Rogowski AC Current Probe

RCP Series

RCP-XS Series

RCP-S Series

RCP-M Series

RCP-L Series

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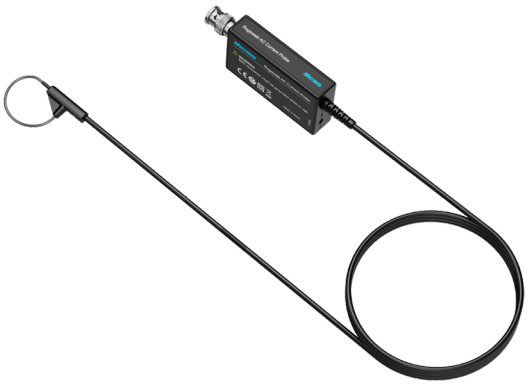
Product Overview

The Micsig RCP series Rogowski current probe measures AC currents up to 12000 Apk, offers a maximum bandwidth of 30MHz. With nearly zero insertion impedance, the probes minimize interference to the circuit under test. The coil features extremely high voltage resistance (up to 10 kVpk). Customization is available for coil cross-sectional diameter, perimeter, wire length, voltage withstand capacity, and operating temperature, enabling adaptation to complex application scenarios.

It features a standard BNC interface for use with any oscilloscope. Its compact, flexible design easily solves the hard-to-reach part issue, and the coil diameter supports customization to meet more test requirements.

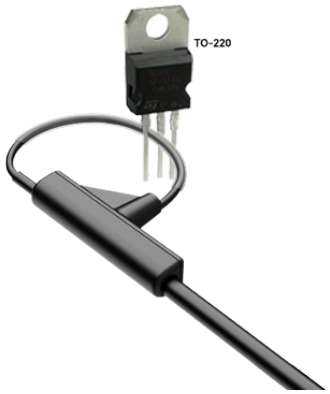
Product Features

- Temperature range from -40° C to 125° C (customizable)
- Maximum bandwidth up to 30MHz, capable of observing high-frequency switching waveforms
- Near-zero insertion impedance
- RCP-XS series withstands up to 1500Vpk (customizable)
- Wire diameter as thin as 1.6mm, enabling direct pin-level measurement
- Peak current range: 60Apk to 12000Apk
- Accuracy up to 2%
- Sensor section is shielded, minimizing interference from external noise environments
- Customization is available for wire length, coil cross-sectional diameter, and coil perimeter.



Smallest Coil Cross-section

RCP-XS series coil has a cross-sectional diameter of just 1.6 mm, effortlessly passing through the narrow lead pitch of semiconductor devices such as TO-220 and TO-47.



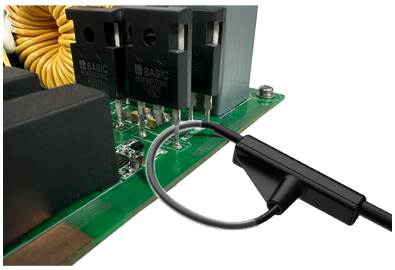
Accurate High-Frequency Harmonic Capture

Excellent high-frequency measurement capabilities, easily measures high-speed signals, able to observe HF harmonic components when measuring the Id current of MOSFET (as shown the oscillation section).

Figure: Signal measured with the RCP600XS-80.

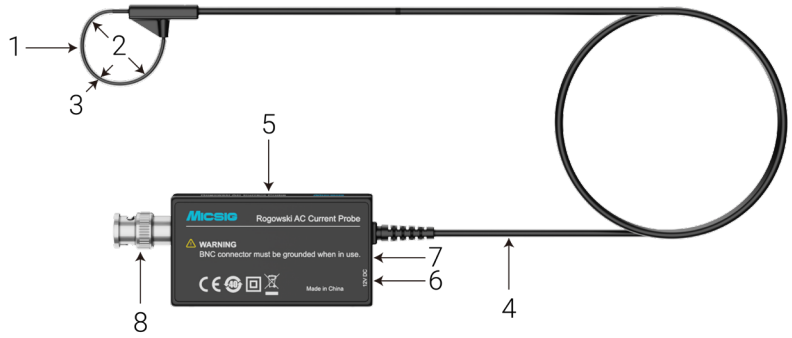
Applications

- Measuring current in motor drives and in particular power quality measurements in VSD, UPS or SMPS circuits
- Double-pulse testing to measure the pin currents of MOSFET and IGBT chips made of materials such as SiC and GaN.
- Monitoring currents in small inductors, capacitors, snubber circuits, etc
- Measurement of load current and high-order harmonic current in power electronics
- Measuring small AC currents in the presence of large DC currents
- Measuring high frequency sinusoidal, pulsed or transient currents
- Measuring AC currents in 3-phase supply system
- Measuring the power consumption in semiconductors
- Measurement of 50/60Hz power frequency current
- Power converter development and diagnostics



Product Specifications

The coil includes a removable silicone sleeve that provides robust mechanical protection.



Model	RCP-XS Series		RCP-S Series		RCP-M Series		RCP-L Series
Coil length (Typical)	80mm	200mm	200mm	700mm	200mm	700mm	700mm
Measurable conductor diameter	≤ 20mm	≤ 60mm	≤ 60mm	≤ 220mm	≤ 60mm	≤ 220mm	≤ 220mm
Coil cross-section diameter (Typical)	1.6mm		3.0mm		4.5 mm		8.0mm
Wire length (Typical)	1.5m (integrator to Rogowski coil)						
Integrator size	70*40*17mm						
Power supply	DC 12V						
Interface	1MΩ BNC						
Working temperature	Base unit: 0°C - 55°C Coil: -20°C - 125°C						
Storage temperature	-30°C -70°C						
Working humidity	⩽ 85%RH						
Storage humidity	⩽ 90%RH						
CE standard	EN IEC 61010-2-032						
EMC standard	EN IEC 61326-1:2021, EN IEC 61326-2-1:2021, EN IEC 61000-3-2:2019+A1:2021, EN 61000-3-3:2013+A1:2019+A2:2021						

※ The coil's cross-sectional diameter, coil length, lead length, peak coil isolation voltage, and working temperature are all customizable.

Parameters

RCP-XS Series (Typical coil cross-section diameter: 1.6 mm)

Model	Bandwidth	Peak current	Output sensitivity	Output noise	Peak di/dt	Droop (%/ms)	Accuracy (typical)	Peak coil isolation voltage
RCP60XS-80	70Hz -30MHz	60Apk	100mV/A (10x)	< 25mVpp	4kA/μs	65%/ms	2%	1.5kVpk (Rogowski coil part)
RCP120XS-80	34Hz-30MHz	120Apk	50mV/A (20x)	< 25mVpp	8kA/μs	35%/ms		
RCP300XS-80	10Hz-30MHz	300Apk	20mV/A (50X)	< 25mVpp	20kA/μs	9%/ms		
RCP600XS-80	8Hz-30MHz	600Apk	10mV/A (100X)	< 18mVpp	40kA/μs	7%/ms		
RCP1200XS-80	5Hz-30MHz	1200Apk	5mV/A (200X)	< 15mVpp	70kA/μs	3%/ms		
RCP3000XS-80	4Hz-30MHz	3000Apk	2mV/A (500X)	< 8mVpp	70kA/μs	2%/ms		
RCP6000XS-80	4Hz-30MHz	6000Apk	1mV/A (1000X)	< 5mVpp	70kA/μs	2%/ms		
RCP12000XS-80	2Hz-30MHz	12000Apk	0.5mV/A (2000X)	< 6mVpp	70kA/μs	2%/ms		
RCP300XS-200	14Hz - 20MHz	300Apk	20mV/A (50X)	< 20mVpp	20kA/μs	15%/ms	2%	1.5kVpk (Rogowski coil part)
RCP600XS-200	7Hz - 20MHz	600Apk	10mV/A (100X)	< 18mVpp	40kA/μs	7%/ms		
RCP1200XS-200	5Hz - 20MHz	1200Apk	5mV/A (200X)	< 15mVpp	70kA/μs	3%/ms		
RCP6000XS-200	3Hz - 20MHz	6000Apk	1mV/A (1000X)	< 7mVpp	70kA/μs	3%/ms		

※ RCP***XS-80: 80 mm coil length.
※ RCP***XS-200: 200 mm coil length.

RCP-S Series (Typical coil cross-section diameter: 3.0 mm)

Model	Bandwidth	Peak current	Output sensitivity	Output noise	Peak di/dt	Droop (%/ms)	Accuracy (typical)	Peak coil isolation voltage
RCP120S-200	14Hz - 25MHz	120Apk	50mV/A (20x)	< 25mVpp	8kA/μs	18%/ms	2%	3kVpk (Rogowski coil part)
RCP300S-200	7Hz - 25MHz	300Apk	20mV/A (50X)	< 20mVpp	20kA/μs	8%/ms		
RCP600S-200	5Hz - 25MHz	600Apk	10mV/A (100X)	< 18mVpp	40kA/μs	5%/ms		
RCP1200S-200	5Hz - 25MHz	1200Apk	5mV/A (200X)	< 7mVpp	70kA/μs	5%/ms		
RCP3000S-200	3Hz - 25MHz	3000Apk	2mV/A (500X)	< 7mVpp	70kA/μs	2%/ms		
RCP6000S-200	2Hz - 25MHz	6000Apk	1mV/A (1000X)	< 5mVpp	70kA/μs	2%/ms		
RCP6000S-700	3Hz-10MHz	6000Apk	1mV/A (1000X)	< 6mVpp	70kA/μs	3%/ms	2%	3kVpk (Rogowski coil part)
RCP12000S-700	2Hz-10MHz	12000Apk	0.5mV/A (2000X)	< 5mVpp	70kA/μs	2%/ms		

※ RCP***S-200: 200 mm coil length.
※ RCP***S-700: 700 mm coil length.

RCP-M Series (Typical coil cross-section diameter: 4.5 mm)

Model	Bandwidth	Peak current	Output sensitivity	Output noise	Peak di/dt	Droop (%/ms)	Accuracy (typical)	Peak coil isolation voltage
RCP120M-200	14Hz - 25MHz	120Apk	50mV/A (20x)	< 25mVpp	8kA/μs	18%/ms	2%	5kVpk (Rogowski coil part)
RCP300M-200	7Hz - 25MHz	300Apk	20mV/A (50X)	< 20mVpp	20kA/μs	8%/ms		
RCP600M-200	5Hz - 25MHz	600Apk	10mV/A (100X)	< 18mVpp	40kA/μs	5%/ms		
RCP1200M-200	5Hz - 25MHz	1200Apk	5mV/A (200X)	< 7mVpp	70kA/μs	5%/ms		
RCP3000M-200	3Hz - 25MHz	3000Apk	2mV/A (500X)	< 7mVpp	70kA/μs	2%/ms		
RCP6000M-200	2Hz - 25MHz	6000Apk	1mV/A (1000X)	< 5mVpp	70kA/μs	2%/ms		
RCP6000M-700	3Hz-10MHz	6000Apk	1mV/A (1000X)	< 6mVpp	70kA/μs	3%/ms	2%	5kVpk (Rogowski coil part)
RCP12000M-700	2Hz-10MHz	12000Apk	0.5mV/A (2000X)	< 5mVpp	70kA/μs	2%/ms		

※ RCP***M-200: 200 mm coil length.
※ RCP***M-700: 700 mm coil length.

RCP-L Series (Typical coil cross-section diameter: 8.0 mm)

Model	Bandwidth	Peak current	Output sensitivity	Output noise	Peak di/dt	Droop (%/ms)	Accuracy (typical)	Peak coil isolation voltage
RCP600L-700	8Hz-10MHz	600Apk	10mV/A (100X)	< 18mVpp	70kA/μs	8%/ms		
RCP1200L-700	6Hz - 10MHz	1200Apk	5mV/A (200X)	< 12mVpp	70kA/μs	5%/ms	2%	10kVpk (Rogowski coil part)
RCP3000L-700	4Hz - 10MHz	3000Apk	2mV/A (500X)	< 9mVpp	70kA/μs	2%/ms		
RCP6000L-700	3Hz - 10MHz	6000Apk	1mV/A (1000X)	< 6mVpp	70kA/μs	2%/ms		
RCP12000L-700	2Hz-10MHz	12000Apk	0.5mV/A (2000X)	< 5mVpp	70kA/μs	2%/ms		

※ RCP***L-700: 700 mm coil length.

Accessories

Model	Standard Accessories
Rogowski AC Current Probe RCP Series	RCP Series Probe × 1
	Power Adapter × 1
	Suitcase × 1
	Calibration Certificate ×1
	Quick Guide × 1

Product Notes

Operation steps

1) Connect to the oscilloscope: Set the oscilloscope input impedance to 1MΩ, connect the probe BNC end to oscilloscope (make sure the oscilloscope is properly grounded);
2) Power the probe: Use standard adapter to power the probe. Indicator light turns green after power on;
3) Connect the DUT: make sure that the coil plug is inserted in place and the wire or pin under test passes through the appropriate position of the coil.
4) Power up the DUT.
5) After test, disconnect the circuit first, then unplug the coil.
6) Disconnect probe power.

Precautions

※ to ensure accuracy, the wire being measured should be positionedas much as possible between X and Y in the right diagram, where X is the center of coil and Y is the midpoint of the coil length.
※ try to stay away from strong magnetic field interference sources asmuch as possible to avoid measurement errors.
※ the coil can be placed around the wire being measured to measurethe interference signals in the surrounding area, to determinewhether there is strong interference nearby.

Warranty

1) Micsig warrants the main body of this current probe for 1 year. During the warranty period, Micsig will be responsible for free maintenance for anyfailure caused by the quality of the product under normal use.
2) Under the following circumstances, Micsig will refuse to provide maintenance services or charge for a fee:
   - No packaging or anti-counterfeiting label.
   - Anti-counterfeit label has been altered or blurred beyond recognition.
   - Unauthorized disassembly, such as: changing wires, dismantling internal components, etc.
   - No sales voucher or the content of sales voucher does not match the product.

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Official Website