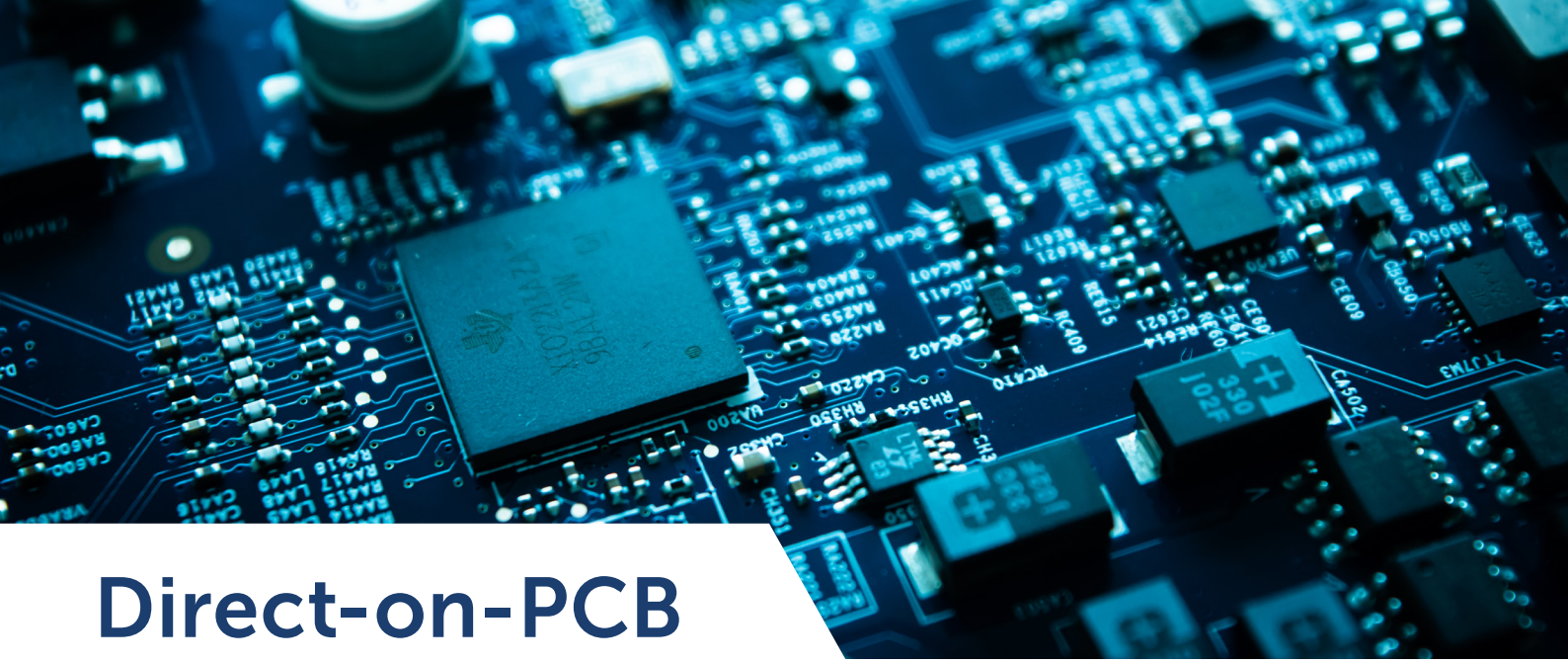

Direct-on-PCB Current Sensing

The PCB mount current sensor from CTS Corporation is designed to provide accurate and reliable readings of high-power electronics with a current range of up to 1000 A_{PK}. Using open-loop Hall-effect technology, the PCB mount current sensor can make precise current measurements without interrupting the primary conductor. Small in size and light of weight, the sensor is a cost-effective solution, optimized for PCB integration. This makes it ideal for monitoring and enhancing the performance of PCB inverter systems and high-power PCBs that are used across demanding high-power applications.

As a wave of electrification is washing across major industries, accurate current sensing has never been more important. This is especially true for high-power applications as these systems tend to drift significantly from their initial calibration over time. Without precise current configuration, systems will eventually experience a drop in performance, operating at less than optimal efficiency. On top of that, they will be more likely to malfunction, resulting in costly downtime.

The world's reliance on highly advanced and impossibly delicate electronic systems only grows, and at CTS, we have applied our collective engineering expertise to accommodate the demand for continued and optimized operation. We do so by introducing the PCB mount current sensor for high-power electronic applications in the industrial and transportation markets.

By providing highly accurate readings of currents up to 1000 A_{PK}, the PCB mount current sensor grants an essential diagnostic indication of system performance, allowing for timely recalibrations to optimize and enhance operational efficiency.

The CTS-CS-PAX-12 PCB Mount Current Sensor

Application Note

CTS Your Partner in Smart Solutions®

Big Performances in Small Sizes: CTS-CS-PAX-12 PCB Mount Current Sensor

The series CTS-CS-PAX-12 PCB mount current sensor from CTS Corporation is a highly accurate off-the-shelf sensing solution, ideal for AC and DC measurement of high-power electronics systems, as it features low hysteresis, high permeability and excellent thermal stability.

As its name suggests, the PCB mount current sensor is developed for installation directly onto printed circuit boards which is easily accomplished thanks to its small size and lightweight design.

Once installed, the PCB mount current sensor provides non-intrusive measurement of current flow utilizing the Hall-effect to detect the magnetic field generated by the primary conducting element of the application, and converting it into a proportional voltage output, accurate within 1% for currents up to ±1000 A_{PK}. The contactless sensing design ensures galvanic isolation, preventing interference and guaranteeing measurements without any losses. These features make it particularly attractive for high-power PCBs and PCB inverter systems.

To accommodate varying applications needs, the PCB mount current sensor comes in four different versions, each optimized for specific current ranges. As a CTS off-the-shelf solution, the sensor can be implemented directly into the intended application without any additional calibration in order to provide immediate current readings and gauge system performance.

Series CTS-CS-PAX-12 PCB Mount Current Sensors				
Parameter	**CTS-CPAX-12 0250**	**CTS-C-PAX-12 0500**	**CTS-CS-PAX-12 0750**	**CTS-CS-PAX-12 1000**
Current Range (I_P)	< 250 A_{PK}	< 500 A_{PK}	< 750 A_{PK}	< 1000 A_{PK}
Sensitivity (S)	8.00 mV/A	4.00 mV/A	2.67 mV/A	2.00 mV/A
Operating Temperature (T_A)	-40 to 125°C	-40 to 125°C	-40 to 125°C	-40 to 125°C
Output Quiescent Voltage (V_{OQ})	2.5 V	2.5 V	2.5 V	2.5 V
Linearity Error (N_L)	± 1%I_P	± 1%I_P	± 1%I_P	± 1%I_P
Frequency Bandwidth (BW)	> 30 kHz	> 30 kHz	> 30 kHz	> 30 kHz

Ideal Applications for the CTS PCB Mount Current Sensor

PCB Inverter Systems

Electronic systems of all kinds use inverters to convert DC into AC. With the rapid emergence of electric motors, the need for efficient and reliable inverter performance is greater than ever before, and the PCB mount current sensor will ensure optimal energy conversion efficiency, also providing feedback for controlling output waveform quality and enabling protection mechanisms. As such, the sensor will prove invaluable to high-power applications utilizing PCB-integrated inverters, including two wheeler electric vehicles, industrial motor control units/drives as well as elevators and escalators.

Power Supply Units

Used to convert AC into DC, power supply units are found throughout all types of electronic systems from consumer applicances to large-scale industrial applications. The PCB mount current sensor will be particular advantageous for power supply units used in high-power applications, which among others include fast charging stations for electric vehicles where car batteries are to be supplied with high currents to reduce charging downtime. Another example is large-scale data centers housing thousands of servers which require large amounts of uninterruptable power. In either case, the PCB mount current sensor will provide essential current monitoring to ensure optimal power delivery.

Renewable Energy Systems

The PCB mount current sensor from CTS is also a perfect fit for photovoltaics and wind energy systems, monitoring power output, grid connection and energy management. The ability to measure both DC and AC accurately, makes the sensor applicable in several instances throughout the systems. It can monitor the direct current generated by solar cells to measure the performance of the system inverters that convert the current into AC before it is used or distributed throughout the power grid, or it can be used to measure the AC generated by wind turbines. As the world's reliance on renewable energy increases, the PCB mount current sensor will see to it that the complex power setups are running smoothly and efficiently.

About CTS Corporation

CTS is a leading designer and manufacturer of products that Sense, Connect, and Move. We manufacture sensors, actuators and electronic components in North America, Europe and Asia, and provide solutions to OEMs in the aerospace & defense, medical, industrial, communications, information technology and transportation industries.

Off-the-shelf solutions from CTS combine the impeccable product quality of a well-established and renowned western electronics manufacturer with highly competitive price points and short lead times. The PCB mount current sensor is a ready-made, yet highly accurate solution with the flexibility of implementation to fit a broad spectrum of applications across various industries and markets. Requests for quotes can be made via the contact formular on our company website at www.ctscorp.com. The product will also be available for purhcase through CTS' global network of product distributors.

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