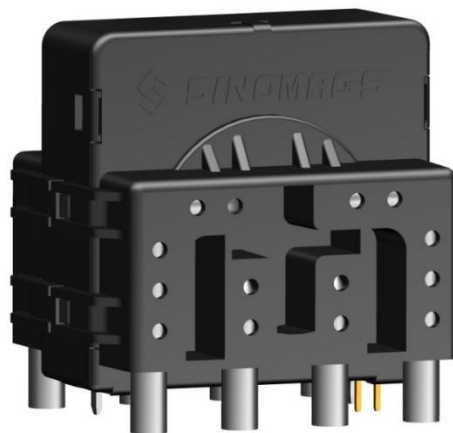


CURRENT SENSOR

PRODUCT SERIES: SFG-X.XP/P7

PRODUCT PART NUMBER: SFG-0.3P/P7

Version: Ver 1.0



CONTENT

1.	Description	2
2.	Absolute parameter: SFG-X.XP/P7	3
3.	Electrical data: SFG-0.3P/P7	4
4.	SFG- P/P7 Application information	5
5.	SFG- P/P7 PCB footprint	6
6.	SFG- P/P7 Dimensions	7

1. Description

Features

- Closed loop (compensated) current transducer
- Voltage output
- Insulation voltage for 5 kVAC
- Single supply voltage
- PCB mounting.

Advantages

- High accuracy
- High overload capability
- High insulation capability
- Reference pin with two modes, Ref in and Ref out
- Low temperature drift
- Degauss and test functions

Applications

- Residual current measurement
- Leakage current measurement in PV inverters
- First human contact protection of PV arrays
- Failure detection in power sources
- Leakage current detection in stacked DC sources
- Symmetrical fault detection(For example :after motor inverter)
- Single phase or three phase nominal current measurement up to $\pm 30A$ per wire(DC/AC).

2. Absolute parameter: SFG-X.XP/P7

Absolute maximum ratings

Parameter	Symbol	Unit	Value
Maximum Supply voltage	$V_{C \max}$	V	7
Maximum Primary conductor temperature	$T_{B \max}$	°C	110
Maximum overload capability (100 μ s, 500 A/ μ s)	$\hat{I}_{P \max}$	A	3300
Maximum Voltage between test winding and secondary pins	$V_{d \max}$	V	35
Maximum Current of test winding	$I_{T \max}$	mA	300

Ratings

Parameter	Symbol	Unit	Value
Primary involved potential		V AC/DC	600
Primary current	I_P	A	30
Secondary supply voltage	U_C	V DC	5
Output voltage	V_{out}	V	0 to 5

Isolation parameters

Parameter	Symbol	Unit	Value	Remark
RMS voltage for AC	V_d	kV	2.5	test 50 Hz/1 min
Impulse withstand voltage	V_w	kV	6	1.2/50 μ s
Clearance distance (pri. –pri.)	d_{Cl}	mm	5.7	Shortest distance through air
Creepage distance (pri. – pri.)	d_{Cp}	mm	7.5	Shortest path along device body
Clearance distance (pri. –sec.)	d_{Cl}	mm	7.4	When mounted on PCB with recommended layout
Creepage distance (pri. –sec.)	d_{Cp}	mm	11.9	When mounted on PCB with recommended layout
Comparative tracking index	CTI	V	600	
Application example		V	300 CAT III, PD2	Reinforced insulation, non uniform field
Application example		V	600 CAT III, PD2	Basic insulation, non uniform field

Environmental and mechanical characteristics

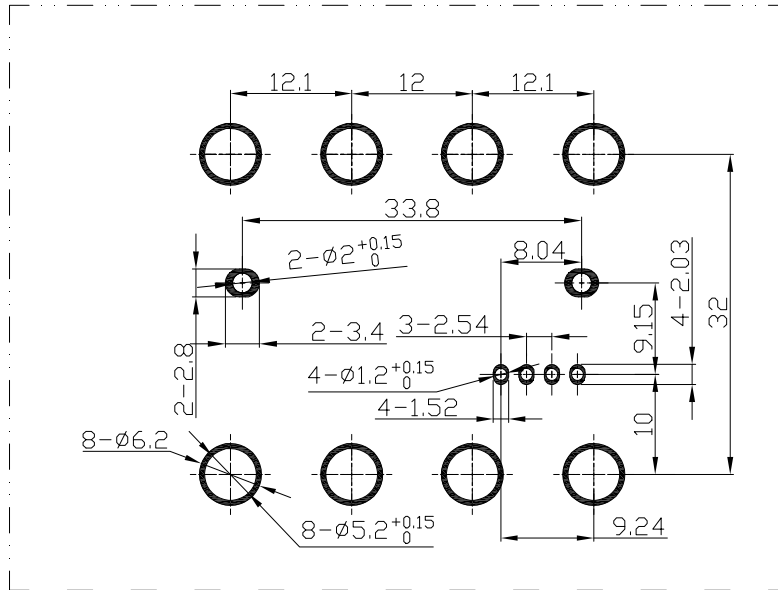
Parameter	Symbol	Unit	Min	Typ	Max	Comment
Ambient operating temperature	T_A	°C	-40		105	
Ambient storage temperature	T_S	°C	-50		105	
Mass	m	g		80		
standard	EN 50178, IEC 61010, UL 508					

3. Electrical data: SFG-0.3P/P7

At $T_A = 25\text{ }^\circ\text{C}$, $V_C = 5\text{ V}$.

Parameters	Symbol	Unit	Min	Typ	Max	Remark
Primary nominal residual rms current	I_{PN}	A		0.3		
Primary residual current, measuring range	I_{PM}	A	-0.5		0.5	
Supply voltage	V_C	V	4.75	5	5.5	
Current consumption	I_C	mA		17.5	21.6	$I_P(\text{mA}) / N_a$ $N_a = 1000\text{ turns}$ - $40\text{ }^\circ\text{C} \dots 105\text{ }^\circ\text{C}$
Reference voltage @ $I_P = 0$	V_{ref}	V	2.495	2.5	2.505	Internal reference
External reference voltage	V_{REF}	V	2.3		4	Internal reference of V_{ref} input = $499\ \Omega$
Electrical offset current referred to primary	I_{OE}	mA	-24	7	24	
Temperature coefficient of V_{ref}	TCV_{ref}	ppm/K			± 50	- $40 \dots 105\text{ }^\circ\text{C}$
Temperature coefficient of V_{OE} @ $I_P = 0$	TCV_{OE}	ppm/K			± 570	ppm/K of 2.5 V - $40 \dots 105\text{ }^\circ\text{C}$
Theoretical sensitivity	G_{th}	V/A		4		
Sensitivity error	ϵ_G	%	-1.6	0.5	1.6	$R_L > 500\text{ k}\Omega$
Temperature coefficient of G	TCG	ppm/K		± 400		- $40\text{ }^\circ\text{C} \dots 105\text{ }^\circ\text{C}$
Linearity error	ϵ_L	%		0.5	1	
Number of turns (test winding)	N_T			20		$R_L > 500\text{ k}\Omega$, $di/dt > 5\text{ A}/\mu\text{s}$
Reaction time @ 10 % of I_{PRN}	t_{ra}	μs		5		$R_L > 500\text{ k}\Omega$, $di/dt > 5\text{ A}/\mu\text{s}$
Step response time to 90 % of I_{PN}	t_r	μs		40		$R_L > 500\text{ k}\Omega$
Frequency bandwidth (-3dB)	BW	kHz		15		$R_L > 500\text{ k}\Omega$
Noise(1 Hz ~ 10 kHz)	V_{no}	mV rms		10		
Accuracy@ I_{PN} @ $T_A = 25\text{ }^\circ\text{C}$	X_{25c}	% of I_{PN}		± 1.9		
Accuracy@ I_{PN} @ $T_A = 105\text{ }^\circ\text{C}$	X_{105c}	% of I_{PN}		± 3.2		

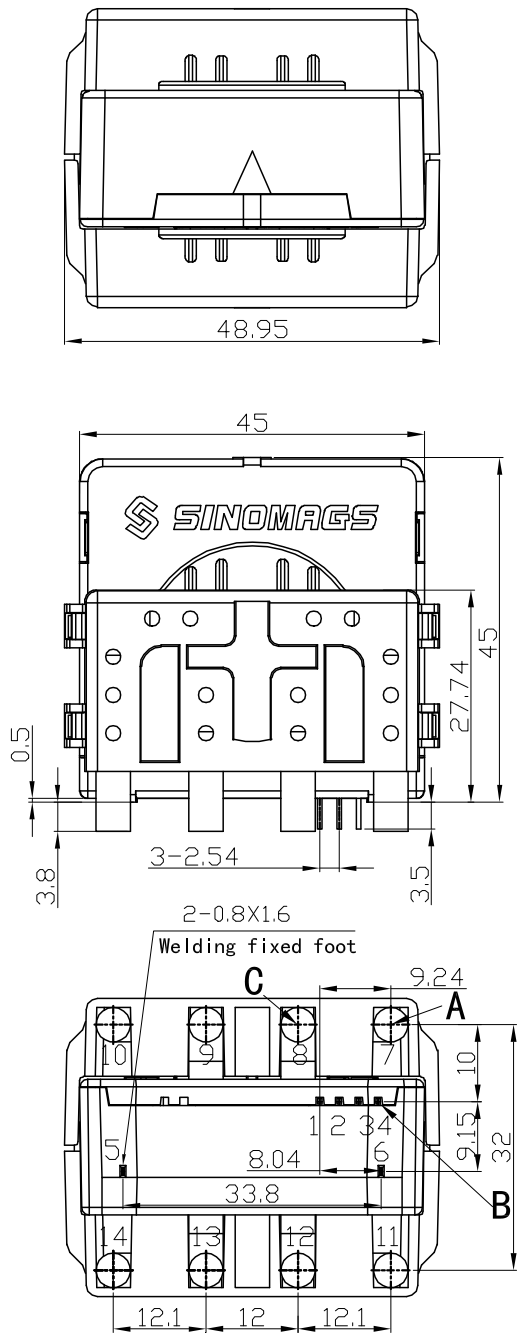
5. SFG- P/P7 PCB footprint



Assembly on PCB

- No Primary in shadow area
- Maximum PCB thickness 2.4 mm
- Wave-soldering: 260°C @ 10 s
- Recommended PCB hole diameter 1.2 mm for secondary pin.

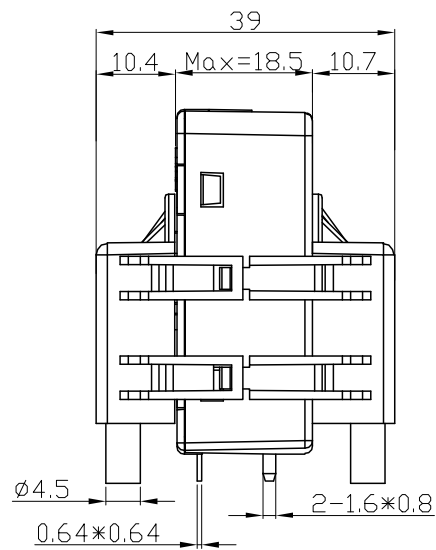
6. SFG- P/P7 Dimensions



	D _{CI}	D _{CP}
A-B	7.4	--
A-C	7.5	>7.5
A-D	--	>11

D is secondary inside the transducer

On the customer's PCBA		
	D _{CI}	D _{CP}
A-B	5.9	5.9
A-C	5.5	5.5



Terminals:

1	V _{CC}	8	I _{p+}
2	GND	9	I _{p+}
3	V _{ref}	10	I _{p+}
4	V _{out}	11	I _{p-}
5	NC	12	I _{p-}
6	NC	13	I _{p-}
7	I _{p+}	14	I _{p-}

Material : Fit UL94V-0 & RoHS requirements ;

General tolerance : ± 0.5

Unit : mm

