100 A, 3 GHz, 50 Ω, 0.5 V/A Pulse Current Sensor CS-0V5-A

Advanced TLP/HMM Solutions

1 Features

- 100 A pulse current sensor for TLP/HMM measurements
- Very fast rise time < 150 ps
- 1.5 kHz to > 3 GHz bandwidth
- High magnetic Amp x Second rating 70 A μs
- Very low parasitic load impedance 28 mΩ (port 1-2)
- 0.5 V/A sensitivity at 50 Ω output (port 3)
- Three 50 Ω SMA ports
- Current sensor output is in line with pulse input
- Compact size: 41 mm x 34 mm x 16 mm
- High reliability

2 Description

The CS-0V5-A current sensor is used to measure the current in the 50 Ω pulse force transmission line of a TLP/HMM system such as TLP-3010C/4010C/3011C system at currents up to 40 A and 1.6 μs pulse width, or up to 80 A at 875 ns pulse width using the TLP-8010A/C systems. The CS-0V5-A can be used also as general purpose current sensor. The device has three 50 Ω SMA terminals. It can be used for replacement of the Tektronix CT-1, CT-2 and CT-6 current sensors in order to cover both high currents and high bandwidth using a single sensor.

Please note that in contrast to port 1 and port 2, the port 3 (sensor output) must be terminated with 50 Ω. For example, at 100 A the sensor output results to 50 V. Therefore 20 dB attenuation is required in front of the digital oscilloscope input in order to avoid overload.

The Amp x Second rating is typical 70 A μs which results in maximum 100 A at 700 ns pulse width or 40 A at 1.75 μs pulse width. The sensitivity of the sensor is typ. 0.5 V/A at the current sensor output.

3 Electrical Data

Nominal Impedance : 50 Ω
Nominal Sensitivity : 0.5 V/A
Pulse Response (Rise Time) : < 150 ps
Maximum Pulse Current : ±100 A
Amp x Second Rating : 70 A μs
Maximum DC Current: ±0.5 A
Parasitic Load Impedance : 28 mΩ (Port 1 to Port 2)
Lower Cut-Off Frequency: 1.5 kHz
Upper Cut-Off Frequency: > 3 GHz

4 Electrical Characteristics

Figure 1: Typical pulse rise time

Figure 2: Typical pulse response (100 ns)
5 Physical Dimensions

Fig. 6 shows the dimensions of the CS-0V5-A in [mm].

![Dimensions in [mm]](image)

6 Ordering Information

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<th>Description</th>
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<td>100 A, 3 GHz, 50 Ω, 0.5 V/A Pulse Current Sensor</td>
<td>CS-0V5-A</td>
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General

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High Power Pulse Instruments GmbH
Stadlerstrasse 6A
D-85540 Haar, Germany
Phone: +49 (0)89 8780698 - 440
Fax: +49 (0)89 8780698 - 444
E-Mail: info@hppi.de

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