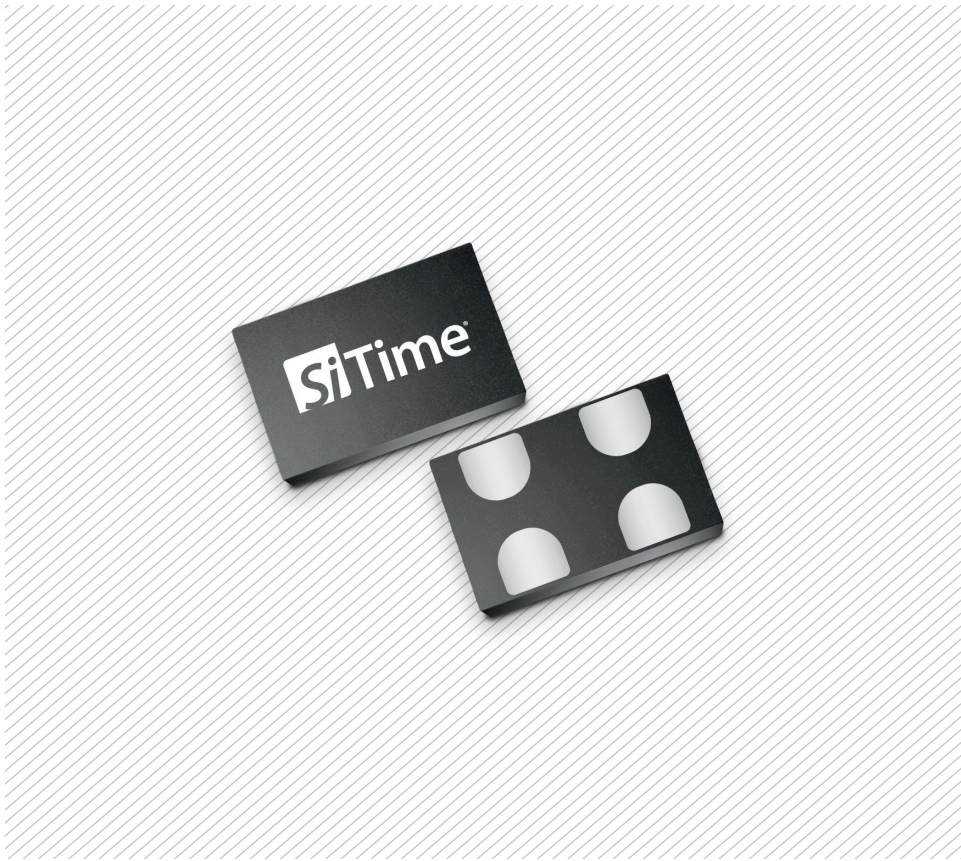


# endrich news

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## OUR PRODUCT OF THE MONTH: OSCILLATORS WITH A CONTINUOUS SUPPLY VOLTAGE FROM 3.3 V DOWN TO 1.8 V



### FEATURES

- Output frequency between 1 MHz and 137 MHz
- Frequency stability options of  $\pm 20$  ppm,  $\pm 25$  ppm, and  $\pm 50$  ppm
- Operating temperature as wide as  $-40$  °C to  $+85$  °C
- 5 industry standard packages as small as 2.0 x 1.6 mm
- FlexEdge™ configurable rise / fall time to reduce system EMI
- Any voltage continuous 1.8 V to 3.3 V



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## CT110 – XTREMESENSE™ HIGH LINEARITY, HIGH-RESOLUTION CONTACT CURRENT SENSOR IN MINIATURE FORM FACTOR

The CT110 is a high linearity and high-resolution contact current sensor with isolation from Crocus Technology that is designed with its patented state-of-the-art XtremeSense™ TMR technology for high performance.

The XtremeSense™ TMR sensor measures the magnetic field which is induced by the current flowing through the DFN package via its integrated Current Carrying Conductor (CCC) and converts it to an analog ratio-metric output voltage that represents the current. The CT110 achieves superior performance with a typical total output error of less than ±0.5% and is capable of sensing current as low as 5 mA providing unmatched resolution.

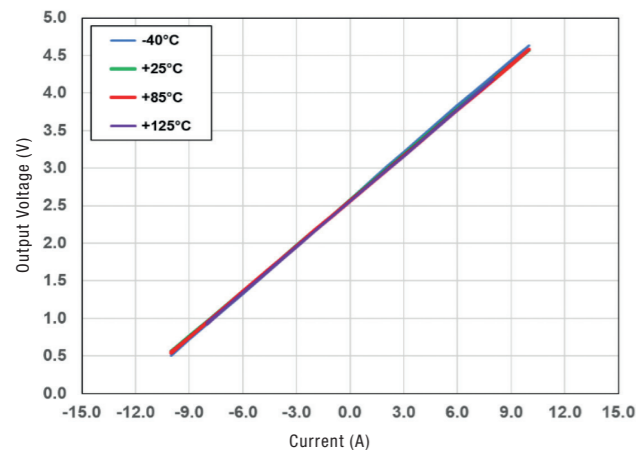
CT110 is an ideal solution to replace shunt resistor plus isolation amplifier as well as current hall magnetic sensor and current

transformer. At the same time, the CT110 simplifies design, PCB layout and saves PCB area. It is capable of supporting up to +10.0 A of DC current and ±15.0 A of AC current.

Also, the CT110 has a sampling frequency of 200 kHz but only has minimal current consumption of 1.2 mA to bias it since the measured current does not go through a shunt resistor which generates heating losses. Additionally, the CT110 integrates a /FLAG output that is active LOW and will indicate when an over-current event occurs.

### FEATURES

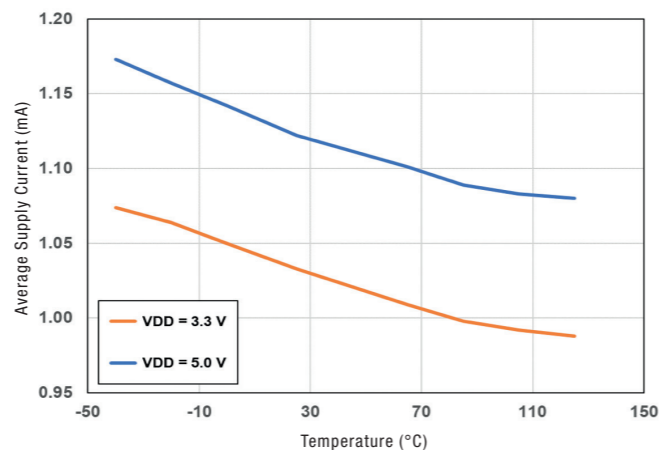
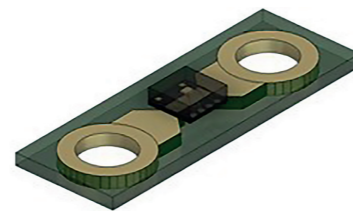
- Current range: Up to +10.0 A<sub>DC</sub> / ±15.0 A<sub>PK</sub>
- Resolution: 5 mA
- Total output error: < ±0.5% (typical)
- Linear analog output @ f<sub>s</sub> = 200 kHz
- Supply voltage: 2.7 V to 5.5 V; supply current: 1.2 mA
- Operating temperature ranges: Industrial: -40 °C to +85 °C or extended Industrial: -40 °C to +125 °C
- Package: 6-lead DFN, 3.00 x 3.00 x 0.95 mm



Best-in-Class Magnetic Performance over Temperature

### APPLICATIONS

- Shunt resistor plus isolation amplifier replacement
- Smart plugs/IoT devices
- LED lighting products
- Power tools
- Appliances
- Drones
- Battery charger systems
- PCs and servers



Low Current Consumption

## CT110 – XTREMESENSE™ HIGH LINEARITY, HIGH-RESOLUTION CONTACT CURRENT SENSOR IN MINIATURE FORM FACTOR

	PART NUMBER	CURRENT RANGE	PACKAGE	OPERATING TEMPERATURE RANGE
HAVE A LOOK	CT110FDC-ID6	+5.0 A <sub>DC</sub> / ±5.0 A <sub>PK</sub>	6-lead DFN 3.00 x 3.00 x 0.95 mm	-40 °C to +85 °C
HAVE A LOOK	CT110FDC-HD6			-40 °C to +125 °C
	CT110FDV-ID6			-40 °C to +85 °C
	CT110FDV-HD6			-40 °C to +125 °C
HAVE A LOOK	CT110PDC-ID6	+10.0 A <sub>DC</sub> / ±10.0 A <sub>PK</sub>		-40 °C to +85 °C
	CT110PDC-HD6			-40 °C to +125 °C
	CT110PDV-ID6			-40 °C to +85 °C
	CT110PDV-HD6			-40 °C to +125 °C
HAVE A LOOK	CT110RMC-ID6	±15.0 A <sub>PK</sub>		-40 °C to +85 °C
HAVE A LOOK	CT110RMC-HD6			-40 °C to +125 °C
	CT110RMV-ID6			-40 °C to +85 °C
	CT110RMV-HD6			-40 °C to +125 °C

### CT110 APPLICATIONS



## TVS ARRAY TO THWART MALICIOUS AND ACCIDENTAL USB KILLER ATTACKS

HAVE A LOOK



ProTek Devices has introduced a TVS array capable of guarding against malicious or unsuspecting USB killer attacks that are proven highly costly to organizations in equipment and data loss. The new component offers circuit protection against positive ESD, fast surge voltage transients, and high negative voltage transients at data lines such as are possible with USB killer devices.

USB killers when plugged into a USB port can immediately destroy the device it is attached to and threaten other connected devices. USB killers have been used to maliciously destroy equipment. However, they can also be an unsuspecting threat when people mistaken them for a common USB memory stick. ProTek Devices' PRUSB05UBK component is specifically designed to thwart such threats.

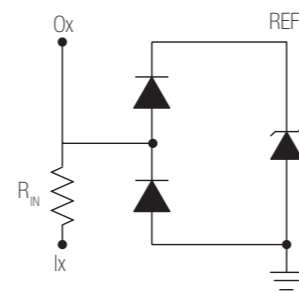
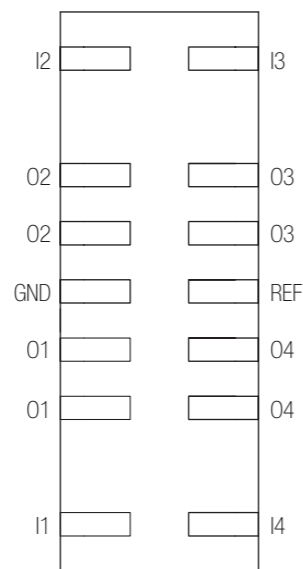
The new steering diode/transient voltage suppressor array (TVS array) is ideal for dual USB 2.0 ports, USB 1.0, and the power bus. It is also suited for circuit protection of gigabit ethernet ports, portable electronics, video card interfaces, and DVI interfaces.

The PRUSB05UBK offers ultra-low capacitance  $C_{j(SD)}$  of 2.5 pF typical with integrated resistors at each data line. It is compatible with IEC industry standards 61000-4-2 (ESD): air +/-15 kV, contact +/- 8 kV; with 61000-4-4 (EFT): 40 A, 5/50 ns; and with 61000-4-5 (surge): 24 A, at 8/20  $\mu$ s – level 2 (Line-Gnd) and level 3 (Line-Line).

It provides protection for four lines and 500 watts of peak pulse power per line (typical = 8/20  $\mu$ s). ESD protection is rated at up to 25 kilovolts. The new component also provides a low clamping voltage and is RoHS and REACH compliant.

### FEATURES

- Compatible with IEC 61000-4-2 (ESD): air  $\pm$ 15 kV, contact  $\pm$ 8 kV
- Compatible with IEC 61000-4-4 (EFT): 40 A, 5/50 ns
- Compatible with IEC 61000-4-5 (Surge): 24 A, 8/20  $\mu$ s – level 2 (Line-Gnd) & level 3 (Line-Line)
- 500 watts peak pulse power per line (tp = 8/20  $\mu$ s)
- ESD protection > 25 kilovolts
- Low clamping voltage
- Protection for 4 lines
- Ultra low capacitance  $C_{j(SD)}$ : 2.5 pF typical
- RoHS compliant
- REACH compliant



Pin configuration & circuit diagram

### APPLICATIONS

- Gigabit ethernet
- Portable electronics
- Video card interfaces
- USB 1.0, USB 2.0
- DVI interfaces

## SiTIME ENABLES HIGH PERFORMANCE OPTICAL AND DATA COMMUNICATIONS FOR OUTDOOR 5G DEPLOYMENT

HAVE A LOOK

SiTime Corporation (NASDAQ: SITM), a market leader in MEMS timing, introduced the SiT9501 differential MEMS oscillator. Based on SiTime's newly launched third generation MEMS technology, the device delivers uncompromising performance

for 100G – 800G optical modules. With the device's smaller size, customers get up to 50% space savings to integrate more features and reduce development time.

### Smallest package and integrated resistor – 50% less area



Quartz 2.5 x 2.0 mm, plus LVPECL bias resistors

SiT9501 2.0 x 1.6 mm, integrated LVPECL bias resistors

The SiT9501 is ideal for other high-performance applications, including datacenter switches, telecom routers, edge servers, AI/graphics cards, and storage controllers.

ready and delivers up to 7 times better phase noise at half the power," said Rajesh Vashist, CEO of SiTime. "The SiT9501 is the first of many products to use this technology and continues our tradition of delivering dramatic performance enhancements in every product generation. In space constrained applications such as optical modules, the SiT9501 delivers an unmatched combination of higher performance and smaller size."

"Over the past 15 years, SiTime has developed and shipped two generations of MEMS resonators that are used in all our oscillator shipments to date. Our third generation MEMS is now

### Meeting tough requirements of data communications and optical modules

In anticipation of massive Internet traffic growth, driven by 5G, AI and cloud computing, data centers are increasing throughput. Optical modules and data communications equipment need to deliver faster data rates. Outdoor 5G infrastructure is subject to environmental stressors such as high-temperature, vibration

and airflow that can degrade throughput.

With the increased data rates and potential environmental stressors, timing margins shrink, requiring lower jitter oscillators to ensure the same quality of service.

## SiTIME ENABLES HIGH PERFORMANCE OPTICAL AND DATA COMMUNICATIONS FOR OUTDOOR 5G DEPLOYMENT

Lowest jitter 70 fs | Smallest by 35%

### MEMS Oscillators for Optical Modules and Data Communications



In optical modules, a third of the PCB area is consumed by the optical sub-assembly, leaving little room for data processing electronics, and making small size a critical factor in oscillator selection.

SiTime's new SiT9501 differential oscillator solves both key issues by offering the lowest jitter in the presence of environmental stressors, and the smallest size.

#### FEATURES OF THE SiT9501

- Popular networking frequencies from 25 MHz to 644.53125 MHz
- 70 femtoseconds of RMS phase jitter
- 2.0 x 1.6 mm package, the industry's smallest. Also available in other industry standard packages.
- Wide temperature range, from -40 °C to +105 °C
- On-chip voltage regulators to filter power-supply noise, enhancing power integrity for module designs
- Innovative FlexSwing™ driver reduces power consumption by 30% and integrates source-bias LVPECL resistors

TYPE	SiT9501	SiT9375	SiT9365/6/78009
FREQUENCY	14 stand. frequencies	21 stand. frequencies	1 to 725 MHz
FREQUENCY STABILITY	±20 ppm, ±25 ppm, ±30 ppm, ±50 ppm		
OPERATING TEMPERATURE RANGE	-20 °C to +70 °C, -40 °C to +85 °C, -40 °C to +95 °C, -40 °C to +105 °C		
OUTPUT TYPE	LVPECL, LVDS, HCSL, Low-power HCSL "1": FlexSwing referenced to voltage on VDD pin.		
PACKAGE TYPE	2.0 x 1.6 mm, 2.5 x 2.0 mm, 3.2 x 2.5 mm		3.2 x 2.5 mm, 5.0 x 3.2 mm, 7.0 x 5.0 mm
JITTER GRADE	70 fsec	200 fsec	230 fsec
FEATURES	FlexSwing		
VOLTAGE SUPPLY	1.8 V, 2.5 V, 3.3 V, 2.25 V to 3.63 V, 1.71 V to 3.63 V		

The SiT9501 oscillator is sampling now. Production quantities are planned to be available in Q1 2021. Pricing is provided upon request.

## OUR POPULAR SiT1602, SiT8008 AND SiT8009 OSCILLATORS WITH A CONTINUOUS SUPPLY VOLTAGE FROM 3.3V DOWN TO 1.8V

HAVE A  
LOOK

Continuous supply voltage allows customers to use the same device for multiple designs, reducing the SKU count and maximizing the versatility of their inventory. Consolidating to one device also reduces the expense necessary for qualification, saving time and resources.

Our continuous voltage oscillators are built on a programmable architecture that provides ultra-short lead times along with a wide range of configurable features.

### Customer advantages for this product are:

- ✓ Consolidation to single device SKU – designated “YY” in attached datasheets
- ✓ Reduced inventory overhead, and increased supply versatility
- ✓ Simplified qualification; saves time & resources

### These benefits are in addition to SiTime's other advantages:

- ✓ Short term product availability
- ✓ Dynamic performance in real world applications
- ✓ World-class quality & reliability: 0.51 DPPM and 1.9 Billion hour MTBF
- ✓ Fast programmability: Millions of configurations



## OUR POPULAR SiT1602, SiT8008 AND SiT8009 OSCILLATORS WITH A CONTINUOUS SUPPLY VOLTAGE FROM 3.3V DOWN TO 1.8V

### FEATURES

- Output frequency between 1 MHz and 137 MHz
- Frequency stability options of  $\pm 20$ ,  $\pm 25$ , and  $\pm 50$  ppm
- Operating temperature as wide as  $-40\text{ }^{\circ}\text{C}$  to  $+85\text{ }^{\circ}\text{C}$
- 5 industry standard packages as small as 2.0 x 1.6 mm
- FlexEdge™ configurable rise / fall time to reduce system EMI's
- Any Voltage continuous 1.8V to 3.3V

In addition, our MEMS technology enables the highest reliability and environmental robustness. Once in production, the continuous-voltage devices will be available within short term along with many other SiTime timing solutions.

TYPE	SIT1602	SIT1602	SIT8009
OSCILLATOR TYPE	XO-SE		
FREQUENCY	52 stand. frequencies	1 to 110 MHz any freq.	115 to 137 MHz any freq.
FREQUENCY STABILITY	$\pm 20$ ppm, $\pm 25$ ppm, $\pm 50$ ppm		
OPERATING TEMPERATURE RANGE	$-20\text{ }^{\circ}\text{C}$ to $+70\text{ }^{\circ}\text{C}$ , $-40\text{ }^{\circ}\text{C}$ to $+85\text{ }^{\circ}\text{C}$		
OUTPUT TYPE	LVCMOS		
PACKAGE TYPE	2.0 x 1.6 mm, 2.5 x 2.0 mm, 3.2 x 2.5 mm, 5.0 x 3.2 mm, 7.0 x 5.0 mm		
PHASE JITTER (RMS)	1.3 ps		
FEATURES	Field programmable		
VOLTAGE SUPPLY	1.8V, 2.5V to 3.3V, 1.8V to 3.3V (sampling)		
FLEXEDGE™ RISE/FALL TIME	Yes		

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