HS52-A-C SERIES CURRENT SENSOR/TRANSDUCER

DESCRIPTION:

The primary side and secondary side of this series of current sensors are insulated, used for DC, AC and pulsed current measurement.

FEATURES:

◆Open loop using the Hall ASIC effect
◆The primary side and the secondary side are isolated
◆Low power consumption
◆Wide range
◆No insertion loss
◆Raw materials recognized according to UL 94-V0

APPLICATIONS:

◆Motor Controller
◆Uninterruptible Power Supplies (UPS)
◆Static converters for DC motor drives
◆Switched Mode Power Supplies (SMPS)
◆Power supplies for welding applications



MODEL LIST:

PRODUCT MODEL		
Model	**Rated input current I_{PN} (A)**	**Measuring range I_{PM} (A)**
HS52- 600A-C	600	±600
HS52- 900A-C	900	±900
HS52-1200A-C	1200	±1200
HS52-1500A-C	1500	±1500

HS52-600A-C SPECIFICATION

Parameter	Symbol	Unit	Min	Typ	Max	Comment
Electrical data						
Primary current measurement range	I_{PN}	A	-600		600	
Supply voltage	V_C	V	4.75	5.0	5.25	
Output voltage	V_{OUT}	V	$V_{OUT}=(V_C/5)x(2.5+G_{th}xI_P)$			@ V_C
Zero output voltage	V_{QOV}	V	2.475	2.5	2.525	@V_C=5 & I_P=0A
Theoretical gain	G_{th}	mV/A		3.333		
Current consumption	I_C	mA		15	20	
Load resistance	R_L	kΩ	10	-	unlimited	@V_{OUT} to GND
Load capacitance	C_2	nF	1		100	
Power filter capacitor	C_1	μF	-	-	-	
Performance data						
Gain error	ε_G	%	-1		1	
Temperature drift of gain error	T_{CG}	%/℃	-0.035		0.035	@T_A -40℃~125℃
Zero point error	V_{OE}	mV	-10		10	@V_C=5V &I_P=0A
Temperature drift of zero error	TC_{VOE}	mV/℃	-0.074		0.074	@T_A -40℃~125℃
Magnetic offset voltage	V_{OM}	mV		3		@T_A=25@V_C=5V after±I_P
Nonlinear error	ε_L	% of I_{PN}	-1		1	exclude zeroV_{OE}
Response time	t_r	μs		5	8	@ di/dt = 100 A/μs
Bandwidth (-3dB)	BW	kHz		30		
Phase shift	Δ∅	degree		-		
Output noise	$V_{no\ pp}$	mV		10		@DC to 1MHZ
General data						
Ambient operating temperature	T_A	℃	-40….+125			
Ambient storage temperature	T_S	℃	-55….+125			
Mass	m	g	48			

HS52-900A-C SPECIFICATION

Parameter	Symbol	Unit	Min	Typ	Max	Comment
Electrical data						
Primary current measurement range	I_{PN}	A	-900		900	
Supply voltage	V_C	V	4.75	5.0	5.25	
Output voltage	V_{OUT}	V	$V_{OUT}=(V_C/5)$ x $(2.5+G_{th}xI_P)$			@ V_C
Zero output voltage	V_{QOV}	V	2.475	2.5	2.525	@V_C=5 & I_P=0A
Theoretical gain	G_{th}	mV/A		2.222		
Current consumption	I_C	mA		15	20	
Load resistance	R_L	kΩ	10	-	unlimited	@V_{OUT} to GND
Load capacitance	C_2	nF	1		100	
Power filter capacitor	C_1	μF	-	-	-	
Performance data						
Gain error	$\mathcal{E}_G$	%	-1		1	
Temperature drift of gain error	T_{CG}	%/℃	-0.035		0.035	@T_A -40℃~125℃
Zero point error	V_{OE}	mV	-10		10	@V_C=5V &I_P=0A
Temperature drift of zero error	TC_{VOE}	mV/℃	-0.074		0.074	@T_A -40℃~125℃
Magnetic offset voltage	V_{OM}	mV		3		@T_A=25@V_C=5V after±I_P
Nonlinear error	$\mathcal{E}_L$	% of I_{PN}	-1		1	exclude zero V_{OE}
Response time	t_r	μs		5	8	@ di/dt = 100 A/μs
Bandwidth (-3dB)	BW	kHz		30		
Phase shift	$\Delta\varnothing$	degree		-		
Output noise	$V_{no\ pp}$	mV		10		@DC to 1MHZ
General data						
Ambient operating temperature	T_A	℃	-40….+125			
Ambient storage temperature	T_S	℃	-55….+125			
Mass	m	g	48			

HS52-1200A-C SPECIFICATION

Parameter	Symbol	Unit	Min	Typ	Max	Comment
Electrical data						
Primary current measurement range	I_{PN}	A	-1200		1200	
Supply voltage	V_C	V	4.75	5.0	5.25	
Output voltage	V_{OUT}	V	$V_{OUT}=(V_C/5)$ x $(2.5+G_{th}$ x $I_P)$			@ V_C
Zero output voltage	V_{QOV}	V	2.475	2.5	2.525	@V_C=5 & I_P=0A
Theoretical gain	G_{th}	mV/A		1.666		
Current consumption	I_C	mA		15	20	
Load resistance	R_L	kΩ	10	-	unlimited	@V_{OUT} to GND
Load capacitance	C_2	nF	1		100	
Power filter capacitor	C_1	μF	-	-	-	
Performance data						
Gain error	ε_G	%	-2		2	
Temperature drift of gain error	T_{CG}	%/℃	-0.035		0.035	@T_A -40℃~125℃
Zero point error	V_{OE}	mV	-10		10	@V_C=5V &I_P=0A
Temperature drift of zero error	TC_{VOE}	mV/℃	-0.074		0.074	@T_A -40℃~125℃
Magnetic offset voltage	V_{OM}	mV		3		@T_A=25@V_C=5V after±I_P
Nonlinear error	ε_L	% of I_{PN}	-2		2	exclude zero V_{OE}
Response time	t_r	μs		5	8	@ di/dt = 100 A/μs
Bandwidth (-3dB)	BW	kHz		30		
Phase shift	Δ∅	degree		-		
Output noise	$V_{no\ pp}$	mV		10		@DC to 1MHZ
General data						
Ambient operating temperature	T_A	℃	-40….+125			
Ambient storage temperature	T_S	℃	-55….+125			
Mass	m	g	48			

HS52-1500A-C SPECIFICATION

Parameter	Symbol	Unit	Min	Typ	Max	Comment
Electrical data						
Primary current measurement range	I_{PN}	A	-1500		1500	
Supply voltage	V_C	V	4.75	5.0	5.25	
Output voltage	V_{OUT}	V	$V_{OUT}=(V_C/5)$ x $(2.5+G_{th}$ x $I_P)$			@ V_C
Zero output voltage	V_{QOV}	V	2.475	2.5	2.525	@V_C=5 & I_P=0A
Theoretical gain	G_{th}	mV/A		1.333		
Current consumption	I_C	mA		15	20	
Load resistance	R_L	kΩ	10	-	unlimited	@V_{OUT} to GND
Load capacitance	C_2	nF	1	-	100	
Power filter capacitor	C_1	μF	-	-	-	
Performance data						
Gain error	ε_G	%	-2		2	
Temperature drift of gain error	T_{CG}	%/℃	-0.035		0.035	@T_A -40℃~125℃
Zero point error	V_{OE}	mV	-10		10	@V_C=5V &I_P=0A
Temperature drift of zero error	TC_{VOE}	mV/℃	-0.074		0.074	@T_A -40℃~125℃
Magnetic offset voltage	V_{OM}	mV		3		@T_A=25@V_C=5V after±I_P
Nonlinear error	ε_L	% of I_{PN}	-2		2	exclude zero V_{OE}
Response time	t_r	μs		5	8	@ di/dt = 100 A/μs
Bandwidth (-3dB)	BW	kHz		30		
Phase shift	Δ∅	degree		-		
Output noise	$V_{no\ pp}$	mV		10		@DC to 1MHZ
General data						
Ambient operating temperature	T_A	℃	-40….+125			
Ambient storage temperature	T_S	℃	-55….+125			
Mass	m	g	48			

Note:

（1） The output voltage U_{out} , the offset voltage U_{QOV} , and the sensitivity G_{th} are completely proportional to the power supply Vc ;

（2） The frequency of the current to be measured needs to be limited within the frequency band of the sensor, otherwise the core and chip will be overheated;

（3） Incorrect wiring may damage the sensor.

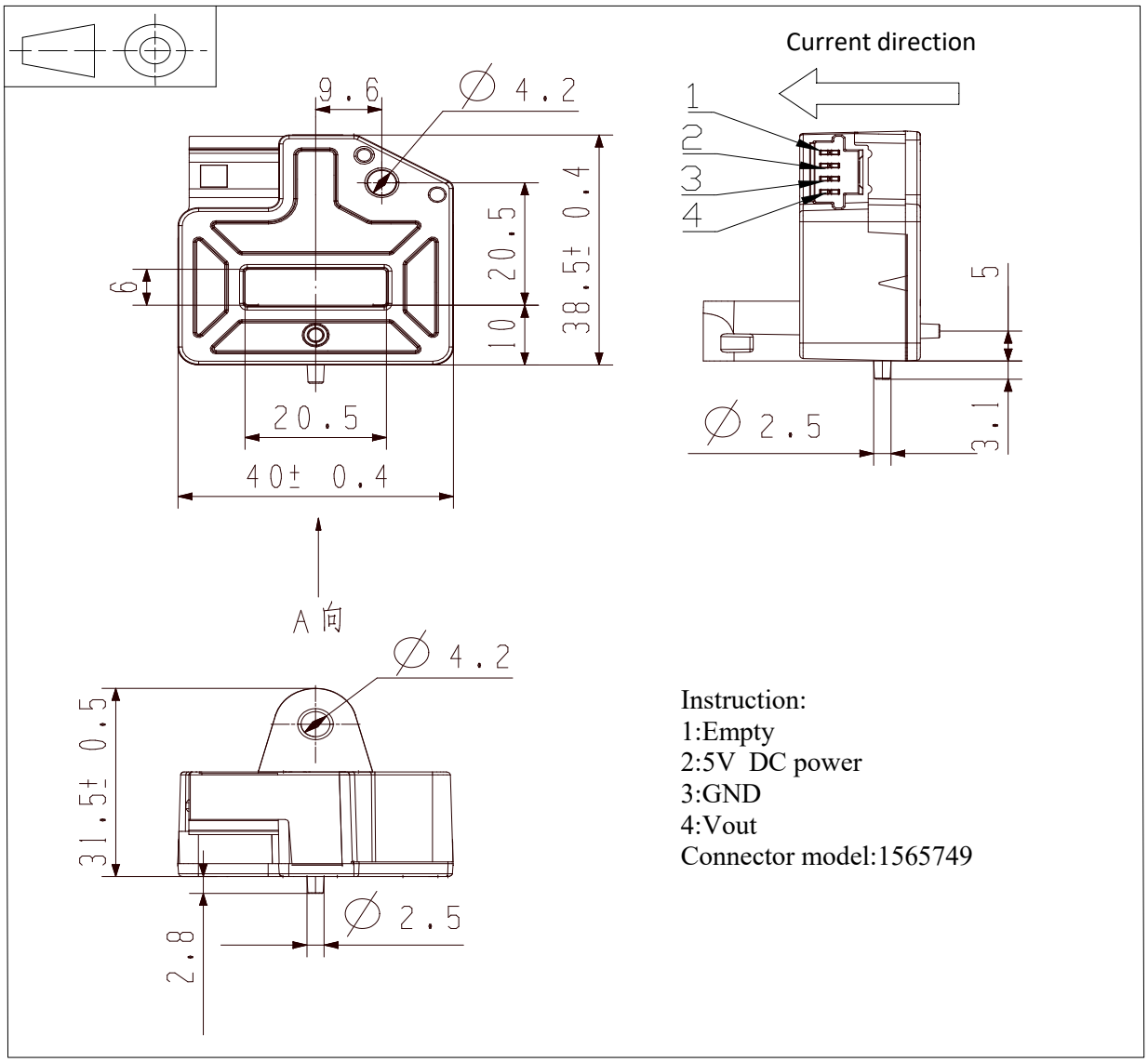
Insulation data:

Parameter	Symbol	Unit	Value	Comment
AC isolation withstand voltage test RMS @ 50Hz, 1min	U_D	KV	2	
Impulse withstand voltage 1.2/50uS	U_W	KV	-	
Shell material	-	-	UL94-V0	PBT+30%GF
Relative tracking index	CTI	-	-	
Creepage distance	d_{CP}	mm	-	
Electrical clearance	d_{CI}	mm	-	

Maximum limit:

Parameter	Symbol	Unit	Value
Supply voltage	V_C	V	7
Continuous output current	I_{out}	mA	±10
Electrostatic discharge - contact discharge	V_{ESD}	KV	2

Mechanical Dimensions:



Safety

This device must be used according to IEC61010-1.

This device must be used in electric/electronic equipment with respect to applicable standards and safety requirements in accordance with the operating instructions.

Caution, risk of electrical shock.

When operating the device, certain parts can carry hazardous voltage (eg. primary busbar, power supply).
Ignoring this warning can lead to injury and/or cause serious damage.
This is a built-in device, whose conducting parts must be inaccessible after installation.
A protective housing or additional shield can be used.
Main supply must be able to be disconnected.