

Product Datasheet - Technical Specifications



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SigOFIT™

Optical-fiber Isolated Probe

Datasheet



Version updated: March 20, 2024

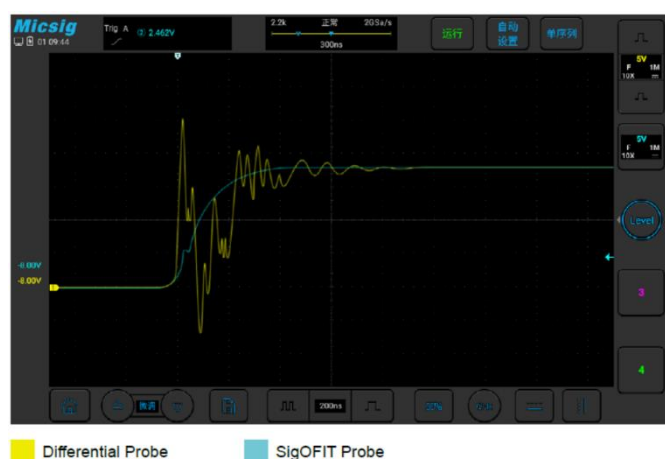
With Micsig's exclusive SigOFIT™ optical isolation technology, the SigOFIT probe delivers 180dB CMRR at DC, 128dB at 100MHz, up to 108dB at 1GHz, able to test differential mode signals from ±0.01V to ±6250V when using with attenuators, present true signal you've never seen. It's the most ideal method for isolated probe technology.

Benefits of SigOFIT Probes

The SigOFIT probe is powered over laser, realized complete galvanic isolation between the probe and the DUT.

- Up to 1 GHz bandwidth
- 180dB CMRR at DC
- Over 108dB CMRR at 1GHz
- 85kVpk Common mode voltage range
- Up to ±6250V differential input voltage range
- 1% DC gain accuracy
- Auto calibration in 1 second
- Support all BNC-type oscilloscopes

Present True Signal

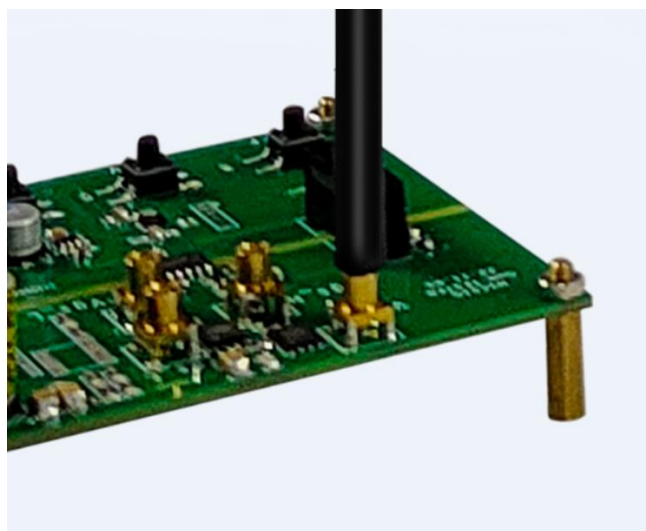


▲ Vgs signal at SiC conduction moment

Best Probe for GaN and SiC

Third-Gen Semiconductor device like SiC and GaN can switch high voltages in a few nanoseconds, containing very high-energy high-frequency harmonics.

SigOFIT probe perfectly suppress oscillation caused by high-frequency common-mode noise by employing high-quality coaxial attenuating tips and industry standard MMCX & MCX connectors, unveils real signal for every engineers.



10X ~ 10000X

Key Applications

- Design of motor drive, power converter
- Design of GaN, SiC, Half/Full bridge devices
- Design of inverter, UPS and switching power supply
- High voltage high bandwidth safety test
- Power device evaluation
- Current shunt measurements
- EMI & ESD troubleshooting
- Floating measurements

Technical Specifications

Model & Ordering Name	MOIP100P	MOIP200P	MOIP350P	MOIP500P	MOIP800P	MOIP1000P
Bandwidth	100MHz	200 MHz	350 MHz	500 MHz	800 MHz	1 GHz
Rise time	≤3.5ns	≤1.75n	≤1ns	≤700ps	≤438ps	≤350ps
CMRR	DC: 180dB 100MHz: 128dB	DC: 180dB 200MHz: 122dB	DC: 180dB 350MHz: 118dB	DC: 180dB 500MHz: 114dB	DC: 180dB 800MHz: 110dB	DC: 180dB 1GHz: 108dB
Output Voltage Range	±1.25V	±1.25V	±1.25V	±500mV	±500mV	±500mV
max. Differential voltage range	±6250V			±5000V		
Noise	<450μVrms			<450μVrms		
Propagation delay	15.42ns (2m fiber length)			16ns (2m fiber length)		
Power supply	DC: 12V 3A					
DC Gain accuracy	1%					
Common mode voltage range	85kVpk					
Fiber cable length	2m (Customizable)					
Temperature	0°C to 40°C (operating), -20°C to +70°C (non-operating)					
Humidity	5% to 85% RH (non-condensing), 75% RH above 30°C, 45% RH above 40°C					
Altitude	3000 m (operating), 12,000 m (non-operating)					
Usage	Indoor Use Only					
Package size	37*11*32.5 cm					
Package GW	2.2KG					

Attenuating tips




SigOFIT model	Attenuating Tip model	Adapter type	Attenuation ratio	Voltage range	Non-destructive voltage (Max.)	Input impedance
MOIP100P & MOIP200P	OP10-2	MMCX	10:1 @0dB	±12.5V	1000Vpp	3.75MΩ 6pF
			1:1 @20dB	±1.25V		
	OP20-2	MMCX	20:1 @0dB	±25V	1000Vpp	4.47MΩ 4pF
			2:1 @20dB	±2.5V		
	OP50-2	MMCX	50:1 @0dB	±62.5V	1000Vpp	4.19MΩ 2pF
			5:1 @20dB	±6.25V		
	OP100-2	MMCX	100:1 @0dB	±125V	1000Vpp	4.10MΩ 2pF
			10:1 @20dB	±12.5V		
	OP200-2	MCX	200:1 @0dB	±250V	2500Vpp	9.03MΩ 2pF
			20:1 @20dB	±25V		
	OP500-2	MCX	500:1 @0dB	±625V	2500Vpp	20.98MΩ 1pF
			50:1 @20dB	±62.5V		
	OP1000-2	MCX	1000:1 @0dB	±1250V	2500Vpp	20.94MΩ 1pF
			100:1 @20dB	±125V		
	OP2000-2	MCX	2000:1 @0dB	±2500V	2500Vpp	20.52MΩ 1pF
			200:1 @20dB	±250V		
	OP5000-2	LCX	5000:1 @0dB	±6250V	8000Vpp	40.82MΩ 2.4pF
			500:1 @20dB	±625V		
MOIP350P	OP10-3	MMCX	10:1 @0dB	±12.5V	1000Vpp	3.75MΩ 6pF
			1:1 @20dB	±1.25V		
	OP20-3	MMCX	20:1 @0dB	±25V	1000Vpp	4.47MΩ 4pF
			2:1 @20dB	±2.5V		
	OP50-3	MMCX	50:1 @0dB	±62.5V	1000Vpp	4.19MΩ 2pF
			5:1 @20dB	±6.25V		
	OP100-3	MMCX	100:1 @0dB	±125V	1000Vpp	4.10MΩ 2pF
			10:1 @20dB	±12.5V		
	OP200-3	MCX	200:1 @0dB	±250V	2500Vpp	9.03MΩ 2pF
			20:1 @20dB	±25V		
	OP500-3	MCX	500:1 @0dB	±625V	2500Vpp	20.98MΩ 1pF
			50:1 @20dB	±62.5V		
	OP1000-3	MCX	1000:1 @0dB	±1250V	2500Vpp	20.94MΩ 1pF
			100:1 @20dB	±125V		
	OP2000-3	MCX	2000:1 @0dB	±2500V	2500Vpp	20.52MΩ 1pF
			200:1 @20dB	±250V		
	OP5000-3	LCX	5000:1 @0dB	±6250V	8000Vpp	40.82MΩ 2.4pF
			500:1 @20dB	±625V		
MOIP500P	OP10-5	MMCX	10:1 @0dB	±5V	1000Vpp	3.75MΩ 6pF
			1:1 @20dB	±0.5V		
	OP20-5	MMCX	20:1 @0dB	±10V	1000Vpp	4.47MΩ 4pF
			2:1 @20dB	±1V		

MOIP500P	OP50-5	MMCX	50:1 @0dB	±25V	1000Vpp	4.19MΩ 2pF
			5:1 @20dB	±2.5V		
	OP100-5	MMCX	100:1 @0dB	±50V	1000Vpp	4.10MΩ 2pF
			10:1 @20dB	±5V		
	OP200-5	MCX	200:1 @0dB	±100V	2500Vpp	9.03MΩ 2pF
			20:1 @20dB	±10V		
	OP500-5	MCX	500:1 @0dB	±250V	2500Vpp	20.98MΩ 1pF
			50:1 @20dB	±25V		
	OP1000-5	MCX	1000:1 @0dB	±500V	2500Vpp	20.94MΩ 1pF
			100:1 @20dB	±50V		
OP2000-5	MCX	2000:1 @0dB	±1000V	2500Vpp	20.52MΩ 1pF	
		200:1 @20dB	±100V			
OP5000-5	MCX	5000:1 @0dB	±2500V	3600Vpp	40.92MΩ 1pF	
		500:1 @20dB	±250V			
OP10000-5	LCX	10000:1 @0dB	±5000V	8000Vpp	40.82MΩ 2.4pF	
		1000:1 @20dB	±500V			
MOIP800P & MOIP1000P	OP10-1G	MMCX	10:1 @0dB	±5V	1000Vpp	3.75MΩ 6pF
			1:1 @20dB	±0.5V		
	OP20-1G	MMCX	20:1 @0dB	±10V	1000Vpp	4.47MΩ 4pF
			2:1 @20dB	±1V		
	OP50-1G	MMCX	50:1 @0dB	±25V	1000Vpp	4.19MΩ 2pF
			5:1 @20dB	±2.5V		
	OP100-1G	MMCX	100:1 @0dB	±50V	1000Vpp	4.10MΩ 2pF
			10:1 @20dB	±5V		
	OP200-1G	MCX	200:1 @0dB	±100V	2500Vpp	9.03MΩ 2pF
			20:1 @20dB	±10V		
	OP500-1G	MCX	500:1 @0dB	±250V	2500Vpp	20.98MΩ 1pF
			50:1 @20dB	±25V		
	OP1000-1G	MCX	1000:1 @0dB	±500V	2500Vpp	20.94MΩ 1pF
			100:1 @20dB	±50V		
	OP2000-1G	MCX	2000:1 @0dB	±1000V	2500Vpp	20.52MΩ 1pF
			200:1 @20dB	±100V		
	OP5000-1G	MCX	5000:1 @0dB	±2500V	3600Vpp	40.92MΩ 1pF
			500:1 @20dB	±250V		
	OP10000-1G	LCX	10000:1 @0dB	±5000V	8000Vpp	40.82MΩ 2.4pF
			1000:1 @20dB	±500V		

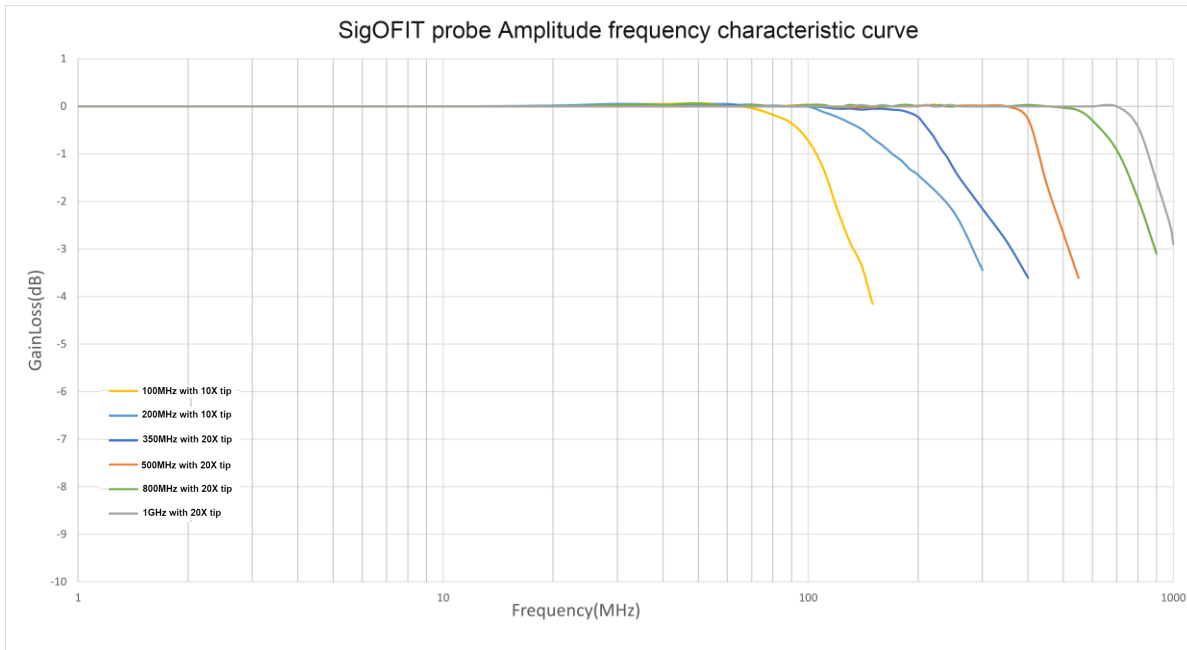
Adapters and coaxial lead

Accessory name	Withstand voltage range
MMCX-adapter	< 300 Vpp
MCX-adapter	< 3000 Vpp
MMCX coaxial lead	< 300 Vpp
MCX coaxial lead	< 3000 Vpp
LCX coaxial lead	< 8000 Vpp

Mechanical characteristics

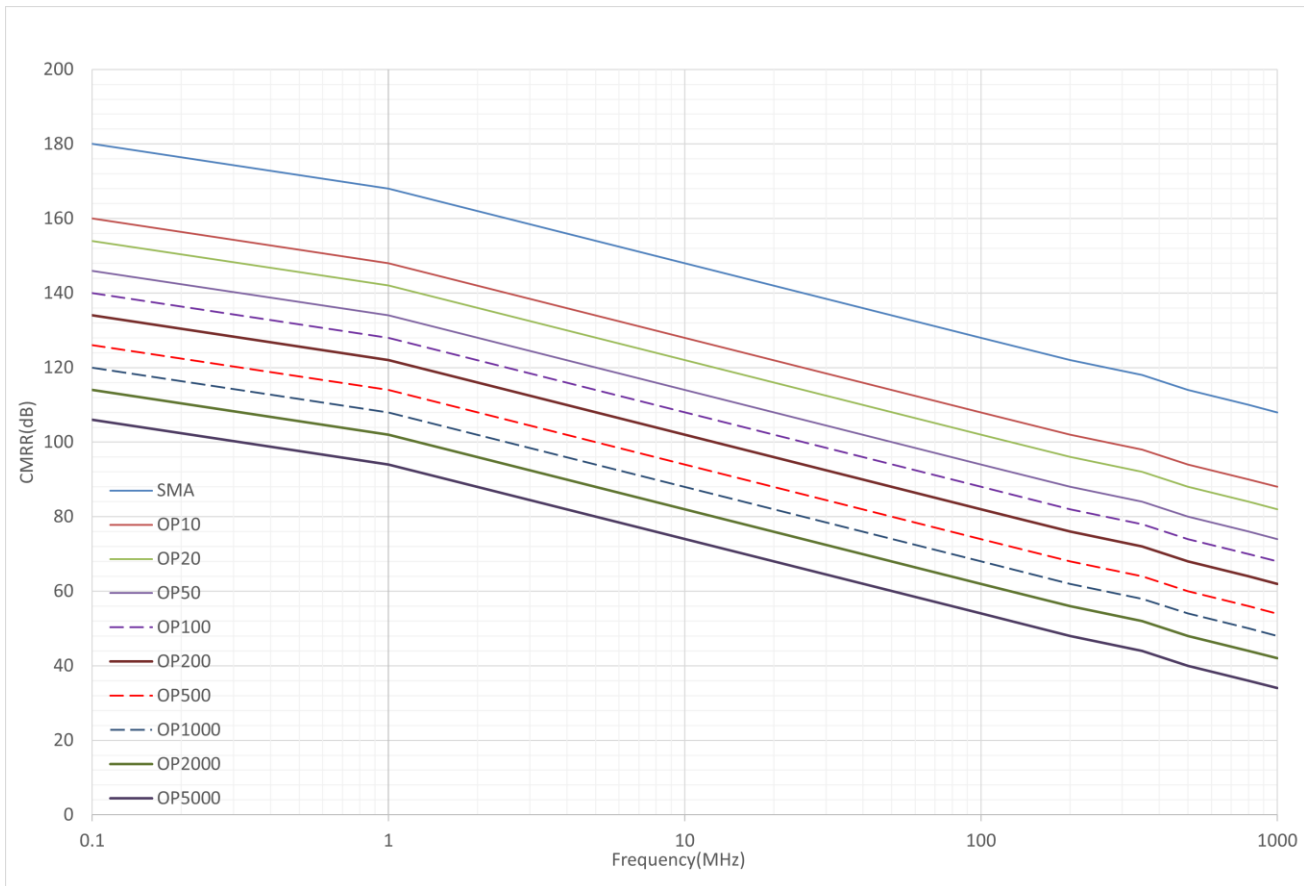
	Characteristics	Parameters
	Optical-Electrical (O-E) converter size	9.8 x 4.5 x 2.1 cm
	Electrical-Optical (E-O) converter size	11 x 4 x 2.3 cm
	Optical cable length	2m

Amplitude frequency characteristic curve



▲Amplitude-frequency characteristics of different SigOFIT probes

Attenuating tip CMRR curve



▲Common mode rejection capabilities of different attenuators (0dB) at various frequencies.

Ordering Information

Models

MOIP100P	SigOFIT 100MHz, Optical-fiber Isolated Probe, 2-meter fiber cable
MOIP200P	SigOFIT 200MHz, Optical-fiber Isolated Probe, 2-meter fiber cable
MOIP350P	SigOFIT 350MHz, Optical-fiber Isolated Probe, 2-meter fiber cable
MOIP500P	SigOFIT 500MHz, Optical-fiber Isolated Probe, 2-meter fiber cable
MOIP800P	SigOFIT 800MHz, Optical-fiber Isolated Probe, 2-meter fiber cable
MOIP1000P	SigOFIT 1GHz, Optical-fiber Isolated Probe, 2-meter fiber cable

Accessories

MMCX connector *5	Connecting SigOFIT and the circuit under test
MCX connector *5	Connecting SigOFIT and the circuit under test
MMCX coaxial cable *1	Connecting SigOFIT and the circuit under test
MCX coaxial cable *1	Connecting SigOFIT and the circuit under test
LCX coaxial cable *1 (optional)	Connecting SigOFIT and the circuit under test
Carrying Case *1	Suitcase with EVA foam
Probe Mount *1	Bipod mount to support E-O converter
DC power supply *1	12V 3A, To power the O-E Converter
Attenuating tip(s)	Configured as per specific model
Quick user guide *1	
Calibration Certificate *1	
Packing list *1	

Attenuating tip

OP10-x	Attenuating tip of 10X
OP20-x	Attenuating tip of 20X
OP50-x	Attenuating tip of 50X
OP100-x	Attenuating tip of 100X
OP200-x	Attenuating tip of 200X
OP500-x	Attenuating tip of 500X
OP1000-x	Attenuating tip of 1000X
OP2000-x	Attenuating tip of 2000X
OP5000-x	Attenuating tip of 5000X
OP10000-x	Attenuating tip of 10000X

Remarks:

OPXX-* is attenuator tip, XX refers attenuation ratio, * refers bandwidth.

i.e, OP10-2 is an attenuator tip with 10X, bandwidth of 200MHz.

Refer to following list to choose applicable attenuating tip:

Model No.	Standard Tip(s)	Optional Tip(s)
MOIP100P	OP20-2	OP10-2, OP20-2, OP50-2 OP100-2, OP200-2, OP500-2 OP1000-2, OP2000-2, OP5000-2
MOIP200P		
MOIP350P	OP20-3 OP1000-3	OP10-3, OP20-3, OP50-3 OP100-3, OP200-3, OP500-3 OP1000-3, OP2000-3, OP5000-3
MOIP500P	OP50-5 OP2000-5	OP10-5, OP20-5, OP50-5 OP100-5, OP200-5, OP500-5 OP1000-5, OP2000-5, OP5000-5
MOIP800P	OP50-1G OP2000-1G	OP10-1G, OP20-1G, OP50-1G OP100-1G, OP200-1G, OP500-1G OP1000-1G, OP2000-1G, OP5000-1G OP10000-1G
MOIP1000P		

Supported oscilloscope

Any oscilloscope with standard BNC interface and 50Ω impedance.

Service options

Optical-fiber Isolated Probe main unit warranty for **1 year** (extendable with extra charge).

The SigOFIT probe contains high-quality components and should be treated with care, **Damage to the fiber optic cable is NOT covered by the warranty.**

Standard accessories are NOT covered in main unit warranty.

Micsig provides one-on-one exclusive technical support service.

During the warranty period, Micsig will be responsible for providing free maintenance for any malfunctions caused by quality issues within the normal use of the product that have not been disassembled or repaired.

The warranty will be invalid in the following cases, but repair services can be provided, free of labor costs, and only parts fees will be charged:

- a. Any damage to accessories caused by improper use, maintenance, or storage by consumers.
- b. Damage caused by force majeure factors, such as natural disasters.

Micsig will refuse to provide repair services or provide paid repair services in the following situations:

- a. Unauthorized dismantling, such as changing wires, dismantling internal components, etc.
- b. No sales voucher or the content of the sales voucher does not match the product.

* Micsig reserves the right of final interpretation for the content hereinabove;

* It is subject to update without prior notice;

* Please contact local distributor for any inquiry or send us email directly.