

SigOFIT™

Optical-fiber Isolated Probe

Datasheet



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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 $\pm 0.01V$ to $\pm 6250V$ 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 $\pm 6250V$ differential input voltage range
- 1% DC gain accuracy
- Auto calibration in 1 second
- Support all BNC-type oscilloscopes

Present True Signal

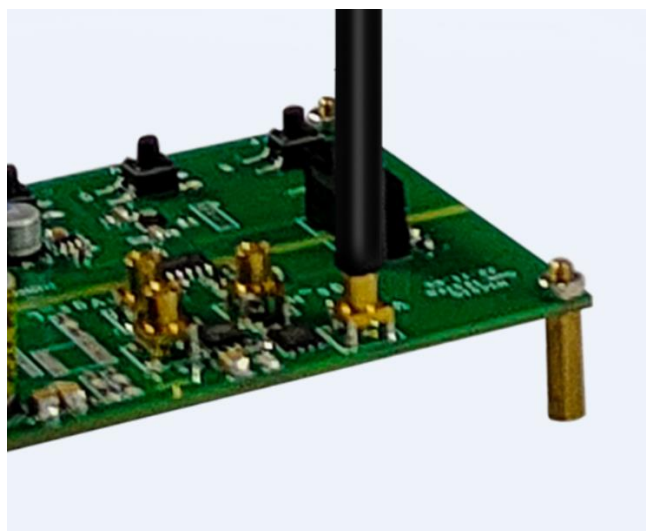


▲ Vgs signal at SiC conduction moment

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 | | |

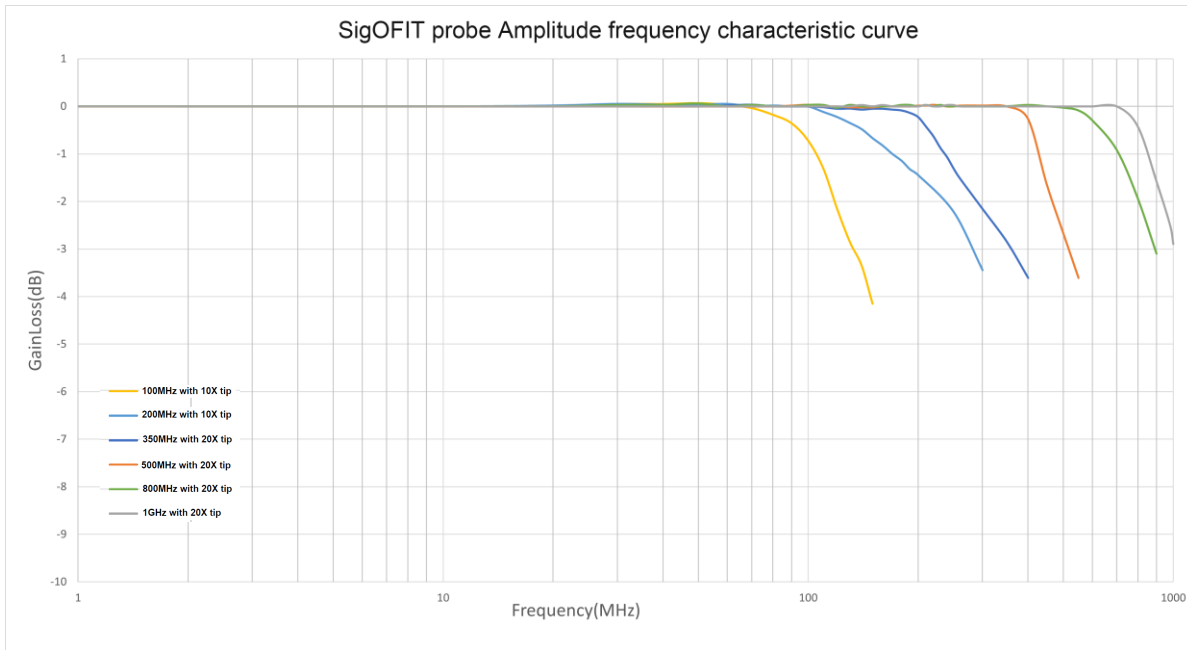
Adapters and coaxial lead

| 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

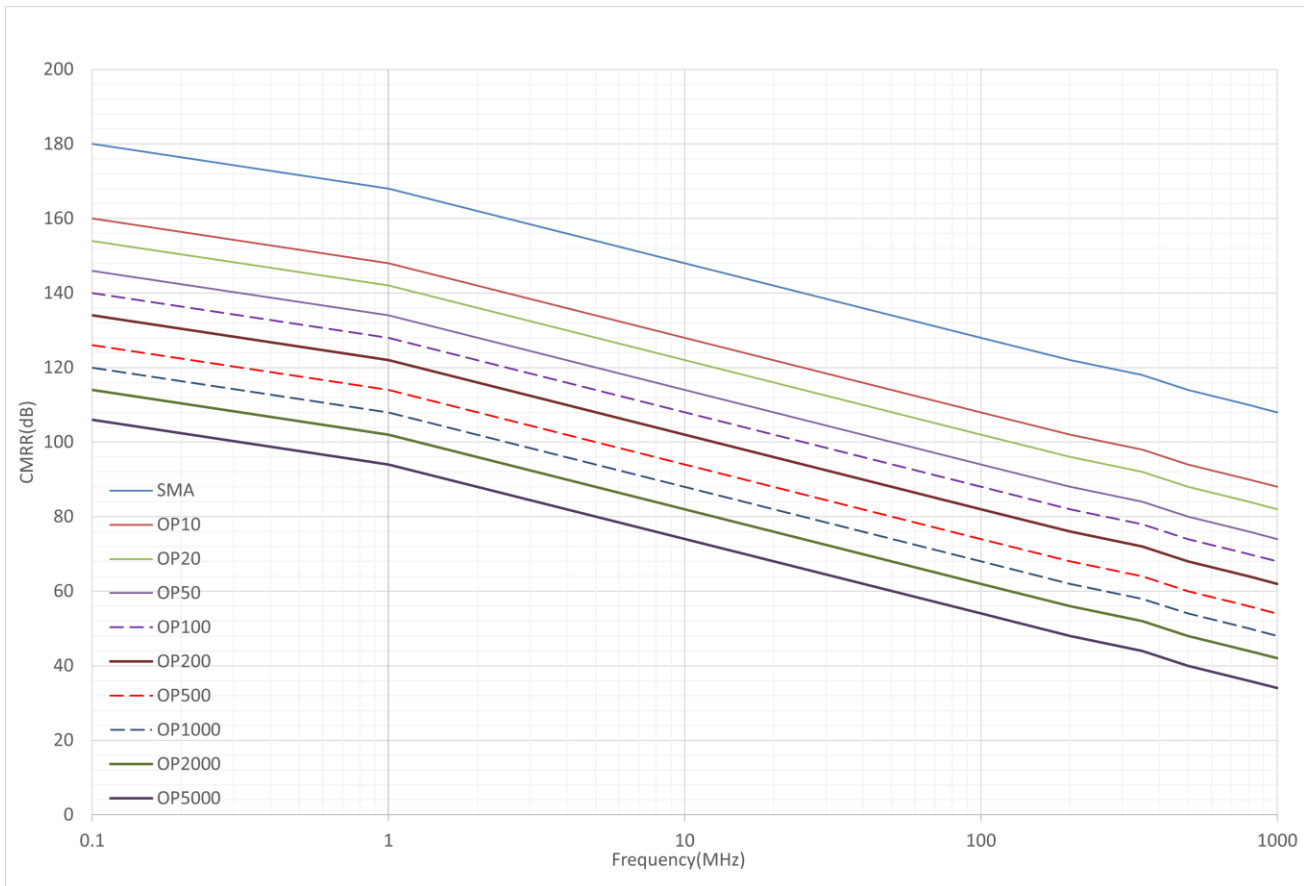
| | Characteristics | Parameters |
|---|---|--------------------|
|  | Optical-Electrical (O-E) converter size | 9.8 x 4.5 x 2.1 cm |
|  | Electrical-Optical (E-O) converter size | 11 x 4 x 2.3 cm |
|  | Optical cable length | 2m |

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.