Current Sensor

Product Series: SHK-VBS6

Part number: SHK-VBS6-100-S2，SHK-VBS6-200-S2，SHK-VBS6-300-S2，SHK-VBS6-400-S2，SHK-VBS6-500-S2，SHK-VBS6-600-S2，SHK-VBS6-700-S2，SHK-VBS6-800-S2，SHK-VBS6-900-S2，SHK-VBS6-1000-S2，SHK-VBS6-1100-S2，SHK-VBS6-1200-S2，SHK-VBS6-1500-S2；

Version: Ver 2.6

Sinomags Technology Co., Ltd

Web site: www.sinomags.com

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1. Description

The SHK-VBS6 current sensor is based on Hall and open-loop design. It is suitable for DC, AC pulsed and any kind of irregular current measurement under the isolated conditions.

Typical applications

- Electrical Power Steering
- Starter Generators
- Battery Management
- Motor control unit for xEV

General parameter

Parameter	Symbol	Unit	Value
Working temperature	T_a	℃	-40 ~ 125
Storage temperature	T_{stg}	℃	-40 ~ 125
Mass	m	g	59

Absolute maximum rating

Parameter	Symbol	Unit	Value
Supply voltage	Vcc	V	-0.5 ~ 8 (Not operating)
			6.5
Electrostatic discharge voltage	$U_{ESD\ HBM}$	kV	8
Maximum admissible vibration (random RMS)	γ_{max}	$m \cdot s^{-2}$	96.6 (10 to 2000 Hz, -40℃ ~ 125℃)
Maximum output current	$I_{out\ max}$	mA	-10 ~ 10
Maximum output voltage	$U_{out\ max}$	V	-0.5 ~ Vcc + 0.5

Remark: the unrecoverable damage may occur when the product works on the conditions over the absolute maximum ratings. Long-time working on the absolute maximum ratings may cause the degradation on performance and reliability.

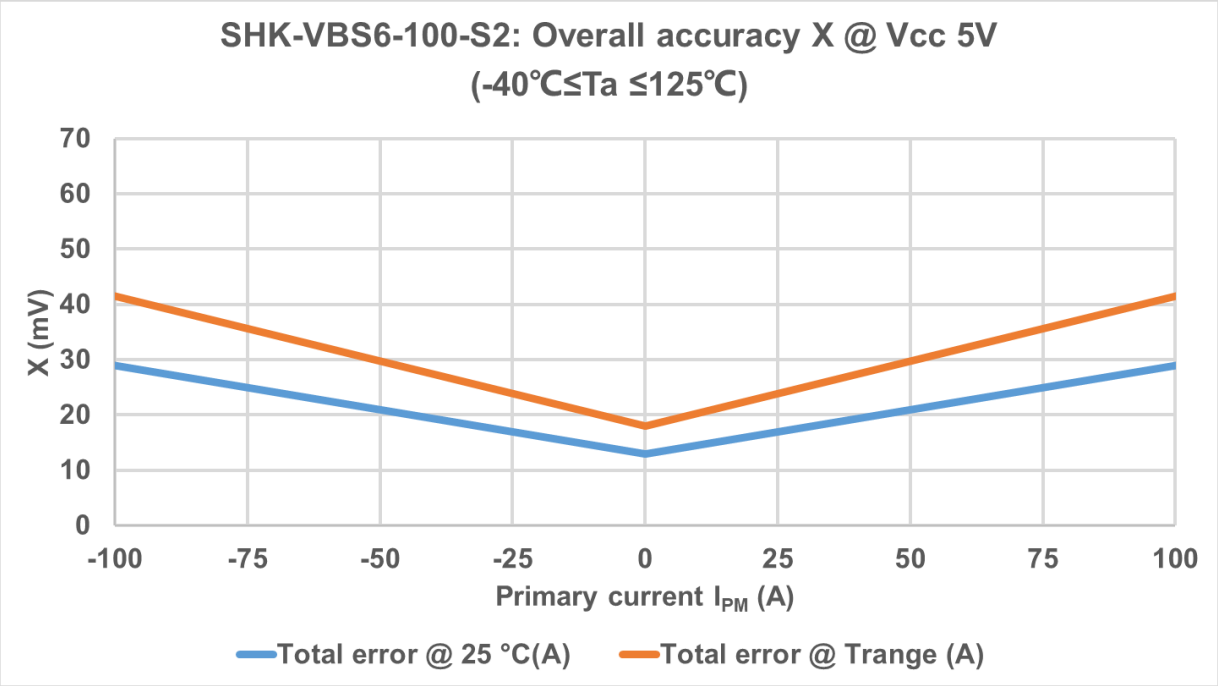
Isolation parameter

Parameter	Symbol	Unit	Value	Comment
Insulation voltage	U_d	kV	4.1	RMS voltage for AC test 50Hz/1 min
Clearance distance (pri. -sec)	d_{Cl}	mm	25.48	Shortest distance through air
Creepage distance (pri. -sec)	d_{Cp}	mm	30.33	Shortest path along device body
Comparative traking index	CTI		PLC3	
Case material			V0 according to UL 94	

2. Electrical data of SHK-VBS6-100-S2

Parameter	Symbol	Unit	Min	Typ	Max	Comment
Primary current measuring range	I_{PM}	A	-100		100	SHK-VBS6-100-S2
Primary nominal RMS current	I_{PN}	A	-100		100	SHK-VBS6-100-S2
Supply voltage	V_{CC}	V	4.75	5	5.25	
Current consumption	I_{CC}	mA		12		@ V_{CC}= 5.0 V
Output voltage	V_{OUT}	V	V_{OUT} =(V_{CC}/5)×(V_{off}+G×I_P)			@ T_a = 25℃
Quiescent voltage	V_{off}	V		2.5		@ T_a = 25℃, V_{CC} = 5.0 V
Sensitivity	G	mV/A		20		@ T_a = 25℃, V_{CC} = 5.0 V
Load resistance	R_L	kΩ	10			
Output internal resistance	R_{out}	Ω		1	10	
Ratiometricity error	ε_r	%		±0.5		@ 4.75V ≤ V_{CC} ≤ 5.25V
Sensitivity error	ε_G	%		±0.6		@ T_a = 25℃, V_{CC} = 5.0 V
Electrical offset voltage error	V_{OE}	mV		±3.0		@ T_a = 25℃, V_{CC} = 5.0 V
Magnetic offset voltage error	V_{OM}	mV		±2.0		@ T_a = 25℃, V_{CC} = 5.0 V, I = I_{PM}
Ave. Temp. coefficient of V_{OE}	TCV_{OEAV}	mV/℃		±0.04		@ -40℃≤T_a ≤125℃
Ave. Temp. coefficient of G	TCG_{AV}	%/℃		±0.02		@ -40℃≤T_a ≤125℃
Linearity	ε_L	%	-1		1	@ T_a = 25℃, V_{CC} = 5.0 V, I = I_{PM}
Response time	T_r	μs		3	6	@ 90% of I_{PM}
Frequency bandwidth (-3 dB)	BW	kHz	40			No RC circuit
Output voltage noise	V_{no}	mVpp		20		@ DC ~ 10 kHz

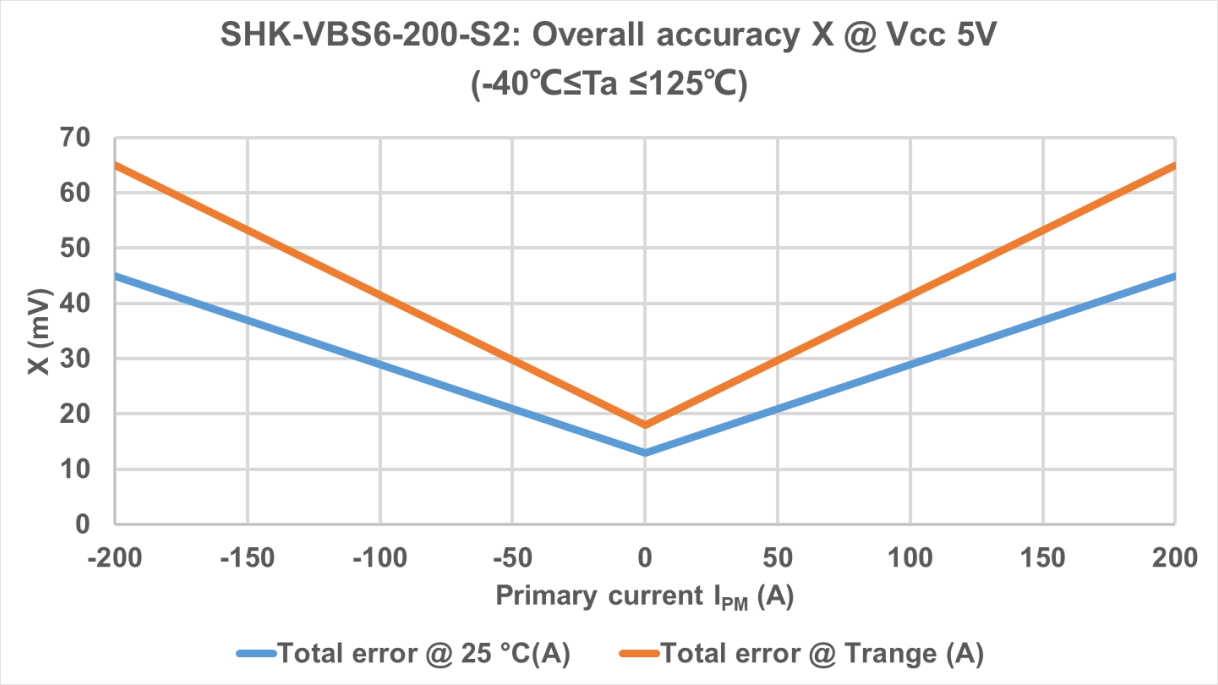
Overall accuracy X specification						
I_{PM}(A)	@T_a = 25℃,V_{CC} = 5.0 V			@-40℃≤T_a ≤125℃,V_{CC} = 5.0 V,		
-100	45 mV	2.25 A	2.25%	65 mV	3.25 A	3.25%
0	13 mV	0.65 A	0.65%	18 mV	0.90 A	0.90%
100	45 mV	2.25 A	2.25%	65 mV	3.25 A	3.25%



3. Electrical data of SHK-VBS6-200-S2

Parameter	Symbol	Unit	Min	Typ	Max	Comment
Primary current measuring range	I_{PM}	A	-200		200	SHK-VBS6-200-S2
Primary nominal RMS current	I_{PN}	A	-200		200	SHK-VBS6-200-S2
Supply voltage	V_{CC}	V	4.75	5	5.25	
Current consumption	I_{CC}	mA		12		@ V_{CC}= 5.0 V
Output voltage	V_{OUT}	V	V_{OUT} =(V_{CC}/5)×(V_{off}+G×I_P)			@ T_a = 25℃
Quiescent voltage	V_{off}	V		2.5		@ T_a = 25℃, V_{CC} = 5.0 V
Sensitivity	G	mV/A		10		@ T_a = 25℃, V_{CC} = 5.0 V
Load resistance	R_L	kΩ	10			
Output internal resistance	R_{out}	Ω		1	10	
Ratiometricity error	ε_r	%		±0.5		@ 4.75V ≤ V_{CC} ≤ 5.25V
Sensitivity error	ε_G	%		±0.6		@ T_a = 25℃, V_{CC} = 5.0 V
Electrical offset voltage error	V_{OE}	mV		±3.0		@ T_a = 25℃, V_{CC} = 5.0 V
Magnetic offset voltage error	V_{OM}	mV		±2.0		@ T_a = 25℃, V_{CC} = 5.0 V, I = I_{PM}
Ave. Temp. coefficient of V_{OE}	TCV_{OEAV}	mV/℃		±0.04		@ -40℃≤T_a ≤125℃
Ave. Temp. coefficient of G	TCG_{AV}	%/℃		±0.02		@ -40℃≤T_a ≤125℃
Linearity	ε_L	%	-1		1	@ T_a = 25℃, V_{CC} = 5.0 V, I = I_{PM}
Response time	T_r	μs		3	6	@ 90% of I_{PM}
Frequency bandwidth (-3 dB)	BW	kHz	40			No RC circuit
Output voltage noise	V_{no}	mVpp		20		@ DC ~ 10 kHz

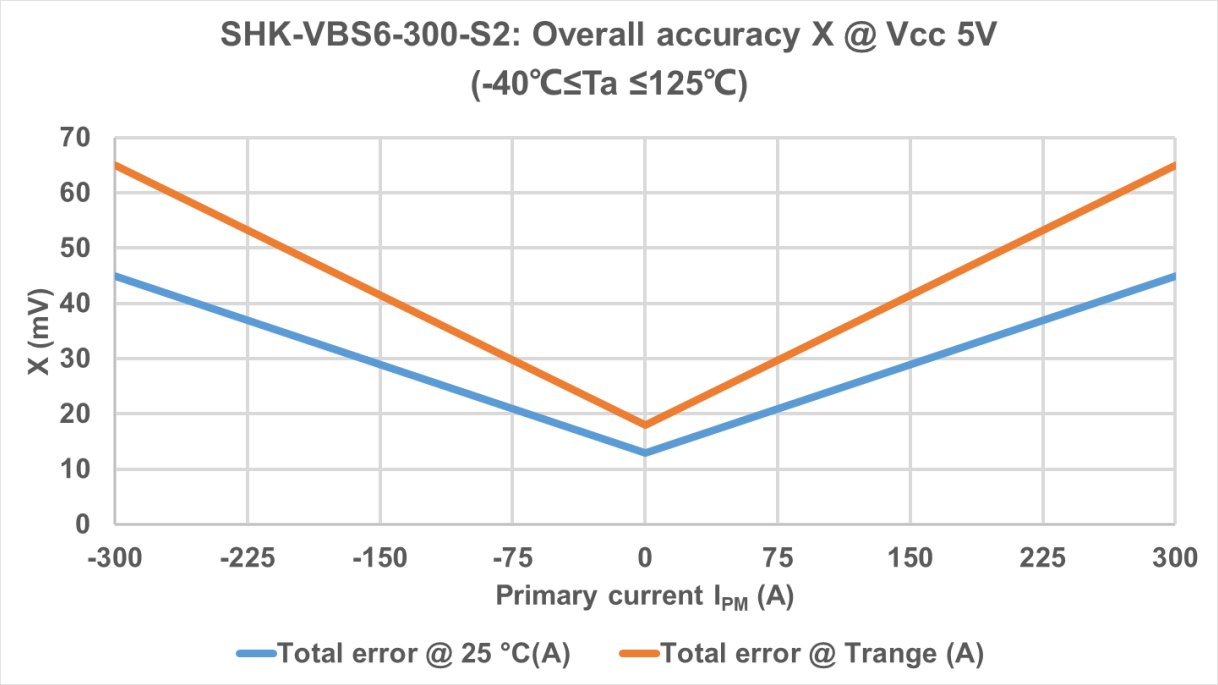
Overall accuracy X specification						
I_{PM}(A)	@T_a = 25℃,V_{CC} = 5.0 V			@-40℃≤T_a ≤125℃,V_{CC} = 5.0 V,		
-200	45 mV	4.50 A	2.25%	65 mV	6.50 A	3.25%
0	13 mV	1.30 A	0.65%	18 mV	1.80 A	0.90%
200	45 mV	4.50 A	2.25%	65 mV	6.50 A	3.25%



4. Electrical data of SHK-VBS6-300-S2

Parameter	Symbol	Unit	Min	Typ	Max	Comment
Primary current measuring range	I_{PM}	A	-300		300	SHK-VBS6-300-S2
Primary nominal RMS current	I_{PN}	A	-300		300	SHK-VBS6-300-S2
Supply voltage	V_{CC}	V	4.75	5	5.25	
Current consumption	I_{CC}	mA		12		@ V_{CC}= 5.0 V
Output voltage	V_{OUT}	V	V_{OUT} =(V_{CC}/5)×(V_{off}+G×I_P)			@ T_a = 25℃
Quiescent voltage	V_{off}	V		2.5		@ T_a = 25℃, V_{CC} = 5.0 V
Sensitivity	G	mV/A		6.667		@ T_a = 25℃, V_{CC} = 5.0 V
Load resistance	R_L	kΩ	10			
Output internal resistance	R_{out}	Ω		1	10	
Ratiometricity error	ε_r	%		±0.5		@ 4.75V ≤ V_{CC} ≤ 5.25V
Sensitivity error	ε_G	%		±0.6		@ T_a = 25℃, V_{CC} = 5.0 V
Electrical offset voltage error	V_{OE}	mV		±3.0		@ T_a = 25℃, V_{CC} = 5.0 V
Magnetic offset voltage error	V_{OM}	mV		±2.0		@ T_a = 25℃, V_{CC} = 5.0 V, I = I_{PM}
Ave. Temp. coefficient of V_{OE}	TCV_{OEAV}	mV/℃		±0.04		@ -40℃≤T_a ≤125℃
Ave. Temp. coefficient of G	TCG_{AV}	%/℃		±0.02		@ -40℃≤T_a ≤125℃
Linearity	ε_L	%	-1		1	@ T_a = 25℃, V_{CC} = 5.0 V, I = I_{PM}
Response time	T_r	μs		3	6	@ 90% of I_{PM}
Frequency bandwidth (-3 dB)	BW	kHz	40			No RC circuit
Output voltage noise	V_{no}	mVpp		20		@ DC ~ 10 kHz

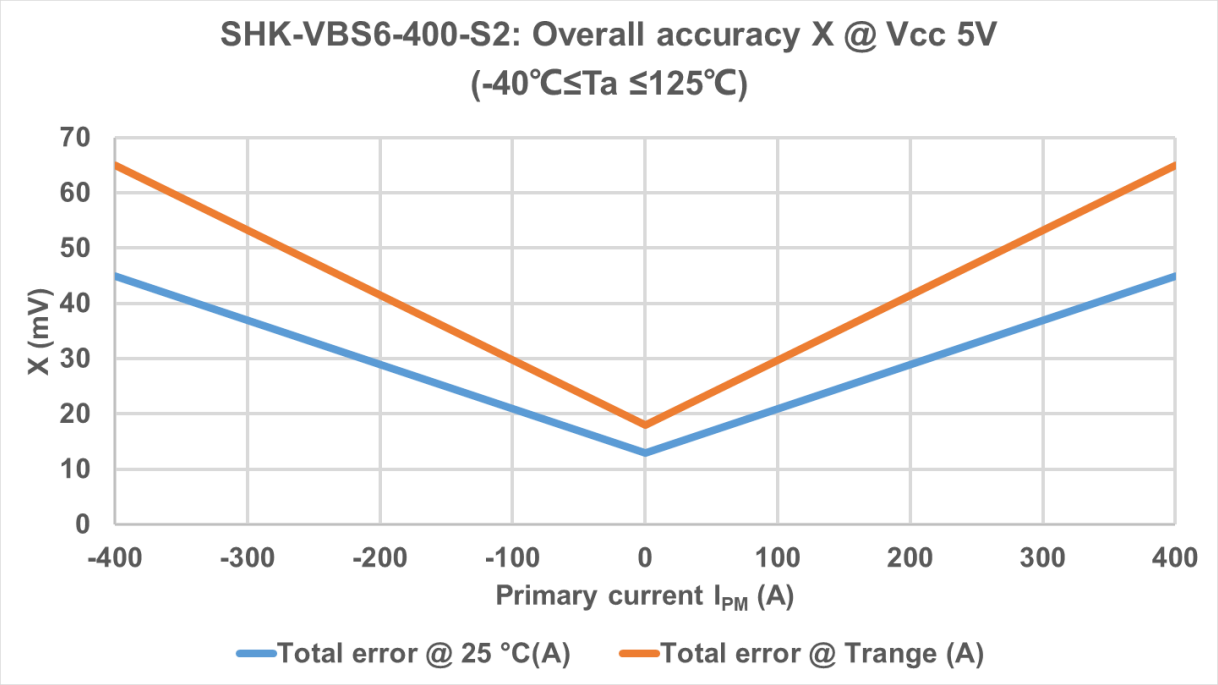
Overall accuracy X specification						
I_{PM}(A)	@T_a = 25℃,V_{CC} = 5.0 V			@-40℃≤T_a ≤125℃,V_{CC} = 5.0 V,		
-300	45 mV	6.75 A	2.25%	65 mV	9.75 A	3.25%
0	13 mV	1.95 A	0.65%	18 mV	2.70 A	0.90%
300	45 mV	6.75 A	2.25%	65 mV	9.75 A	3.25%



5. Electrical data of SHK-VBS6-400-S2

Parameter	Symbol	Unit	Min	Typ	Max	Comment
Primary current measuring range	I_{PM}	A	-400		400	SHK-VBS6-400-S2
Primary nominal RMS current	I_{PN}	A	-400		400	SHK-VBS6-400-S2
Supply voltage	V_{CC}	V	4.75	5	5.25	
Current consumption	I_{CC}	mA		12		@ V_{CC}= 5.0 V
Output voltage	V_{OUT}	V	V_{OUT} =(V_{CC}/5)×(V_{off}+G×I_P)			@ T_a = 25℃
Quiescent voltage	V_{off}	V		2.5		@ T_a = 25℃, V_{CC} = 5.0 V
Sensitivity	G	mV/A		5		@ T_a = 25℃, V_{CC} = 5.0 V
Load resistance	R_L	kΩ	10			
Output internal resistance	R_{out}	Ω		1	10	
Ratiometricity error	ε_r	%		±0.5		@ 4.75V ≤ V_{CC} ≤ 5.25V
Sensitivity error	ε_G	%		±0.6		@ T_a = 25℃, V_{CC} = 5.0 V
Electrical offset voltage error	V_{OE}	mV		±3.0		@ T_a = 25℃, V_{CC} = 5.0 V
Magnetic offset voltage error	V_{OM}	mV		±2.0		@ T_a = 25℃, V_{CC} = 5.0 V, I = I_{PM}
Ave. Temp. coefficient of V_{OE}	TCV_{OEAV}	mV/℃		±0.04		@ -40℃≤T_a ≤125℃
Ave. Temp. coefficient of G	TCG_{AV}	%/℃		±0.02		@ -40℃≤T_a ≤125℃
Linearity	ε_L	%	-1		1	@ T_a = 25℃, V_{CC} = 5.0 V, I = I_{PM}
Response time	T_r	μs		3	6	@ 90% of I_{PM}
Frequency bandwidth (-3 dB)	BW	kHz	40			No RC circuit
Output voltage noise	V_{no}	mVpp		20		@ DC ~ 10 kHz

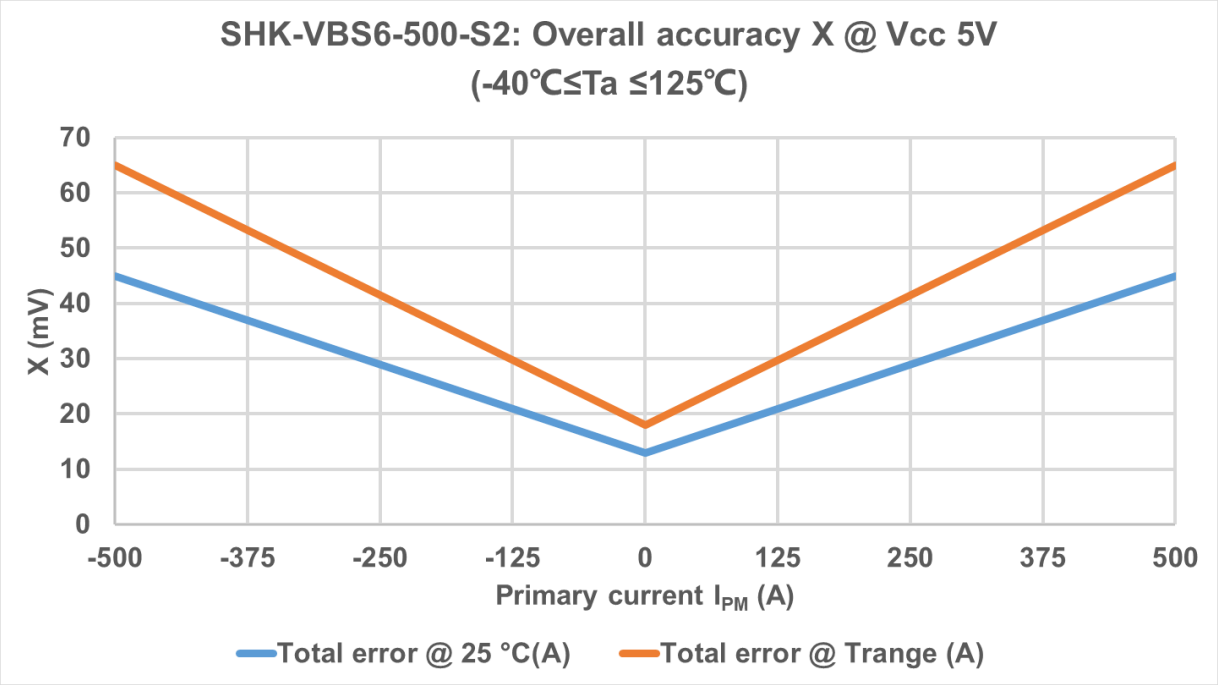
Overall accuracy X specification						
I_{PM}(A)	@T_a = 25℃,V_{CC} = 5.0 V			@-40℃≤T_a ≤125℃,V_{CC} = 5.0 V,		
-400	45 mV	9.00 A	2.25%	65 mV	13.00 A	3.25%
0	13 mV	2.60 A	0.65%	18 mV	3.60 A	0.90%
400	45 mV	9.00 A	2.25%	65 mV	13.00 A	3.25%



6. Electrical data of SHK-VBS6-500-S2

Parameter	Symbol	Unit	Min	Typ	Max	Comment
Primary current measuring range	I_{PM}	A	-500		500	SHK-VBS6-500-S2
Primary nominal RMS current	I_{PN}	A	-500		500	SHK-VBS6-500-S2
Supply voltage	V_{CC}	V	4.75	5	5.25	
Current consumption	I_{CC}	mA		12		@ V_{CC}= 5.0 V
Output voltage	V_{OUT}	V	V_{OUT} =(V_{CC}/5)×(V_{off}+G×I_P)			@ T_a = 25℃
Quiescent voltage	V_{off}	V		2.5		@ T_a = 25℃, V_{CC} = 5.0 V
Sensitivity	G	mV/A		4		@ T_a = 25℃, V_{CC} = 5.0 V
Load resistance	R_L	kΩ	10			
Output internal resistance	R_{out}	Ω		1	10	
Ratiometricity error	ε_r	%		±0.5		@ 4.75V ≤ V_{CC} ≤ 5.25V
Sensitivity error	ε_G	%		±0.6		@ T_a = 25℃, V_{CC} = 5.0 V
Electrical offset voltage error	V_{OE}	mV		±3.0		@ T_a = 25℃, V_{CC} = 5.0 V
Magnetic offset voltage error	V_{OM}	mV		±2.0		@ T_a = 25℃, V_{CC} = 5.0 V, I = I_{PM}
Ave. Temp. coefficient of V_{OE}	TCV_{OEAV}	mV/℃		±0.04		@ -40℃≤T_a ≤125℃
Ave. Temp. coefficient of G	TCG_{AV}	%/℃		±0.02		@ -40℃≤T_a ≤125℃
Linearity	ε_L	%	-1		1	@ T_a = 25℃, V_{CC} = 5.0 V, I = I_{PM}
Response time	T_r	μs		3	6	@ 90% of I_{PM}
Frequency bandwidth (-3 dB)	BW	kHz	40			No RC circuit
Output voltage noise	V_{no}	mVpp		20		@ DC ~ 10 kHz

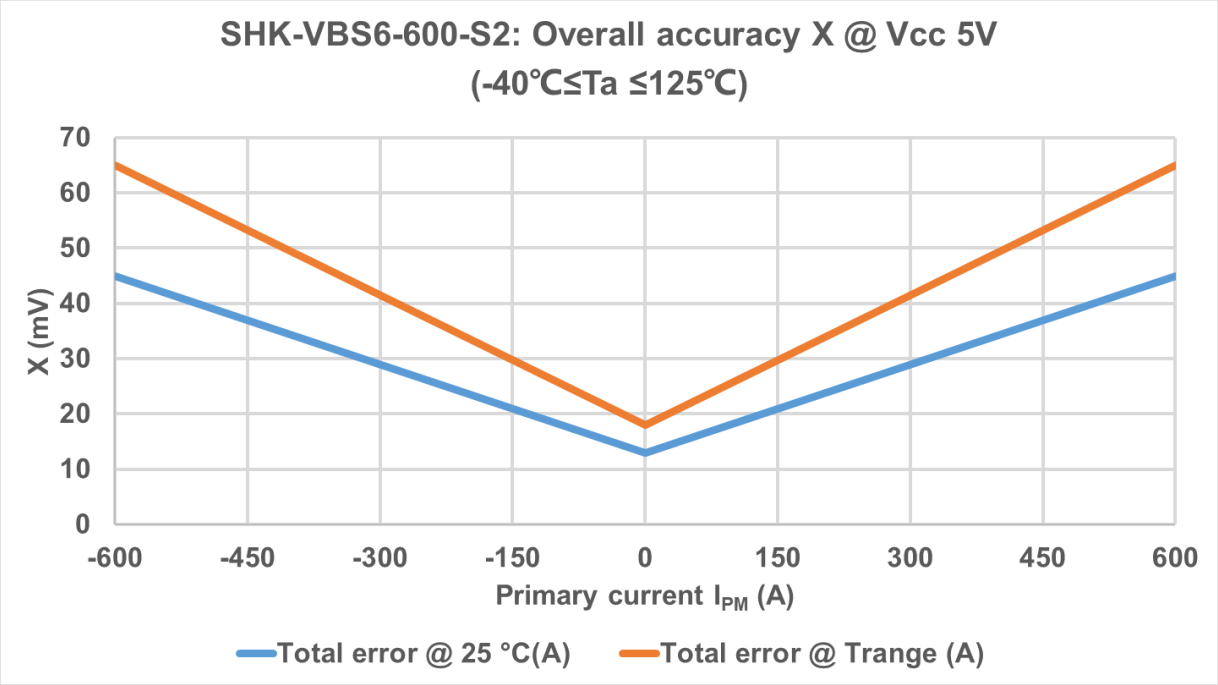
Overall accuracy X specification						
I_{PM}(A)	@T_a = 25℃,V_{CC} = 5.0 V			@-40℃≤T_a ≤125℃,V_{CC} = 5.0 V,		
-500	45 mV	11.25 A	2.25%	65 mV	16.25 A	3.25%
0	13 mV	3.25 A	0.65%	18 mV	4.50 A	0.90%
500	45 mV	11.25 A	2.25%	65 mV	16.25 A	3.25%



7. Electrical data of SHK-VBS6-600-S2

Parameter	Symbol	Unit	Min	Typ	Max	Comment
Primary current measuring range	I_{PM}	A	-600		600	SHK-VBS6-600-S2
Primary nominal RMS current	I_{PN}	A	-600		600	SHK-VBS6-600-S2
Supply voltage	V_{CC}	V	4.75	5	5.25	
Current consumption	I_{CC}	mA		12		@ V_{CC}= 5.0 V
Output voltage	V_{OUT}	V	V_{OUT} =(V_{CC}/5)×(V_{off}+G×I_P)			@ T_a = 25℃
Quiescent voltage	V_{off}	V		2.5		@ T_a = 25℃, V_{CC} = 5.0 V
Sensitivity	G	mV/A		3.333		@ T_a = 25℃, V_{CC} = 5.0 V
Load resistance	R_L	kΩ	10			
Output internal resistance	R_{out}	Ω		1	10	
Ratiometricity error	ε_r	%		±0.5		@ 4.75V ≤ V_{CC} ≤ 5.25V
Sensitivity error	ε_G	%		±0.6		@ T_a = 25℃, V_{CC} = 5.0 V
Electrical offset voltage error	V_{OE}	mV		±3.0		@ T_a = 25℃, V_{CC} = 5.0 V
Magnetic offset voltage error	V_{OM}	mV		±2.0		@ T_a = 25℃, V_{CC} = 5.0 V, I = I_{PM}
Ave. Temp. coefficient of V_{OE}	TCV_{OEAV}	mV/℃		±0.04		@ -40℃≤T_a ≤125℃
Ave. Temp. coefficient of G	TCG_{AV}	%/℃		±0.02		@ -40℃≤T_a ≤125℃
Linearity	ε_L	%	-1		1	@ T_a = 25℃, V_{CC} = 5.0 V, I = I_{PM}
Response time	T_r	μs		3	6	@ 90% of I_{PM}
Frequency bandwidth (-3 dB)	BW	kHz	40			No RC circuit
Output voltage noise	V_{no}	mVpp		20		@ DC ~ 10 kHz

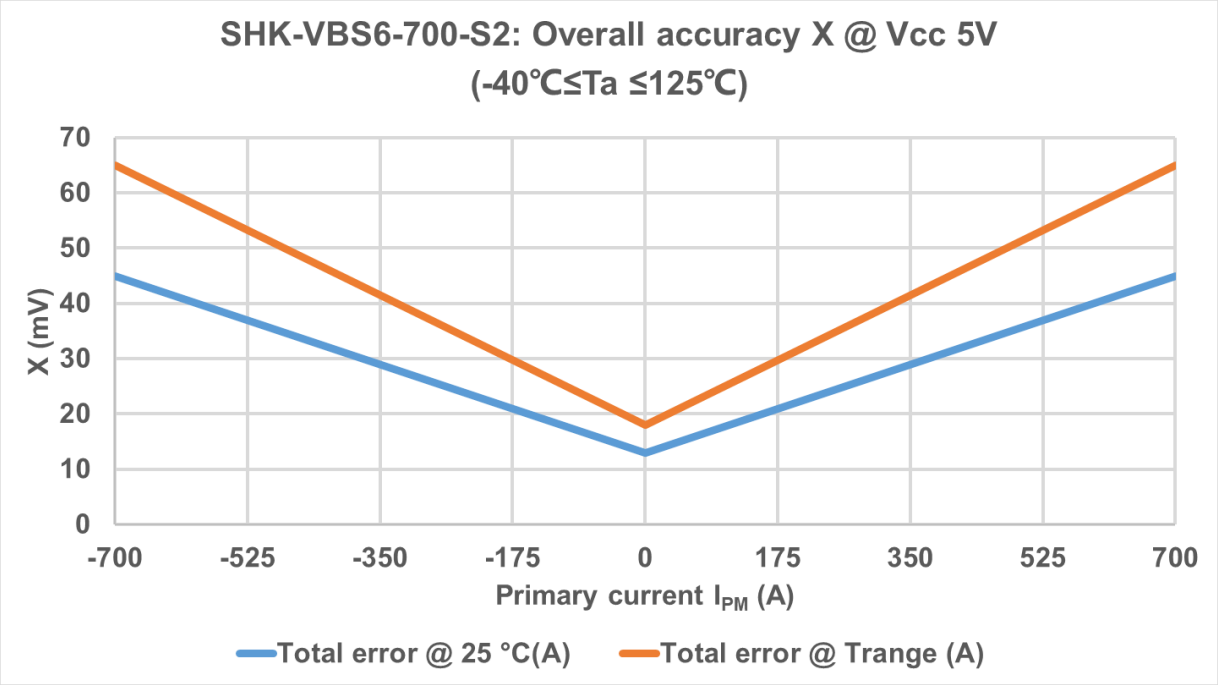
Overall accuracy X specification						
I_{PM}(A)	@T_a = 25℃,V_{CC} = 5.0 V			@-40℃≤T_a ≤125℃,V_{CC} = 5.0 V,		
-600	45 mV	13.5 A	2.25%	65 mV	19.5 A	3.25%
0	13 mV	3.90 A	0.65%	18 mV	5.40 A	0.90%
600	45 mV	13.5 A	2.25%	65 mV	19.5 A	3.25%



8. Electrical data of SHK-VBS6-700-S2

Parameter	Symbol	Unit	Min	Typ	Max	Comment
Primary current measuring range	I_{PM}	A	-700		700	SHK-VBS6-700-S2
Primary nominal RMS current	I_{PN}	A	-700		700	SHK-VBS6-700-S2
Supply voltage	V_{CC}	V	4.75	5	5.25	
Current consumption	I_{CC}	mA		12		@ V_{CC}= 5.0 V
Output voltage	V_{OUT}	V	V_{OUT} =(V_{CC}/5)×(V_{off}+G×I_P)			@ T_a = 25℃
Quiescent voltage	V_{off}	V		2.5		@ T_a = 25℃, V_{CC} = 5.0 V
Sensitivity	G	mV/A		2.857		@ T_a = 25℃, V_{CC} = 5.0 V
Load resistance	R_L	kΩ	10			
Output internal resistance	R_{out}	Ω		1	10	
Ratiometricity error	ε_r	%		±0.5		@ 4.75V ≤ V_{CC} ≤ 5.25V
Sensitivity error	ε_G	%		±0.6		@ T_a = 25℃, V_{CC} = 5.0 V
Electrical offset voltage error	V_{OE}	mV		±3.0		@ T_a = 25℃, V_{CC} = 5.0 V
Magnetic offset voltage error	V_{OM}	mV		±2.0		@ T_a = 25℃, V_{CC} = 5.0 V, I = I_{PM}
Ave. Temp. coefficient of V_{OE}	TCV_{OEAV}	mV/℃		±0.04		@ -40℃≤T_a ≤125℃
Ave. Temp. coefficient of G	TCG_{AV}	%/℃		±0.02		@ -40℃≤T_a ≤125℃
Linearity	ε_L	%	-1		1	@ T_a = 25℃, V_{CC} = 5.0 V, I = I_{PM}
Response time	T_r	μs		3	6	@ 90% of I_{PM}
Frequency bandwidth (-3 dB)	BW	kHz	40			No RC circuit
Output voltage noise	V_{no}	mVpp		20		@ DC ~ 10 kHz

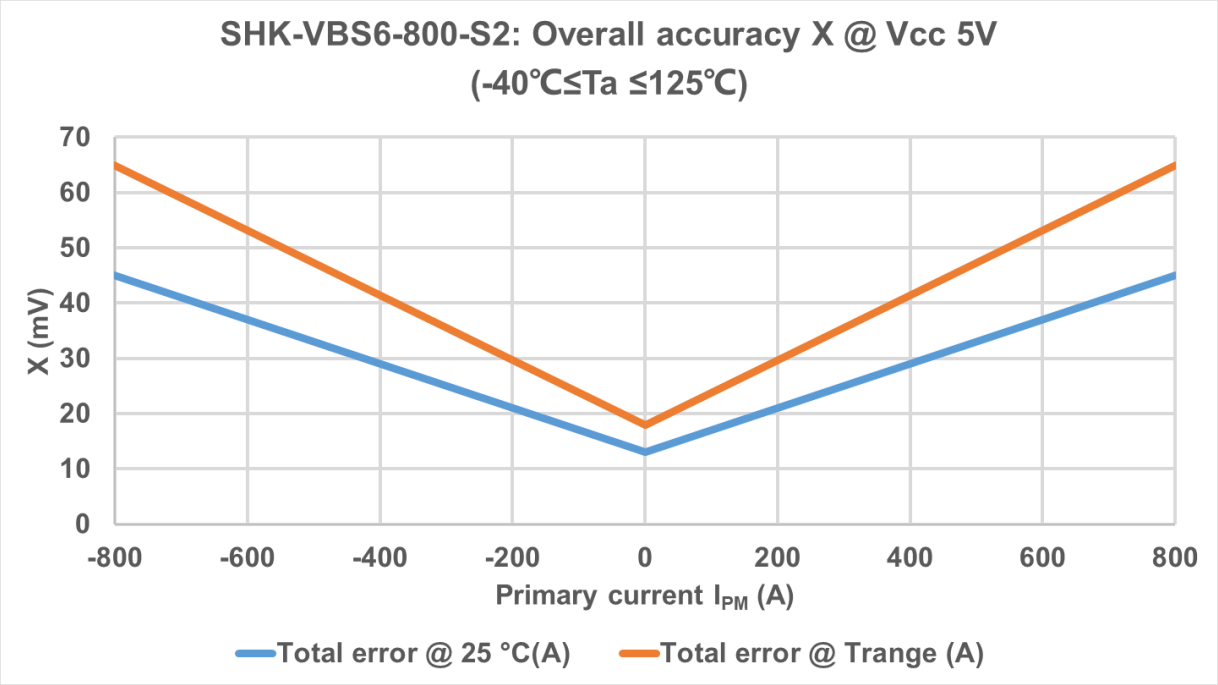
Overall accuracy X specification						
I_{PM}(A)	@T_a = 25℃,V_{CC} = 5.0 V			@-40℃≤T_a ≤125℃,V_{CC} = 5.0 V,		
-700	45 mV	15.75 A	2.25%	65 mV	22.75 A	3.25%
0	13 mV	4.55 A	0.65%	18 mV	6.30 A	0.90%
700	45 mV	15.75 A	2.25%	65 mV	22.75 A	3.25%



9. Electrical data of SHK-VBS6-800-S2

Parameter	Symbol	Unit	Min	Typ	Max	Comment
Primary current measuring range	I_{PM}	A	-800		800	SHK-VBS6-800-S2
Primary nominal RMS current	I_{PN}	A	-800		800	SHK-VBS6-800-S2
Supply voltage	V_{CC}	V	4.75	5	5.25	
Current consumption	I_{CC}	mA		12		@ V_{CC}= 5.0 V
Output voltage	V_{OUT}	V	V_{OUT} =(V_{CC}/5)×(V_{off}+G×I_P)			@ T_a = 25℃
Quiescent voltage	V_{off}	V		2.5		@ T_a = 25℃, V_{CC} = 5.0 V
Sensitivity	G	mV/A		2.5		@ T_a = 25℃, V_{CC} = 5.0 V
Load resistance	R_L	kΩ	10			
Output internal resistance	R_{out}	Ω		1	10	
Ratiometricity error	ε_r	%		±0.5		@ 4.75V ≤ V_{CC} ≤ 5.25V
Sensitivity error	ε_G	%		±0.6		@ T_a = 25℃, V_{CC} = 5.0 V
Electrical offset voltage error	V_{OE}	mV		±3.0		@ T_a = 25℃, V_{CC} = 5.0 V
Magnetic offset voltage error	V_{OM}	mV		±2.0		@ T_a = 25℃, V_{CC} = 5.0 V, I = I_{PM}
Ave. Temp. coefficient of V_{OE}	TCV_{OEAV}	mV/℃		±0.04		@ -40℃≤T_a ≤125℃
Ave. Temp. coefficient of G	TCG_{AV}	%/℃		±0.02		@ -40℃≤T_a ≤125℃
Linearity	ε_L	%	-1		1	@ T_a = 25℃, V_{CC} = 5.0 V, I = I_{PM}
Response time	T_r	μs		3	6	@ 90% of I_{PM}
Frequency bandwidth (-3 dB)	BW	kHz	40			No RC circuit
Output voltage noise	V_{no}	mVpp		20		@ DC ~ 10 kHz

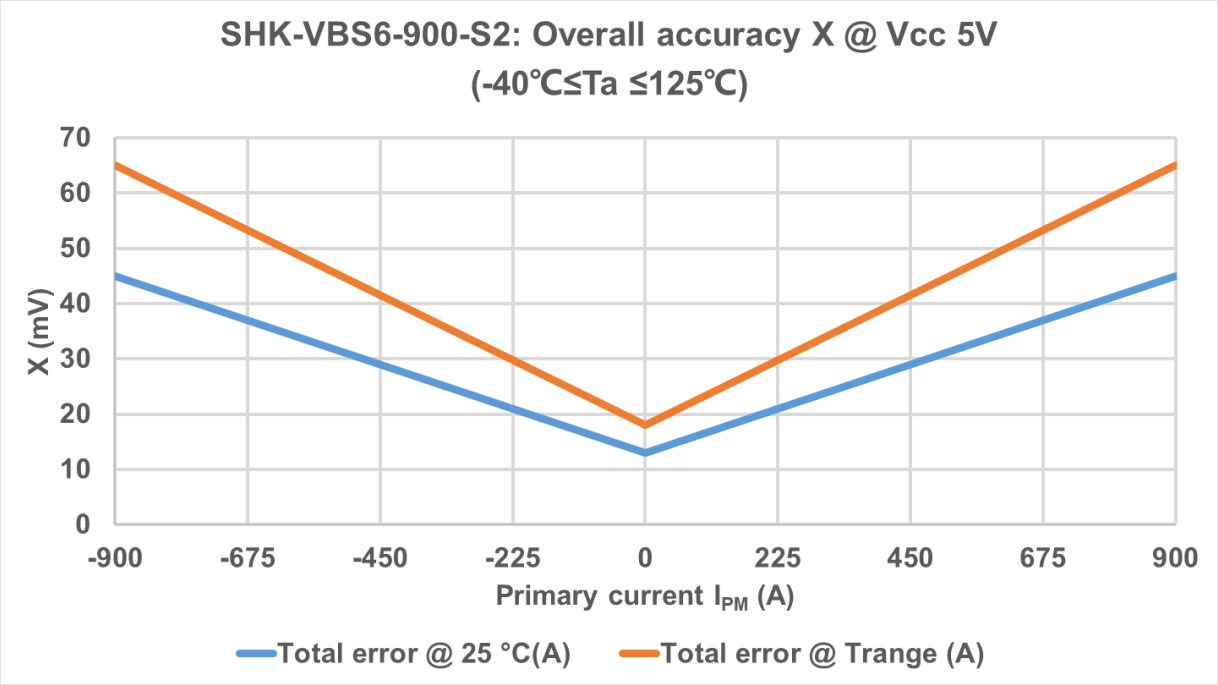
Overall accuracy X specification						
I_{PM}(A)	@T_a = 25℃,V_{CC} = 5.0 V			@-40℃≤T_a ≤125℃,V_{CC} = 5.0 V,		
-800	45 mV	18.00 A	2.25%	65 mV	26.00 A	3.25%
0	13 mV	5.20 A	0.65%	18 mV	7.20 A	0.90%
800	45 mV	18.00 A	2.25%	65 mV	26.00 A	3.25%



10. Electrical data of SHK-VBS6-900-S2

Parameter	Symbol	Unit	Min	Typ	Max	Comment
Primary current measuring range	I_{PM}	A	-900		900	SHK-VBS6-900-S2
Primary nominal RMS current	I_{PN}	A	-900		900	SHK-VBS6-900-S2
Supply voltage	V_{CC}	V	4.75	5	5.25	
Current consumption	I_{CC}	mA		12		@ V_{CC}= 5.0 V
Output voltage	V_{OUT}	V	V_{OUT} =(V_{CC}/5)×(V_{off}+G×I_P)			@ T_a = 25℃
Quiescent voltage	V_{off}	V		2.5		@ T_a = 25℃, V_{CC} = 5.0 V
Sensitivity	G	mV/A		2.222		@ T_a = 25℃, V_{CC} = 5.0 V
Load resistance	R_L	kΩ	10			
Output internal resistance	R_{out}	Ω		1	10	
Ratiometricity error	ε_r	%		±0.5		@ 4.75V ≤ V_{CC} ≤ 5.25V
Sensitivity error	ε_G	%		±0.6		@ T_a = 25℃, V_{CC} = 5.0 V
Electrical offset voltage error	V_{OE}	mV		±3.0		@ T_a = 25℃, V_{CC} = 5.0 V
Magnetic offset voltage error	V_{OM}	mV		±2.0		@ T_a = 25℃, V_{CC} = 5.0 V, I = I_{PM}
Ave. Temp. coefficient of V_{OE}	TCV_{OEAV}	mV/℃		±0.04		@ -40℃≤T_a ≤125℃
Ave. Temp. coefficient of G	TCG_{AV}	%/℃		±0.02		@ -40℃≤T_a ≤125℃
Linearity	ε_L	%	-1		1	@ T_a = 25℃, V_{CC} = 5.0 V, I = I_{PM}
Response time	T_r	μs		3	6	@ 90% of I_{PM}
Frequency bandwidth (-3 dB)	BW	kHz	40			No RC circuit
Output voltage noise	V_{no}	mVpp		20		@ DC ~ 10 kHz

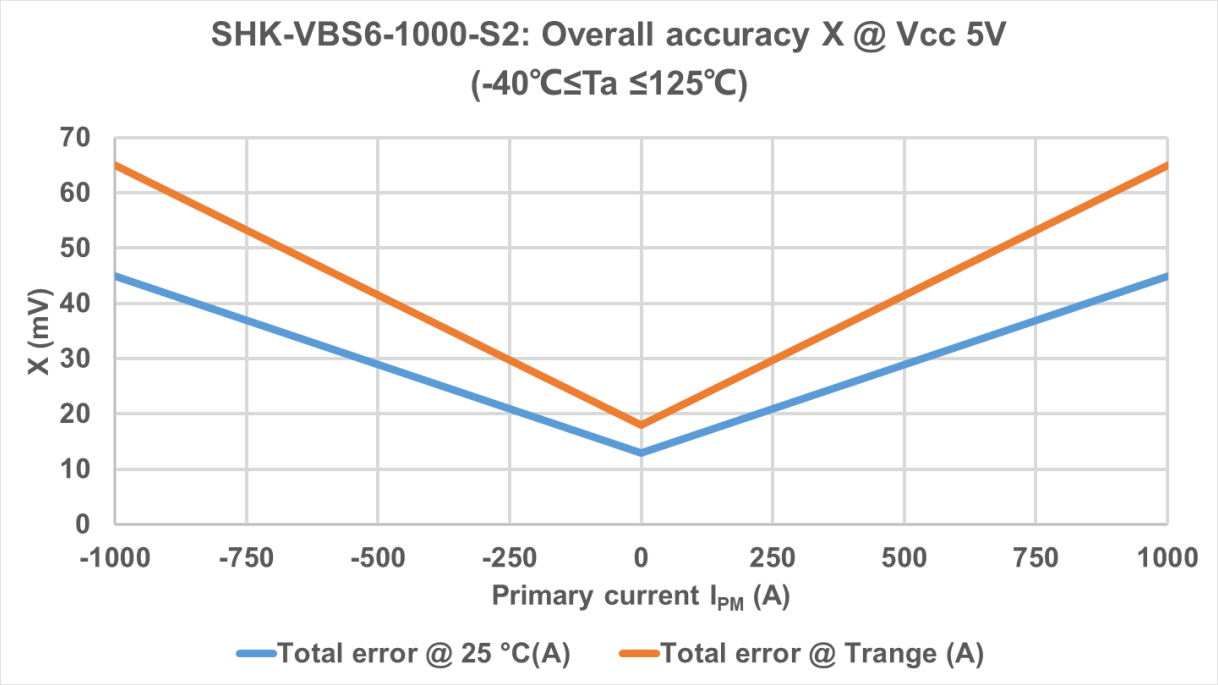
Overall accuracy X specification						
I_{PM}(A)	@T_a = 25℃,V_{CC} = 5.0 V			@-40℃≤T_a ≤125℃,V_{CC} = 5.0 V,		
-900	45 mV	20.25 A	2.25%	65 mV	29.25 A	3.25%
0	13 mV	5.85 A	0.65%	18 mV	8.10 A	0.90%
900	45 mV	20.25 A	2.25%	65 mV	20.25 A	3.25%



11. Electrical data of SHK-VBS6-1000-S2

Parameter	Symbol	Unit	Min	Typ	Max	Comment
Primary current measuring range	I_{PM}	A	-1000		1000	SHK-VBS6-1000-S2
Primary nominal RMS current	I_{PN}	A	-1000		1000	SHK-VBS6-1000-S2
Supply voltage	V_{CC}	V	4.75	5	5.25	
Current consumption	I_{CC}	mA		12		@ V_{CC}= 5.0 V
Output voltage	V_{OUT}	V	V_{OUT} =(V_{CC}/5)×(V_{off}+G×I_P)			@ T_a = 25℃
Quiescent voltage	V_{off}	V		2.5		@ T_a = 25℃, V_{CC} = 5.0 V
Sensitivity	G	mV/A		2		@ T_a = 25℃, V_{CC} = 5.0 V
Load resistance	R_L	kΩ	10			
Output internal resistance	R_{out}	Ω		1	10	
Ratiometricity error	ε_r	%		±0.5		@ 4.75V ≤ V_{CC} ≤ 5.25V
Sensitivity error	ε_G	%		±0.7		@ T_a = 25℃, V_{CC} = 5.0 V
Electrical offset voltage error	V_{OE}	mV		±3.0		@ T_a = 25℃, V_{CC} = 5.0 V
Magnetic offset voltage error	V_{OM}	mV		±2.0		@ T_a = 25℃, V_{CC} = 5.0 V, I = I_{PM}
Ave. Temp. coefficient of V_{OE}	TCV_{OEAV}	mV/℃		±0.04		@ -40℃≤T_a ≤125℃
Ave. Temp. coefficient of G	TCG_{AV}	%/℃		±0.02		@ -40℃≤T_a ≤125℃
Linearity	ε_L	%	-1		1	@ T_a = 25℃, V_{CC} = 5.0 V, I = I_{PM}
Response time	T_r	μs		3	6	@ 90% of I_{PM}
Frequency bandwidth (-3 dB)	BW	kHz	40			No RC circuit
Output voltage noise	V_{no}	mVpp		20		@ DC ~ 10 kHz

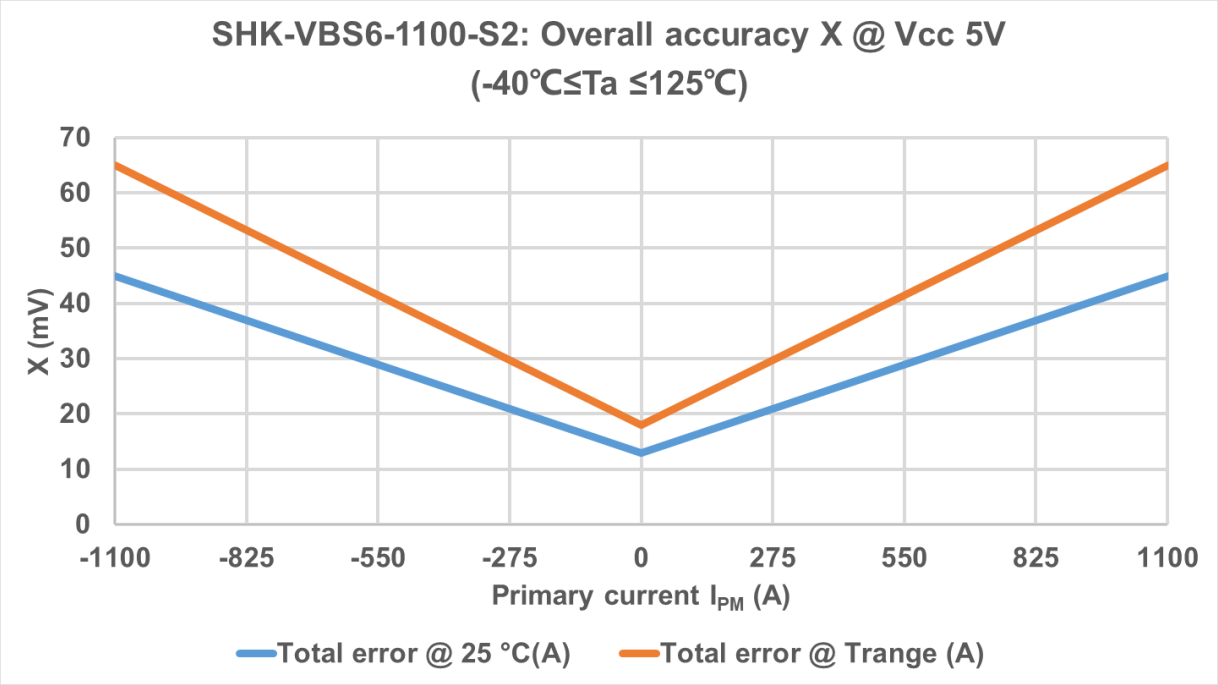
Overall accuracy X specification						
I_{PM}(A)	@T_a = 25℃,V_{CC} = 5.0 V			@-40℃≤T_a ≤125℃,V_{CC} = 5.0 V,		
-1000	45 mV	22.5 A	2.25%	65 mV	32.5 A	3.25%
0	13 mV	6.50 A	0.65%	18 mV	9.00 A	0.90%
1000	45 mV	22.5 A	2.25%	65 mV	32.5 A	3.25%



12. Electrical data of SHK-VBS6-1100-S2

Parameter	Symbol	Unit	Min	Typ	Max	Comment
Primary current measuring range	I_{PM}	A	-1100		1100	SHK-VBS6-1100-S2
Primary nominal RMS current	I_{PN}	A	-1100		1100	SHK-VBS6-1100-S2
Supply voltage	V_{CC}	V	4.75	5	5.25	
Current consumption	I_{CC}	mA		12		@ V_{CC}= 5.0 V
Output voltage	V_{OUT}	V	V_{OUT} =(V_{CC}/5)×(V_{off}+G×I_P)			@ T_a = 25℃
Quiescent voltage	V_{off}	V		2.5		@ T_a = 25℃, V_{CC} = 5.0 V
Sensitivity	G	mV/A		1.818		@ T_a = 25℃, V_{CC} = 5.0 V
Load resistance	R_L	kΩ	10			
Output internal resistance	R_{out}	Ω		1	10	
Ratiometricity error	ε_r	%		±0.5		@ 4.75V ≤ V_{CC} ≤ 5.25V
Sensitivity error	ε_G	%		±0.7		@ T_a = 25℃, V_{CC} = 5.0 V
Electrical offset voltage error	V_{OE}	mV		±3.0		@ T_a = 25℃, V_{CC} = 5.0 V
Magnetic offset voltage error	V_{OM}	mV		±2.0		@ T_a = 25℃, V_{CC} = 5.0 V, I = I_{PM}
Ave. Temp. coefficient of V_{OE}	TCV_{OEAV}	mV/℃		±0.04		@ -40℃≤T_a ≤125℃
Ave. Temp. coefficient of G	TCG_{AV}	%/℃		±0.02		@ -40℃≤T_a ≤125℃
Linearity	ε_L	%	-1		1	@ T_a = 25℃, V_{CC} = 5.0 V, I = I_{PM}
Response time	T_r	μs		3	6	@ 90% of I_{PM}
Frequency bandwidth (-3 dB)	BW	kHz	40			No RC circuit
Output voltage noise	V_{no}	mVpp		20		@ DC ~ 10 kHz

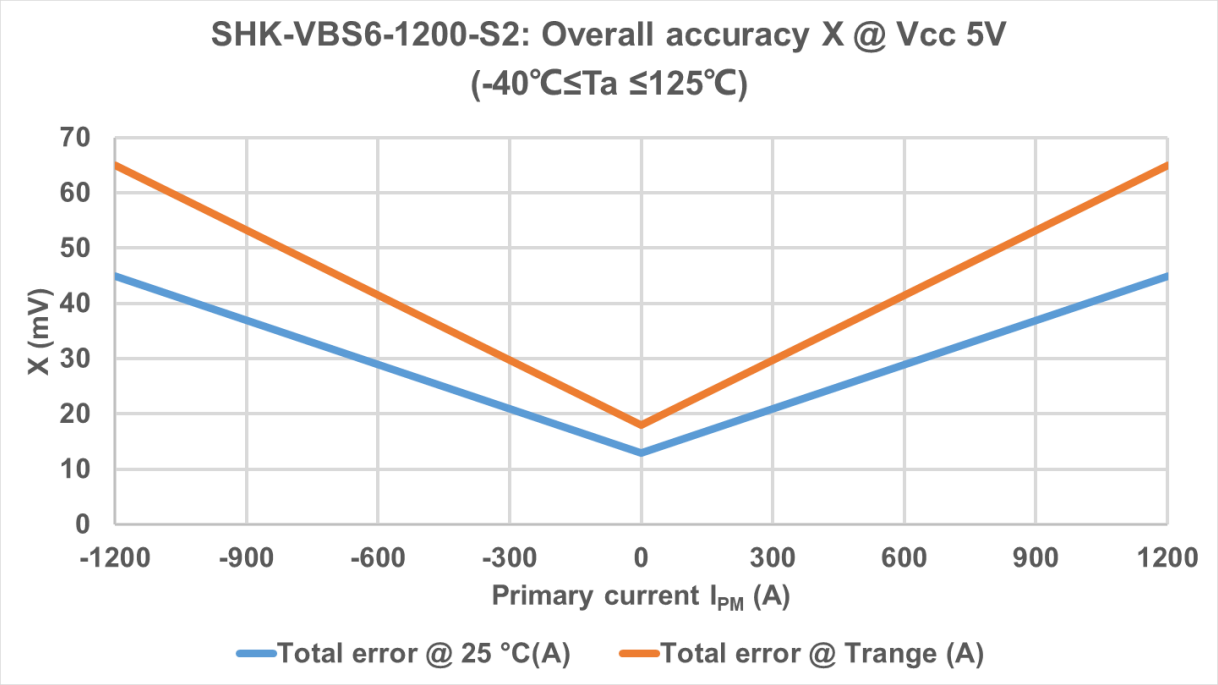
Overall accuracy X specification						
I_{PM}(A)	@T_a = 25℃,V_{CC} = 5.0 V			@-40℃≤T_a ≤125℃,V_{CC} = 5.0 V,		
-1100	45 mV	24.75 A	2.25%	65 mV	35.75 A	3.25%
0	13 mV	7.15 A	0.65%	18 mV	9.90 A	0.90%
1100	45 mV	24.75 A	2.25%	65 mV	35.75 A	3.25%



13. Electrical data of SHK-VBS6-1200-S2

Parameter	Symbol	Unit	Min	Typ	Max	Comment
Primary current measuring range	I_{PM}	A	-1200		1200	SHK-VBS6-1200-S2
Primary nominal RMS current	I_{PN}	A	-1200		1200	SHK-VBS6-1200-S2
Supply voltage	V_{CC}	V	4.75	5	5.25	
Current consumption	I_{CC}	mA		12		@ V_{CC}= 5.0 V
Output voltage	V_{OUT}	V	V_{OUT} =(V_{CC}/5)×(V_{off}+G×I_P)			@ T_a = 25℃
Quiescent voltage	V_{off}	V		2.5		@ T_a = 25℃, V_{CC} = 5.0 V
Sensitivity	G	mV/A		1.67		@ T_a = 25℃, V_{CC} = 5.0 V
Load resistance	R_L	kΩ	10			
Output internal resistance	R_{out}	Ω		1	10	
Ratiometricity error	ε_r	%		±0.5		@ 4.75V ≤ V_{CC} ≤ 5.25V
Sensitivity error	ε_G	%		±0.7		@ T_a = 25℃, V_{CC} = 5.0 V
Electrical offset voltage error	V_{OE}	mV		±3.0		@ T_a = 25℃, V_{CC} = 5.0 V
Magnetic offset voltage error	V_{OM}	mV		±2.0		@ T_a = 25℃, V_{CC} = 5.0 V, I = I_{PM}
Ave. Temp. coefficient of V_{OE}	TCV_{OEAV}	mV/℃		±0.04		@ -40℃≤T_a ≤125℃
Ave. Temp. coefficient of G	TCG_{AV}	%/℃		±0.02		@ -40℃≤T_a ≤125℃
Linearity	ε_L	%	-1		1	@ T_a = 25℃, V_{CC} = 5.0 V, I = I_{PM}
Response time	T_r	μs		3	6	@ 90% of I_{PM}
Frequency bandwidth (-3 dB)	BW	kHz	40			No RC circuit
Output voltage noise	V_{no}	mVpp		20		@ DC ~ 10 kHz

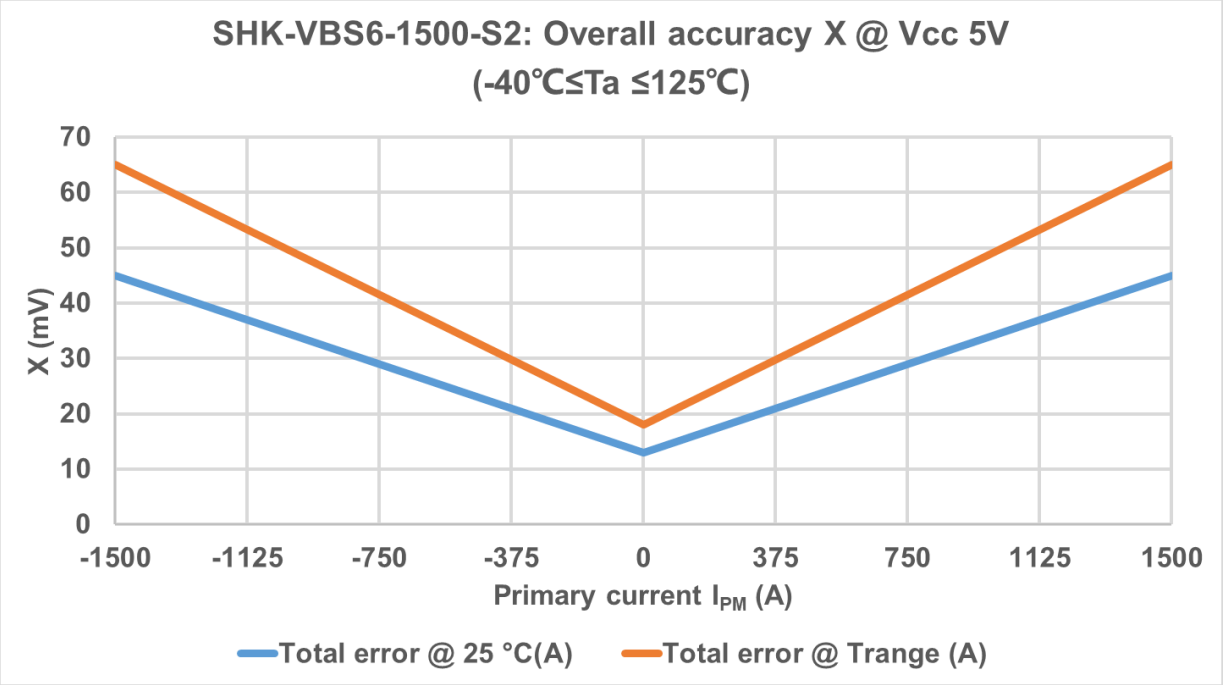
Overall accuracy X specification						
I_{PM}(A)	@T_a = 25℃,V_{CC} = 5.0 V			@-40℃≤T_a ≤125℃,V_{CC} = 5.0 V,		
-1200	45 mV	27.00 A	2.25%	65 mV	39.00 A	3.25%
0	13 mV	7.80 A	0.65%	18 mV	10.80 A	0.90%
1200	45 mV	27.00 A	2.25%	65 mV	39.00 A	3.25%



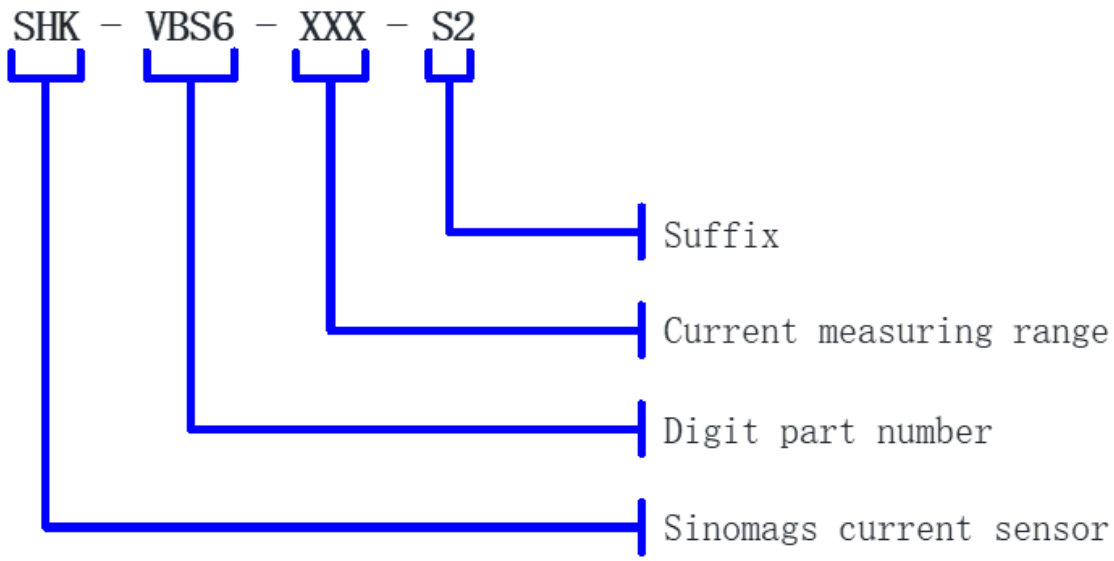
14. Electrical data of SHK-VBS6-1500-S2

Parameter	Symbol	Unit	Min	Typ	Max	Comment
Primary current measuring range	I_{PM}	A	-1500		1500	SHK-VBS6-1500-S2
Primary nominal RMS current	I_{PN}	A	-1500		1500	SHK-VBS6-1500-S2
Supply voltage	V_{CC}	V	4.75	5	5.25	
Current consumption	I_{CC}	mA		12		@ V_{CC}= 5.0 V
Output voltage	V_{OUT}	V	V_{OUT} =(V_{CC}/5)×(V_{off}+G×I_P)			@ T_a = 25℃
Quiescent voltage	V_{off}	V		2.5		@ T_a = 25℃, V_{CC} = 5.0 V
Sensitivity	G	mV/A		1.33		@ T_a = 25℃, V_{CC} = 5.0 V
Load resistance	R_L	kΩ	10			
Output internal resistance	R_{out}	Ω		1	10	
Ratiometricity error	ε_r	%		±0.5		@ 4.75V ≤ V_{CC} ≤ 5.25V
Sensitivity error	ε_G	%		±0.9		@ T_a = 25℃, V_{CC} = 5.0 V
Electrical offset voltage error	I_{OE}	mA		2706		@ T_a = 25℃,
	V_{OE}	mV		±3.6		V_{CC} = 5.0 V
Magnetic offset voltage error	I_{OM}	mA		1503		@ T_a = 25℃, V_{CC} = 5.0 V, I = I_{PM}
	V_{OM}	mV		±2.0		
Ave. Temp. coefficient of I_{OE}	TCI_{OEAV}	mA/℃		±30		@ -40℃≤T_a ≤125℃
Ave. Temp. coefficient of V_{OE}	TCV_{OEAV}	mV/℃		±0.04		@ -40℃≤T_a ≤125℃
Linearity	ε_L	%	-1		1	@ T_a = 25℃, V_{CC} = 5.0 V, I = I_{PM}
Response time	T_r	μs		3	6	@ 90% of I_{PM}
Frequency bandwidth (-3 dB)	BW	kHz	40			No RC circuit
Output voltage noise	V_{no}	mVpp		20		@ DC ~ 10 kHz

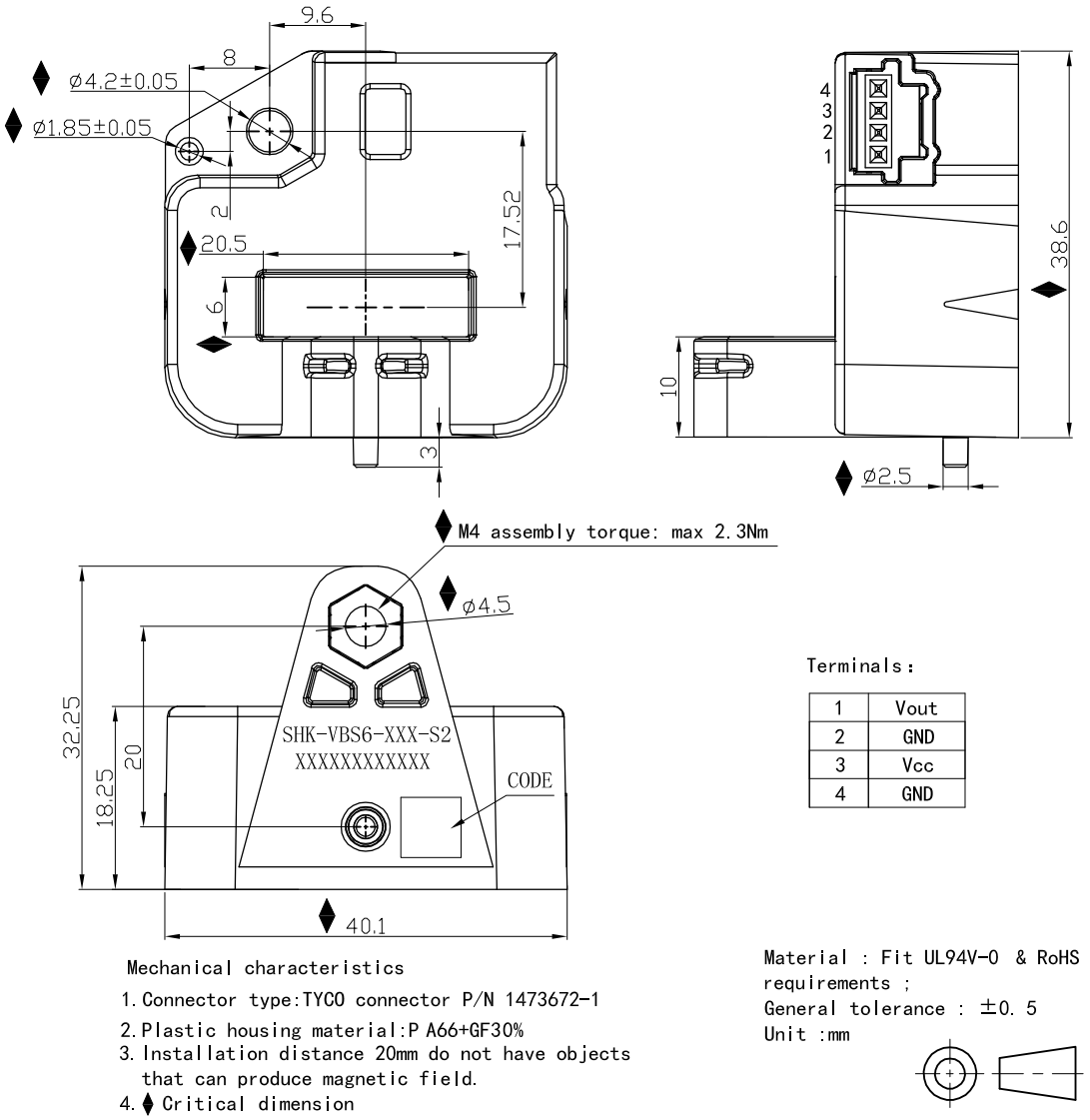
Overall accuracy X specification						
I_{PM}(A)	@T_a = 25℃,V_{CC} = 5.0 V			@-40℃≤T_a ≤125℃,V_{CC} = 5.0 V		
-1500	45 mV	33.75 A	2.25%	65 mV	48.75 A	3.25%
0	13 mV	9.75 A	0.65%	18 mV	13.50 A	0.90%
1500	45 mV	33.75 A	2.25%	65 mV	48.75 A	3.25%



15. Product definition statement



16. Dimension & Pin definitions



Terminals：

1	Vout
2	GND
3	Vcc
4	GND

Mechanical characteristics

1. Connector type:TYCO connector P/N 1473672-1
2. Plastic housing material:P A66+GF30%
3. Installation distance 20mm do not have objects that can produce magnetic field.
4. ⧫ Critical dimension

Material : Fit UL94V-0 & RoHS requirements ;
General tolerance : ±0.5
Unit :mm

Notes：

If the housing has a screw nut made of copper, the maximum installation torque is 3 N·m.

If the housing does not have a screw nut made of copper, the maximum installation torque is 2.3 N·m.