TECHNICAL DATASHEET

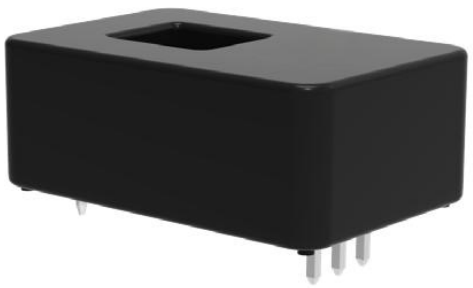
OTS-50P3

Product Code : 11400050031100002

Isolated, high-bandwidth open-loop Hall-effect current sensor for DC, AC, pulsed and mixed-current measurement

The OTS-50P3 is an isolated, open-loop Hall-effect current sensor of the OTS series, designed for high-bandwidth measurement of DC, AC, pulsed and mixed currents up to 50 A. It features a perforated, through-hole board-mount design compatible with MC4-type photovoltaic connectors, making it particularly suited to compact photovoltaic inverter applications.

It delivers a proportional analog voltage output, VOUT = VOFF + S×IP, with a measuring range of ±50 A, and provides full galvanic isolation between the primary (high-power) and secondary (electronic) circuits.



50 A	±50 A	4.0 kV	1 µs
Rated nominal current	Measuring range	Isolation voltage	Typ. response time

ENGINEERING VALUE

Fast response — 1 µs typical response time with 500 kHz typical bandwidth, suited to fast dynamic currents.

Stable output — fixed bias voltage and sensitivity with low temperature drift.

Galvanic isolation — full primary/secondary electrical isolation, isolation voltage up to 4 kV.

Compact integration — on-board through-hole design compatible with MC4-type connectors, simplifying installation.

Proportional analog output — single-ended 5 V supply, bipolar voltage output referenced to VOFF.

BEST-FIT APPLICATIONS

Renewable energy — photovoltaic inverters and PV combiner boxes.

Power electronics — SMPS switching power supplies.

Motor control — AC speed controllers.

Heavy industry — electric-welder power supplies.

Compliance and warranty markings

RoHS COMPLIANT

WARRANTY 3 YEARS ADISENS

Standards: IEC 61010-1 EN 50178

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Electrical and performance data

Unless otherwise stated: T_A = +25°C, V_{CC} = 5 V, C_{VCC} = 0.1 µF, N_P = 1 turn.

Parameter	Symbol	Test conditions	Min.	Typ.	Max.	Unit
Primary nominal current	IPN	-	-	50	-	A
Measurement range	IPM	-	-50	-	50	A
Sensitivity	S	-	-	40	-	mV/A
Offset voltage	VOFF	-	2.48	2.5	2.52	V
Accuracy	XG	T_A=+25°C	-1	-	1	% IPN
Accuracy	XG	T_A=−40°C to +105°C	-2.5	-	2.5	% IPN
Linearity error	EL	-	-	0.5	1	% IPN
Hysteresis voltage	VOH	@IP=0 A, ±IPM	-20	-	20	mV
Supply voltage	Vcc	-	4.75	5	5.25	V
Current consumption	Icc	-	-	3.5	5	mA
Power-on time	tON	IP=0A, no load VOUT	-	0.1	-	ms
Output impedance	ZOUT	f = 1 Hz…1 kHz	-	1	-	Ω
Output load resistance	RL	-	4.7	100	-	kΩ
Output load capacitance	CL	No sustained oscillation	-	220	-	pF
Output linear range	VOUTR	-	0.5	-	4.5	V
Output voltage	VOUT	VOFF + S×IP/1000	-	-	-	V
Noise	VN	DC ≈ 1 MHz	-	25	-	mVpp
Step response time	tR	90% of IPN	-	1	-	µs
Delay time	tD	500 kHz sine	-	0.5	-	µs
Bandwidth	BW	-3 dB	-	500	-	kHz

Isolation, environmental and mechanical characteristics

Parameter	Symbol	Typical	Unit
Withstand isolation voltage	VISO	4	kV
Clearance	dCL	8	mm
Creepage distance	dCP	8	mm
Case material	-	UL94-V0	
Operating temperature	TA	-40 … +105	°C
Storage temperature	TSTG	-40 … +105	°C
Solder temperature / 10 s	TLEAD	260	°C
Weight	m	6	g

Ratings (non-destructive limits)

Parameter	Symbol	Min.	Max.	Unit
Supply voltage	Vcc	-0.3	6.5	V
Output voltage	VOUT	-0.3	Vcc + 0.3	V
ESD (human body model)	VHBM	4	-	kV

Ordering information		
Part number	**Product code**	**Rated current / measuring range**
OTS-50P3	11400050031100002	50 A / ±50 A

The specified measurement performance is achieved only when the sensor is used within the stated electrical, thermal and load conditions.

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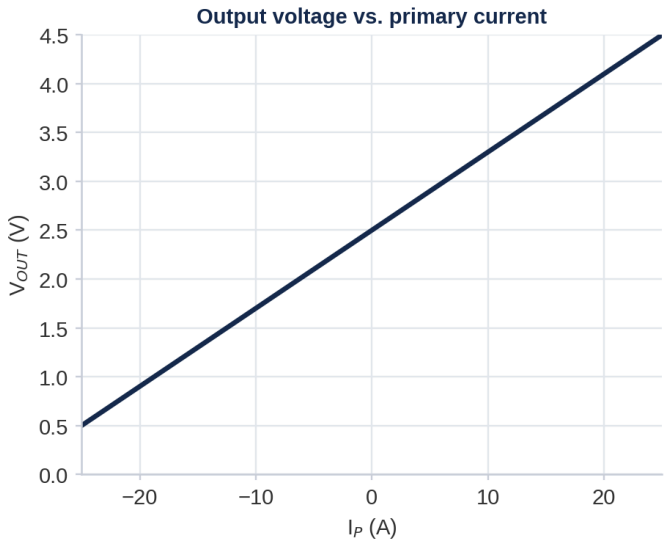
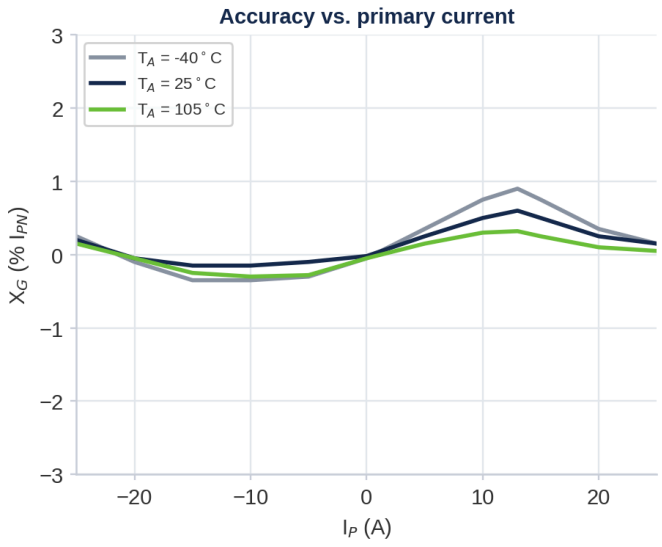
Typical performance characteristics (1/2)

Generic/illustrative characterization data from the ADISENS OTS production test bench, common to the OTS-20/25/32/40/50P3 range; individual units are guaranteed only to the Min./Max. limits specified in the electrical and performance data table.





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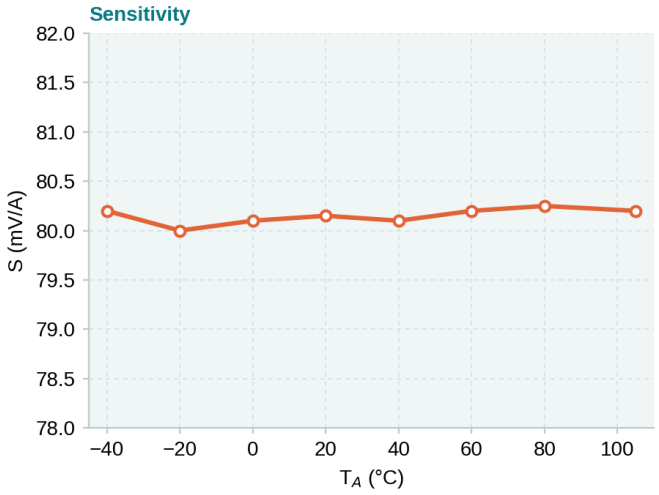
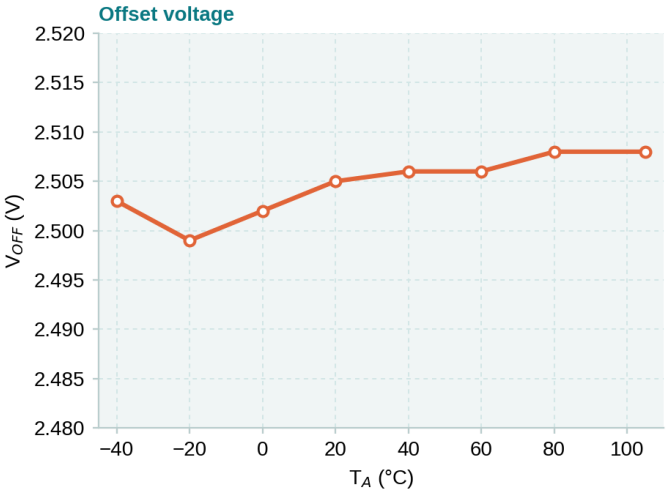
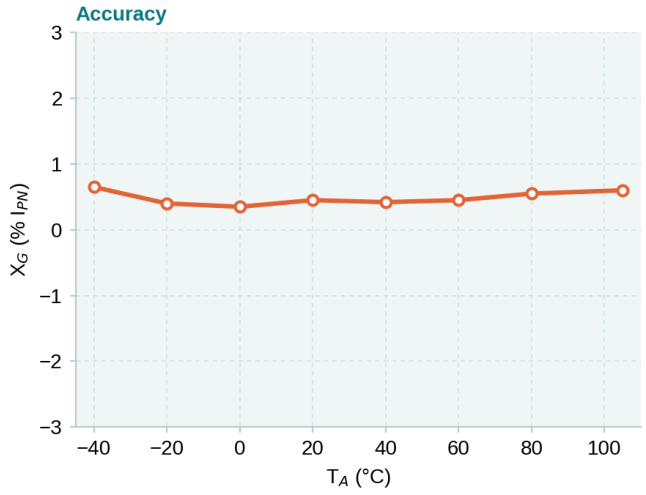
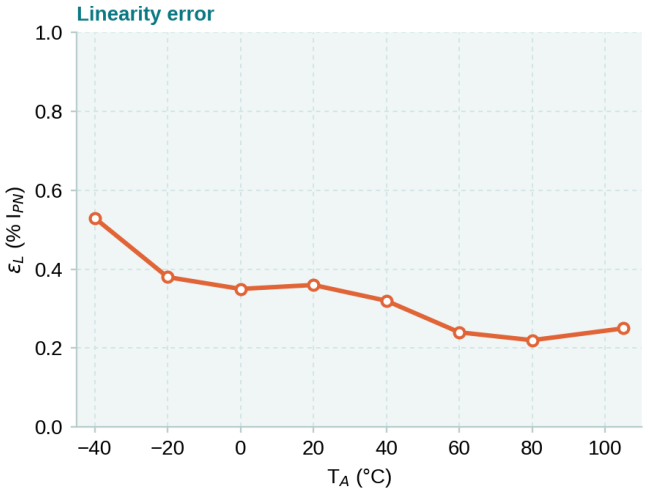
Typical performance characteristics (2/2)

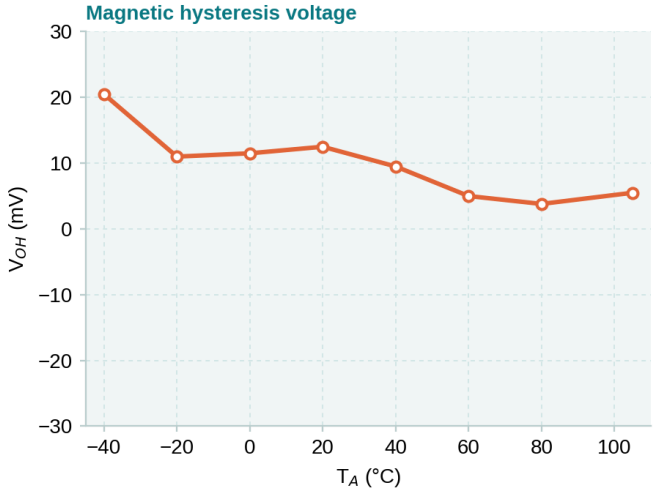
Generic/illustrative temperature-characterization data and frequency response, common to the OTS-20/25/32/40/50P3 range.

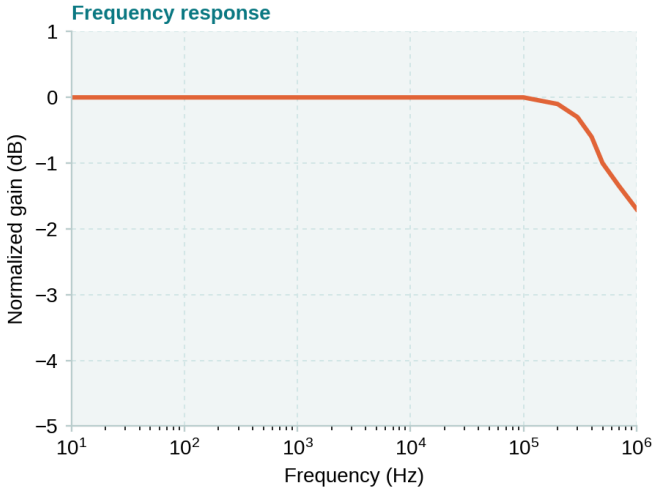












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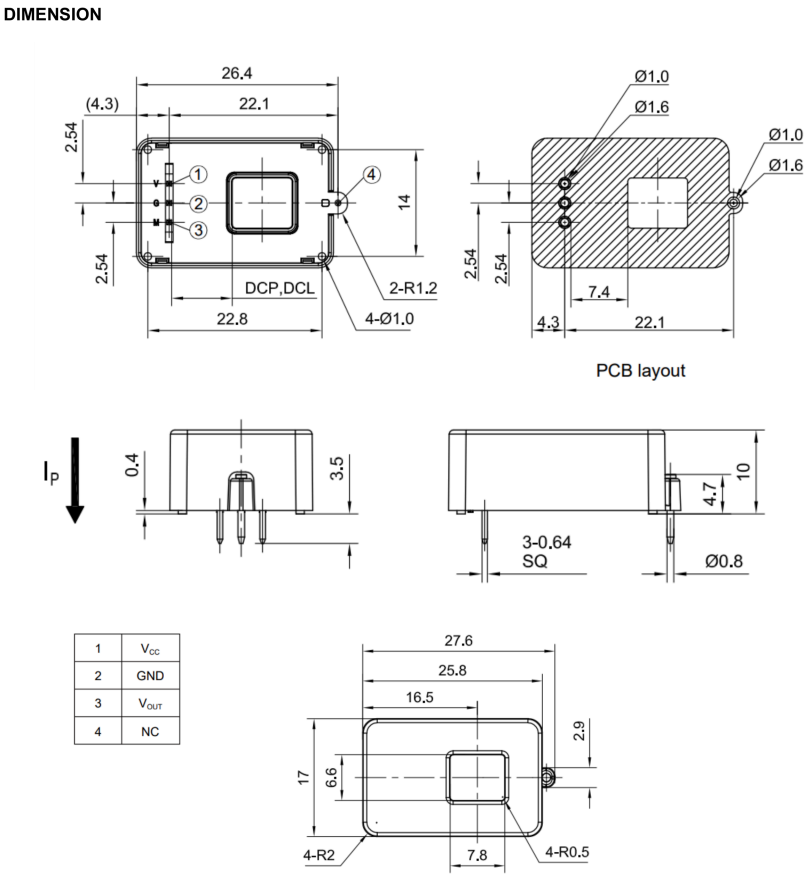
Mechanical dimensions and connections



1	V_{CC}
2	GND
3	V_{OUT}
4	NC

All dimensions are in millimetres. Through-hole board-mount package with a 4-pin connector (2.54 mm pitch) and a circular primary-conductor aperture, per drawing.

Pin definition

Pin no.	Pin name	Description
1	Vcc	Power supply
2	GND	Ground
3	VOUT	Analog output voltage, VOUT = VOFF + S×IP
4	NC	No internal connection

Installation essentials

1. **Mounting:** secure the sensor to the PCB using the through-hole mounting pattern shown on the drawing, in a location that prevents movement or vibration during operation.
2. **Supply and output:** connect Vcc/GND per pin definition; the analog output VOUT is referenced to GND and centered on VOFF = 2.5 V.
3. **Load:** the output stage is characterized with RL = 4.7 to 100 kΩ and CL up to 220 pF; refer to the electrical data table for other loading conditions.
4. **Grounding:** ensure correct grounding of the secondary circuit in accordance with the electrical system design, to prevent electric shock and improve system safety and performance.

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Safety, compliance and quality information

Safety information

The OTS-50P3 is a component intended for installation in electrical and electronic systems by qualified personnel, in compliance with applicable international standards such as IEC 61010-1 and local regulations. This transducer operates in high-voltage environments and must be handled with care to avoid direct contact with live electrical components; there is a risk of serious injury or death from electric shock if proper precautions are not taken. It must be used exclusively within limited-energy secondary circuits as specified by IEC 61010-1. Galvanic isolation between primary and secondary circuits does not provide absolute protection against electric shock — always de-energize circuits before installation or maintenance.

Compliance and environmental information

Subject	Information
Electrical safety	Designed for integration into equipment assessed to applicable electrical-safety requirements, including IEC 61010-1, EN 50178 where relevant to the end application.
Materials	Moulded plastic housing, UL94-V0. Further product material and flammability information is available from ADISENS on request.
CE	EU conformity information and the applicable Declaration of Conformity are available from ADISENS on request.
RoHS / REACH	RoHS & REACH compliant. Product environmental declarations are available from ADISENS on request.
Disposal	Dispose of the product in accordance with local requirements for electrical and electronic equipment. Do not incinerate.

Three-year commercial warranty

ADISENS provides a three-year commercial warranty from the date of delivery, subject to the applicable ADISENS warranty terms and conditions. The warranty does not cover incorrect wiring, operation outside specified ratings, unsuitable environmental exposure, unauthorized modification, mechanical damage or improper system integration.

Document identification and control

Document reference	Revision	Issue date	Language	Product code
FT-OTS-50P3	V1.0	September 2026	English	11400050031100002

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