, media players, notebooks, white goods and automobiles.

FEATURES & BENEFITS

- High resolution capacitive sensing solution
  - Proximity detection up to 10cm
  - Supports button, slider and wheel design
- Extreme sensitivity
  - Works with thick overlay materials (>5mm)
- Smart auto-offset compensation
  - Eliminates false triggers due to environmental factors
- Enhanced LED operation
  - Individual 256-step intensity/fade-in/fade-out control
  - Auto-lighting without host interaction
- No external components per input

APPLICATIONS

- DSC, DVR, phones
- POS/POI terminals
- Automobiles
- Touch-screen monitors
- Mobile phones
- Game machines
- Portable music players

PACKAGE

- QFN-28, 4.0mm x 4.0mm
- QFN-32, 5.0mm x 5.0mm
- QFN-32, 4.0mm
- TSSOP-24, 4.4mm x 7.8mm

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| Part Number | Sensor Inputs | LED Driver | Interface | Proximity | Button | Slider | Wheel | IR Detect | Buzzer | Overlay (mm) | Auto Comp | Intensity (256-step) | Fade-in Fade-out | Auto Lighting | Field Effect | Program Memory | Package (mm) |
|-------------|---------------|------------|-----------|-----------|--------|--------|-------|-----------|--------|-------------|----------|-------------------|----------------|--------------|-------------|---------------|----------------|--------------|
| SX9510      | 8             | 8          | I2C/Analog| ✓         | ✓      | ✓      | ✓     | ✓         | ✓      | >5          | ✓        | ✓                 | ✓                | ✓            | ✓           | ✓            | ✓             | 4x4 QFN 4.4x7.8 TSSOP |
| SX9511      | 8             | 8          | I2C/Analog| ✓         | ✓      | ✓      | ✓     | ✓         | ✓      | >5          | ✓        | ✓                 | ✓                | ✓            | ✓           | ✓            | ✓             | 4x4 QFN 4.4x7.8 TSSOP |
| SX9512      | 8             | 8          | I2C/Analog| ✓         | ✓      | ✓      | ✓     | ✓         | ✓      | >5          | ✓        | ✓                 | ✓                | ✓            | ✓           | ✓            | ✓             | 4x4 QFN 4.4x7.8 TSSOP |
| SX9513      | 8             | 8          | I2C/Analog| ✓         | ✓      | ✓      | ✓     | ✓         | ✓      | >5          | ✓        | ✓                 | ✓                | ✓            | ✓           | ✓            | ✓             | 4x4 QFN 4.4x7.8 TSSOP |
| SX8633      | 12            | 8          | I2C       | ✓         | ✓      | ✓      | ✓     | ✓         | ✓      | >5          | ✓        | ✓                 | ✓                | ✓            | ✓           | ✓            | ✓             | 5x5 QFN          |
| SX8634      | 12            | 8          | I2C       | ✓         | ✓      | ✓      | ✓     | ✓         | ✓      | >5          | ✓        | ✓                 | ✓                | ✓            | ✓           | ✓            | ✓             | 5x5 QFN          |
| SX8635      | 12            | 8          | I2C       | ✓         | ✓      | ✓      | ✓     | ✓         | ✓      | >5          | ✓        | ✓                 | ✓                | ✓            | ✓           | ✓            | ✓             | 5x5 QFN          |
| SX8636      | 8             | 8          | I2C       | ✓         | ✓      | ✓      | ✓     | ✓         | ✓      | >5          | ✓        | ✓                 | ✓                | ✓            | ✓           | ✓            | ✓             | 4x4 QFN          |
| SX8638      | 8             | 8          | I2C       | ✓         | ✓      | ✓      | ✓     | ✓         | ✓      | >5          | ✓        | ✓                 | ✓                | ✓            | ✓           | ✓            | ✓             | 4x4 QFN          |
| SX8639      | 8             | 8          | I2C       | ✓         | ✓      | ✓      | ✓     | ✓         | ✓      | >5          | ✓        | ✓                 | ✓                | ✓            | ✓           | ✓            | ✓             | 4x4 QFN          |
| SX8643      | 12            | 8          | I2C       | ✓         | ✓      | ✓      | ✓     | ✓         | ✓      | >5          | ✓        | ✓                 | ✓                | ✓            | ✓           | ✓            | ✓             | 5x5 QFN          |
| SX8644      | 12            | 8          | I2C       | ✓         | ✓      | ✓      | ✓     | ✓         | ✓      | >5          | ✓        | ✓                 | ✓                | ✓            | ✓           | ✓            | ✓             | 5x5 QFN          |
| SX8645      | 12            | 8          | I2C       | ✓         | ✓      | ✓      | ✓     | ✓         | ✓      | >5          | ✓        | ✓                 | ✓                | ✓            | ✓           | ✓            | ✓             | 5x5 QFN          |
| SX8646      | 8             | 8          | I2C       | ✓         | ✓      | ✓      | ✓     | ✓         | ✓      | >5          | ✓        | ✓                 | ✓                | ✓            | ✓           | ✓            | ✓             | 4x4 QFN          |
| SX8647      | 8             | 8          | I2C       | ✓         | ✓      | ✓      | ✓     | ✓         | ✓      | >5          | ✓        | ✓                 | ✓                | ✓            | ✓           | ✓            | ✓             | 4x4 QFN          |
| SX8648      | 8             | 8          | I2C       | ✓         | ✓      | ✓      | ✓     | ✓         | ✓      | >5          | ✓        | ✓                 | ✓                | ✓            | ✓           | ✓            | ✓             | 4x4 QFN          |
| SX8649      | 8             | 8          | I2C       | ✓         | ✓      | ✓      | ✓     | ✓         | ✓      | >5          | ✓        | ✓                 | ✓                | ✓            | ✓           | ✓            | ✓             | 4x4 QFN          |
Semtech Corporation is a leading supplier of high performance analog, mixed-signal semiconductors and advanced algorithms for high-end consumer, enterprise computing, communications, and industrial equipment. Semtech, publicly traded since 1967, is listed on the Global Select Market under the symbol SMTC and has more than 32 sales and application support offices in 14 countries as well as representatives and distribution support locations in more than 30 countries.

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