CTS-CS-CXX

Clamp-On Non-Intrusive Magnetic Field Concentrators

Features

- Low Hysteresis
- High Permeability
- Hall-Sensor Measurement
- High Linearity up to 200 A
- Temperature Range: 10 to 120 °C
- DC and AC compatible

Applications

- IoT
- Industrial
- E-metering
- Photovoltaic
- Datacenter
- Telecommunication

Description

The CTS-CS-CXX magnetic field concentrators are designed for non-intrusive and isolated measurement of electric currents. Thanks to the clamp-on design, the contactless current sensor can safely be installed without the need to interrupt or cut the cable. It is comprised of a soft ferromagnetic shield featuring superior material characteristics such as high linearity and very low hysteresis.

Applications include DC and AC current sensing up to 30 kHz, motor control, battery monitoring, charge control, white goods and many more. These concentrators are designed to work and should be paired with a Melexis IMC-Hall® planar magnetic field sensor to create an open loop current measurement system, capable of current measurements up to ±200 A.

Thanks to its hollow bottom design, the concentrator enables the direct housing of a planar current sensor and its capacitors underneath, thus allowing for a compact and space-saving solution. The concentrator can be directly soldered to the PCB thanks to its 4 through-hole pins, granting a robust and secure hold.

Specifications – Magnetic material

Parameter	Min	Typ.	Max.	Unit
Relative Permeability	-	100000	-	a.u.
Initial Relative Permeability	-	7000	-	a.u.
Saturation Flux Density	-	1	-	T
Hysteresis	-	2.8	-	A/m
Curie Temperature	-	450	-	°C

* Based on material manufacturer specification

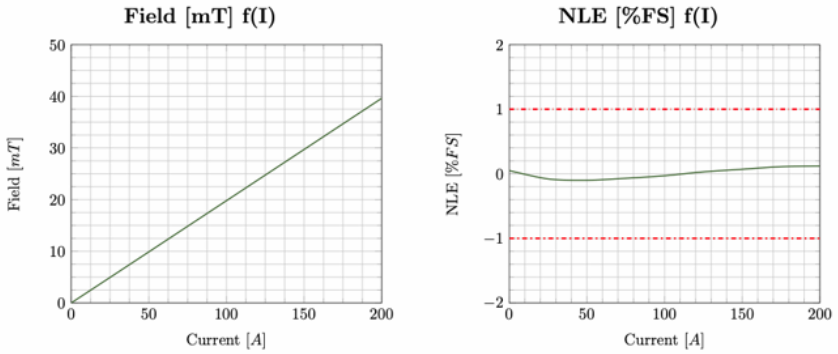
Specifications – Plastic material

Parameter	Typ.	Unit
Material	Glass reinforced PA6	
Glass-Fiber content	15	%
Min. usage temperature	10	°C
Max. usage temperature	120	°C

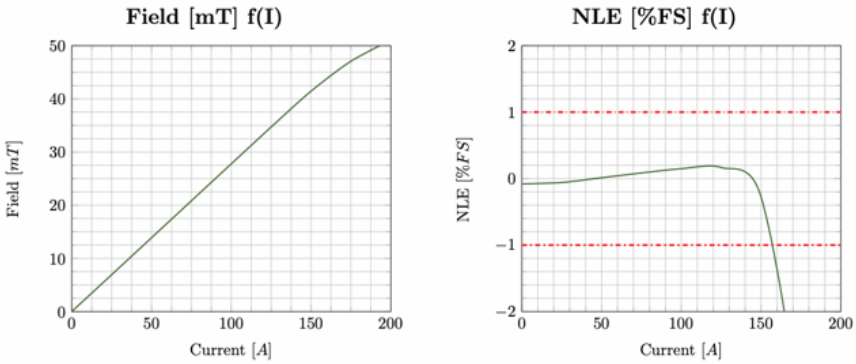
* Based on material manufacturer specification

Magnetic Gain and Linearity Error

CTS-CS-CXX-10

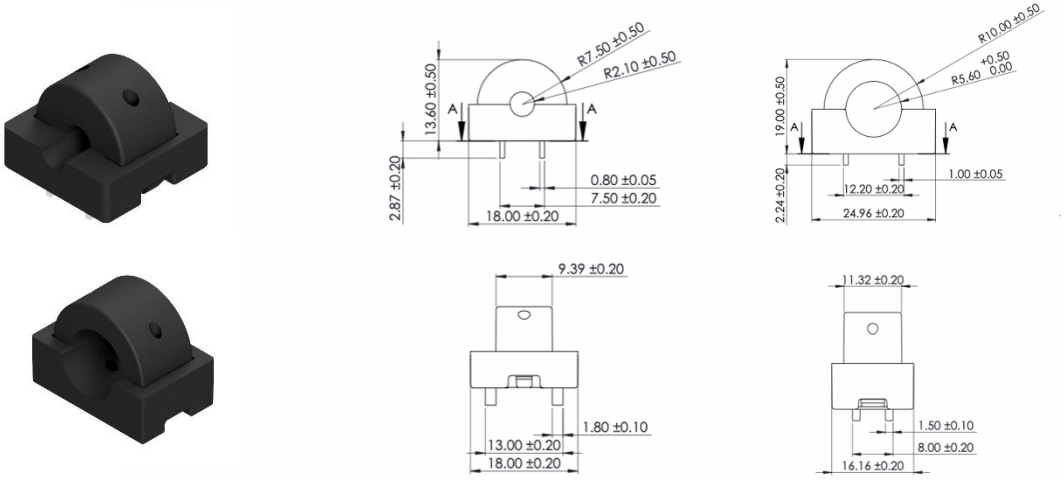


CTS-CS-CXX-04



Dimensions

Dimensions are expressed in [mm]. Unless otherwise specified, tolerances as per ISO 2768 class-m



CTS-CS-CXX-04 CTS-CS-CXX-10

Application

Application Example CTS-CS-CXX-10

CTS-CS-CXX-10 can be paired with the Melexis IMC-Hall® planar magnetic field sensor to create an open loop current measurement system, capable of current measurements up to ±200 A, as illustrated in Figure 1.

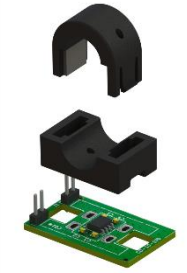
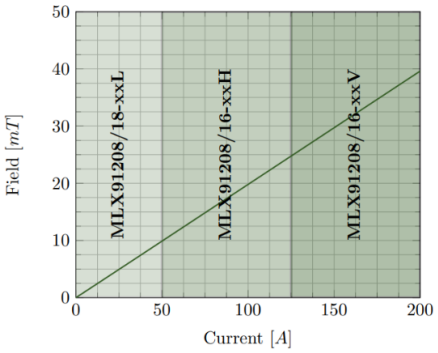


Figure 1: CTS-CS-CXX-10 application example

Application Sensor Pairing – CTS-CS-CXX-10



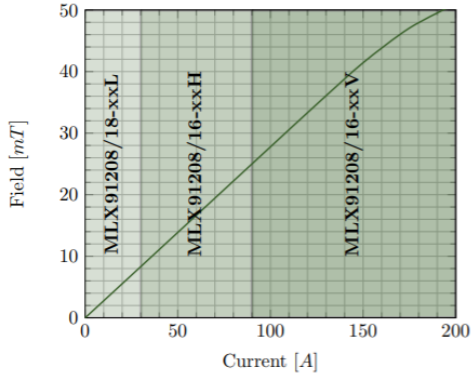
Current Range Peak	Current Sensor
10-50 [Apk]	MLX91208/18LDC-xxL
50-125 [Apk]	MLX91208/16LDC-xxH
125-200 [Apk]	MLX91208/16LDC-xxV

Application Example CTS-CS-CXX-04

CTS-CS-CXX-04 can be paired with a Melexis IMC-Hall® planar magnetic field sensor to create an open loop current measurement system, capable current measurements up to ±200 A, as illustrated in Figure 2

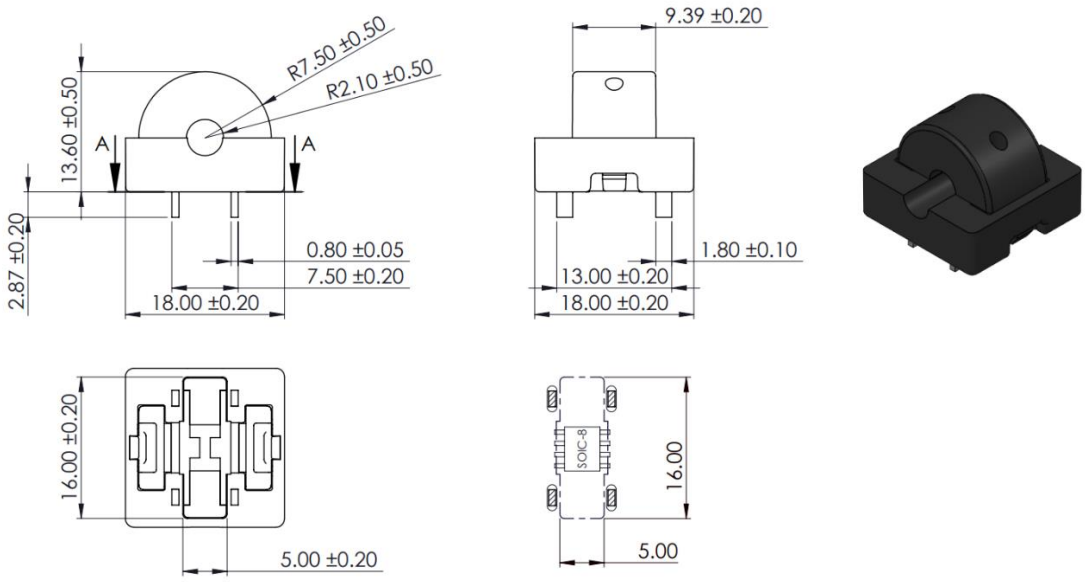
Figure 2: CTS-CS-CXX-04 application example

Application Sensor Pairing – CTS-CS-CXX-04



Current Range Peak	Current Sensor
10-30 [Apk]	MLX91208/18LDC-xxL
30-90 [Apk]	MLX91208/16LDC-xxH
90-200 [Apk]	MLX91208/16LDC-xxV

CTS-CS-CXX-04 Drawing:



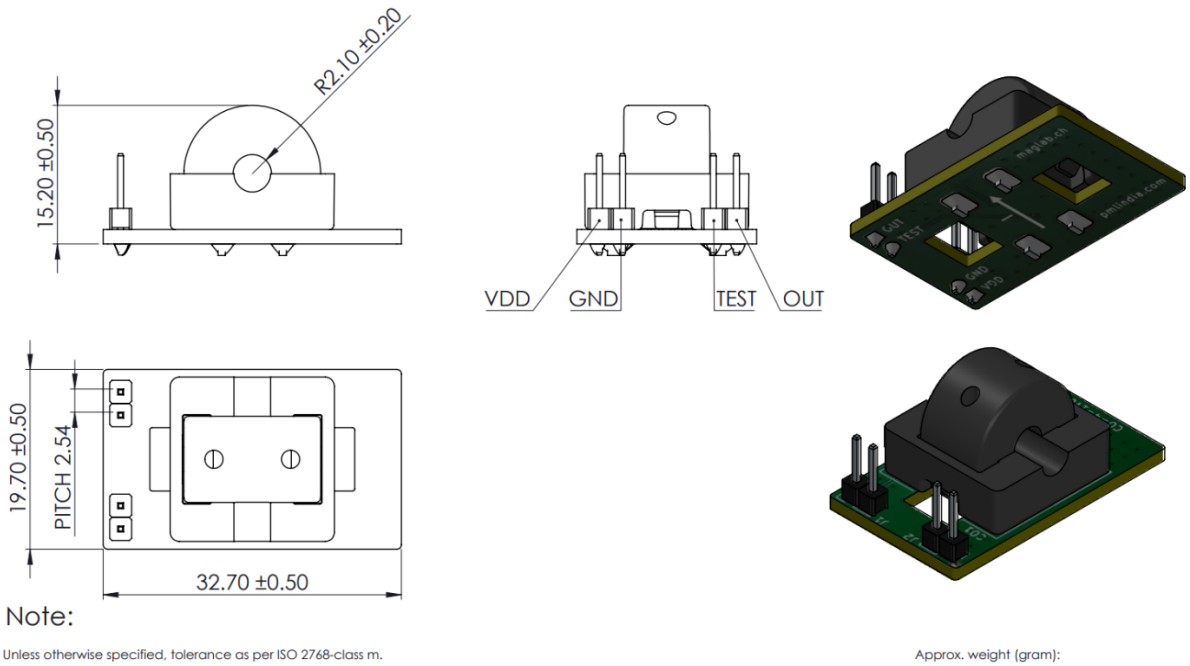
Note:

Unless otherwise specified, tolerance as per ISO 2768-class m.

SECTION A-A
Hall Sensor Position

Approx. weight (gram): 3.9

CTS-CS-CAX-04 (PCB assembly):

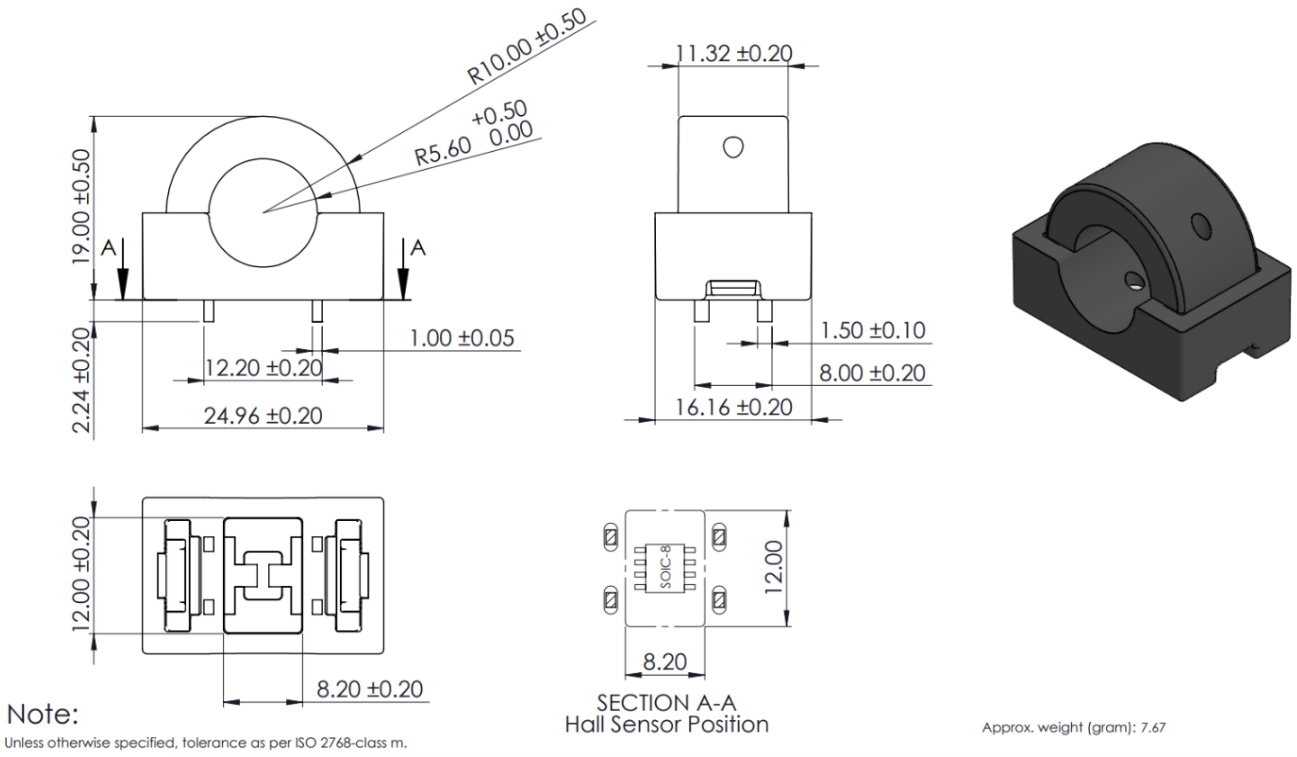


Note:

Unless otherwise specified, tolerance as per ISO 2768-class m.

Approx. weight (gram):

CTS-CS-CXX-10 Drawing:



CTS-CS-CAX-10 (PCB assembly):