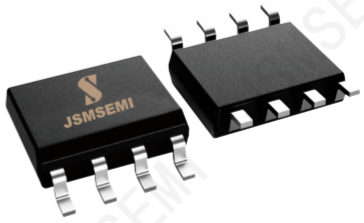
DESCRIPTION

The ACS72x series is an open-loop Hall current sensing chip that combines high accuracy, high bandwidth, high response,high linearity, and low temperature drift. ACS72x provides 0~50A large current measurement range.

ACS72x can also do -40 ℃ ~ 125 ℃ full temperature range of typical sensitivity temperature drift ± 0.2% of the performance indicators. It provides a new solution for the high accuracy and high performance current sensor area. ACS72x adapts to strong electromagnetic and high isolation current detection environment.

In addition, ACS72x series products have passed ROHS and other certifcations.



FEATURES

- High Accuracy, Large Current
  - 0~50A Current sensor
  - Low primary conductor resistance: 0.85mΩ
  - Typical V_{OE} temperature drift: ±2mV
  - Typical sensitivity temperature drift: ±0.2%
  - Typical linearity error: ±0.1%
- High Bandwidth, Fast Response
  - Typical bandwidth: 250kHz
  - Typical response time: 1.6μs
- High Anti-interference, High Isolation
  - Differential Hall effectively resists external magnetic field interference
  - Isolated voltage: 3000Vrms
  - Compatible with 3.3V/5V power supply
  - Ratiometric/fixed output

TYPICAL APPLICATIONS

- White Goods
- Microinverter
- Power Supply
- Motor Control
- Automation System
- High Voltage Short Circuit Protection

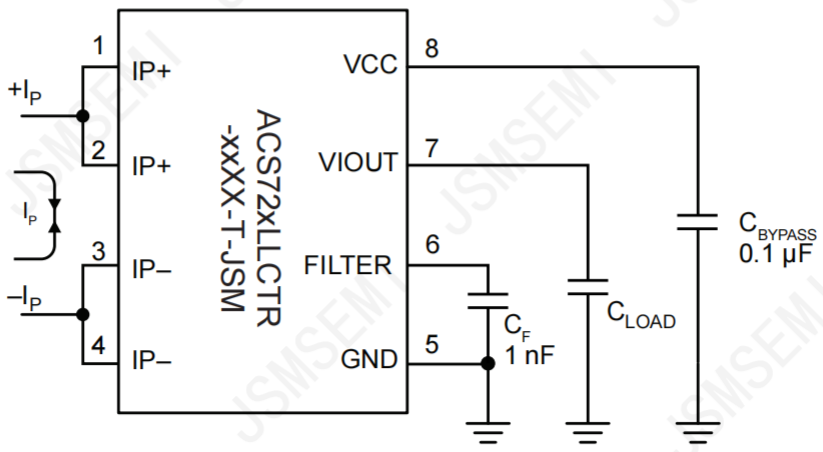
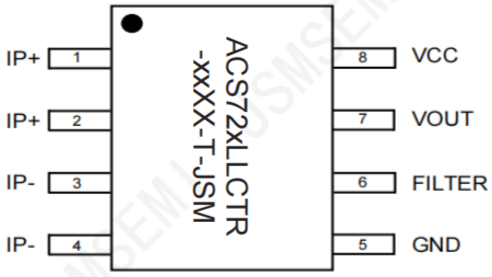


Figure 1. Typical Application Circuit Diagram

PINOUT DIAGRAM



Pinout Diagram

Number	Name	Description
1,2	IP+	Current flows into the chip, positive direction
3,4	IP-	Current flows out of the chip, negative direction
5	GND	Device ground terminal pin
6	FILTER	Bandwidth setting pin
7	VOUT	Analog output signal pin
8	VCC	Device power supply terminal pin

SELECTION GUIDE

Part Number	Output Mode	I_{PR}(A)	Sensitivity (mV/A)		MSL Rating	Operating Temperature	Packing
			V_{CC}=3.3V(*=3.3)	V_{CC}=5V(*=5)			
ACS72xLLCTR-05AB-T-JSM	Ratiometric Output Mode	±5	264	400	3	-40°C to 125°C	Tape and reel, 3000 pieces per reel
ACS72xLLCTR-10AB-T-JSM		±10	132	200			
ACS72xLLCTR-20AB-T-JSM		±20	66	100			
ACS72xLLCTR-30AB-T-JSM		±30	44	66.7			
ACS72xLLCTR-40AB-T-JSM		±40	33	50			
ACS72xLLCTR-50AB-T-JSM		±50	26.4	40			
ACS72xLLCTR-10AU-T-JSM		10	264	400			
ACS72xLLCTR-20AU-T-JSM		20	132	200			
ACS72xLLCTR-30AU-T-JSM		30	88	133.3			
ACS72xLLCTR-40AU-T-JSM		40	66	100			
ACS72xLLCTR-50AU-T-JSM		50	50.8	80			

Note: Continuous testing at 25°C supports 50A, if the test range increases or the ambient temperature rises, please refer to the derating curve in application manuals to take heat dissipation measures. Take 30A bipolar as an example, 20A and above have unipolar output mode with 5V supply, new range will be added without notice.

PART NUMBER SPECIFICATION

ACS724 L LC TR - 50A B - T - JSM

- JSMSEMI
- Whether it contains lead
  - T：Lead-free process
- Output polarity
  - B：Bipolar
  - U：Unipolar
- Current sensing range
- Packing requirement：TR
- Lead form
- Temperature range
  - L：-40~125°C
- Product model
  - ACS725: 3.3V
  - ACS724: 5.0V

Ordering Information

Order number	Package	Marking	Operation Temperature Range	MSL Grade	Ship,Quantity	Green
ACS724LLCTR-05AB-T-JSM	SOP-8	ACS724-05A	-40 to 125℃	3	T&R,3000	Rohs
ACS724LLCTR-10AB-T-JSM	SOP-8	ACS724-10A	-40 to 125℃	3	T&R,3000	Rohs
ACS724LLCTR-20AB-T-JSM	SOP-8	ACS724-20A	-40 to 125℃	3	T&R,3000	Rohs
ACS724LLCTR-30AB-T-JSM	SOP-8	ACS724-30A	-40 to 125℃	3	T&R,3000	Rohs
ACS724LLCTR-40AB-T-JSM	SOP-8	ACS724-40A	-40 to 125℃	3	T&R,3000	Rohs
ACS724LLCTR-50AB-T-JSM	SOP-8	ACS724-50A	-40 to 125℃	3	T&R,3000	Rohs
ACS724LLCTR-10AU-T-JSM	SOP-8	ACS724-10U	-40 to 125℃	3	T&R,3000	Rohs
ACS724LLCTR-20AU-T-JSM	SOP-8	ACS724-20U	-40 to 125℃	3	T&R,3000	Rohs
ACS724LLCTR-30AU-T-JSM	SOP-8	ACS724-30U	-40 to 125℃	3	T&R,3000	Rohs
ACS724LLCTR-40AU-T-JSM	SOP-8	ACS724-40U	-40 to 125℃	3	T&R,3000	Rohs
ACS724LLCTR-50AU-T-JSM	SOP-8	ACS724-50U	-40 to 125℃	3	T&R,3000	Rohs
ACS725LLCTR-05AB-T-JSM	SOP-8	JSM725-05B	-40 to 125℃	3	T&R,3000	Rohs
ACS725LLCTR-10AB-T-JSM	SOP-8	JSM725-10B	-40 to 125℃	3	T&R,3000	Rohs
ACS725LLCTR-20AB-T-JSM	SOP-8	JSM725-20B	-40 to 125℃	3	T&R,3000	Rohs
ACS725LLCTR-30AB-T-JSM	SOP-8	JSM725-30B	-40 to 125℃	3	T&R,3000	Rohs
ACS725LLCTR-40AB-T-JSM	SOP-8	JSM725-40B	-40 to 125℃	3	T&R,3000	Rohs
ACS725LLCTR-50AB-T-JSM	SOP-8	JSM725-50B	-40 to 125℃	3	T&R,3000	Rohs
ACS725LLCTR-10AU-T-JSM	SOP-8	JSM725-10U	-40 to 125℃	3	T&R,3000	Rohs
ACS725LLCTR-20AU-T-JSM	SOP-8	JSM725-20U	-40 to 125℃	3	T&R,3000	Rohs
ACS725LLCTR-30AU-T-JSM	SOP-8	JSM725-30U	-40 to 125℃	3	T&R,3000	Rohs
ACS725LLCTR-40AU-T-JSM	SOP-8	JSM725-40U	-40 to 125℃	3	T&R,3000	Rohs
ACS725LLCTR-50AU-T-JSM	SOP-8	JSM725-50U	-40 to 125℃	3	T&R,3000	Rohs

1.ABSOLUTE MAXIMUM RATINGS

Characteristic	Symbol	Unit	Min.	Typ.	Max.
Supply Voltage	V_{CC}	V	-0.3	/	6.5
Output Current	I_{OUTmax}	mA	-45	/	45
Proportional output	V_{OUTmax}	V	0.1	/	V_{CC}-0.1
Storage temperature	T_S	℃	-55	/	150
Operating Ambient Temperature	T_A	℃	-40	/	125
Maximum Junction Temperature	T_{Jmax}	℃	/	/	165

Note: Operation outside the absolute maximum ratings may cause permanent device damage. Absolute maximum ratings do not imply functional operation of the device at these or any other conditions beyond those listed under recommended operating conditions. If used outside the recommended operating conditions but within the absolute maximum ratings, the device may not be fully functional, and this may affect device reliability, functionality, performance, and shorten the device lifetime.

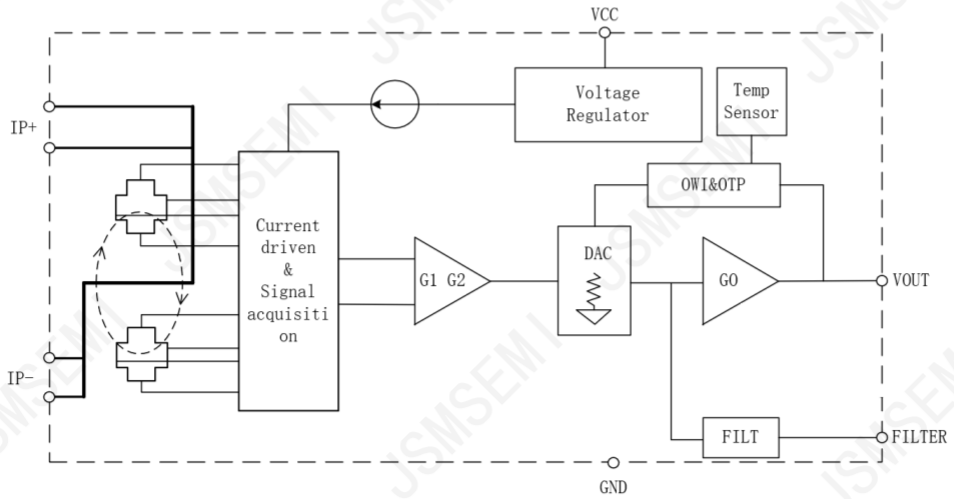
2.ESD RATINGS

Characteristic	Symbol	Unit	Notes	Value
Human Body Model	V_{HBM}	kV	ESD between any two pins	±4
Charged Device Model	V_{CDM}	kV		±1

3.ISOLATION CHARACTERISTICS

Characteristic	Symbol	Unit	Notes	Value
Dielectric Surge Voltage	V_{SURGE}	V	Test method refers to IEC61000-4-5, 1.2μs/50μs waveform.	4000
Dielectric Strength Test Voltage	V_{ISO}	V_{RMS}	60s, 50Hz isolation withstand voltage parameters, according to UL62368-1, test 3.6kV/1s before delivery to verify the insulation performance, and verify the partial discharge is less than 5pc.	3000
Working Voltage for Basic Isolation	V_{WVBI}	V_{PK} or V_{CC}	Maximum approved working voltage for basic (single) isolation according to UL60950-1.	600
		V_{RMS}		424
Creepage	D_{CR}	mm	Minimum distance along package body from IP leads to signal leads.	4
Comparative Tracking Index	CTI	V	Material Group II	400~599

4. FUNCTIONAL BLOCK DIAGRAM



5.ELECTRICAL CHARACTERISTICS

T_A=25℃, V_{CC}=5V/3.3V, C_{REF}=1nF, C_L=1nF, C_{VCC}=100nF(Unless otherwise noted)

Characteristic	Symbol	Unit	Test Conditions	Min.	Typ.	Max.
Supply Voltage	V_{CC}	V	ACS725LLCTR-xxxX-T-JSM	3	3.3	3.6
			ACS724LLCTR-xxxX-T-JSM	4.5	5	5.5
Supply Current[Note1]	I_{CC}	mA	no-load, V_{CC}=3.3V	/	7.5	10
			no-load, V_{CC}=5V	/	10	15
Primary Conductor Resistance[Note1]	R_P	mΩ	/	/	1.2	/
Power-On Time[Note2]	T_{PO}	ms	Chip power-on（V_{CC}>3.0V）, V_{OUT} and V_{REF} stable time Chip power-on（V_{CC}>4.5V）, V_{OUT} and V_{REF} stable time	/	1	/
Output Capacitive Load[Note2]	C_L	nF	/	/	1	10
Output Resistive Load[Note2]	R_L	kΩ	/	4.7	/	/
Reference Resistive Load[Note2]	R_{LREF}	kΩ	/	10	/	/
Output Voltage Range[Note2]	V_S	V	R_L=10kΩ to V_{CC} or V_{GND}	0.1	/	V_{CC}-0.1
Common Mode Field Rejection[Note2]	CMFR	dB	/	/	40	/
Rise Time	T_r	μs	ACS72xLLCTR-30AB-T-JSM	/	1.2	/
Response Time	$T_{RESPONSE}$	μs	ACS72xLLCTR-30AB-T-JSM	/	1.6	/
Internal Bandwidth	BW	kHz	ACS72xLLCTR-30AB-T-JSM	/	250	/
Output Noise	V_N	mVrms	ACS72xLLCTR-30AB-T-JSM	/	8	/
Nonlinearity[Note1]	E_{LIN}	%	/	/	±0.1	±0.3
Reference Voltage[Note1]	V_{REF}	V	Fixed output, Bipolar, V_{CC}=5V	2.49	2.5	2.51
			Fixed output, Bipolar, V_{CC}=3.3V	1.64	1.65	1.66
			Fixed output, Unipolar, V_{CC}=5V	0.49	0.5	0.51
			Ratiometric output, Bipolar	/	V_{CC}×0.5	/
			Ratiometric output, Unipolar	/	V_{CC}×0.1	/
Ratiometric Output Sensitivity Error[Note1]	S_{ERR}	%	V_{CC}=3.15~3.45V or V_{CC}=4.75~5.25V	/	0.6	/
Sensitivity Temperature Drift[Note1]	dS_{ERR}	%	T_A=85℃ ~ 125℃	-1.0	±0.2	1.0
			T_A=25℃ ~ 85℃	-0.8	±0.2	0.8
			T_A=-40℃ ~ 25℃	-1.0	±0.2	1.0
Offset Temperature Drift[Note2]	$V_{IOUT(Q)TC}$	mV	T_A=25℃ ~ 125℃	-5	/	5
			T_A=-40℃ ~ 25℃	-5	/	5

Note1: These parameters are obtained from laboratory testing with 3σ data.
Note2: These parameters are guaranted by design.

ACS72xLLCTR-05AB-T-JSM DEVICE PERFORMANCE CHARACTERISTICS

T_A=25°C, V_{CC}=5V/3.3V, C_{REF}=1nF, C_L=1nF, C_{VCC}=100nF(Unless otherwise noted)

Characteristic	Symbol	Unit	Test Conditions	Min.	Typ.[Note1]	Max.
NOMINAL PERFORMANCE						
Current Sensing Range	I_{PR}	A	/	-10	/	10
Sensitivity(ACS725)	Sens	mV/A	$I_{PRmin} < I_{PR} < I_{PRmax}$	/	264	/
Sensitivity(ACS724)	Sens	mV/A	$I_{PRmin} < I_{PR} < I_{PRmax}$	/	400	/
Zero Current Output Voltage	$V_{IOUT(Q)}$	V	Bipolar, I_{PR}=0A, V_{CC}=3.3V, Fixed output	1.64	1.65	1.66
			Bipolar, I_{PR}=0A, V_{CC}=5V, Fixed output	2.49	2.5	2.51
			Bipolar, I_{PR}=0A, Ratiometric output	/	V_{CC}*0.5	/
ACCURACY PERFORMANCE						
Total Output Error	E_{TOT}	%	$I_P=I_{PRmax}$, T_A=-40°C ~ 125°C	-1.6	±0.6	1.6
TOTAL OUTPUT ERROR COMPONENTS: $E_{TOT} = (V_{IOUT}-V_{IOUT\,Ideal})/(Sens_{Ideal}\times I_P)\times 100\%$, $E_{TOT}= ((V_{IOUT\,Meas}-V_{REF\,Meas})-(V_{IOUT\,Ideal}-V_{REF\,Ideal}))/(Sens_{Ideal}\times I_P)\times 100\%$						
Sensitivity Error	E_{SENS}	%	$I_P=I_{PRmax}$, T_A=25°C ~ 125°C	-1.4	±0.6	1.4
			$I_P=I_{PRmax}$, T_A=-40°C ~ 25°C	-1.0	±0.6	1.0
Offset Error[Note2]	V_{OE}	mV	I_P=0A, T_A=25°C ~ 125°C	-10	±2	10
			I_P=0A, T_A=25°C	-5	±2	5
			I_P=0 A, T_A=-40°C ~ 125°C	-10	±2	10
LIFETIME DRIFT CHARACTERISTICS						
Sensitivity Error Lifetime Drift	E_{SENS_drift}	%	After reliability test, T_A=25°C	/	±0.5	/
Total Output Error Lifetime Drift	E_{TOT_drift}	%	After reliability test, T_A=25°C	/	±0.5	/

Note1: These parameters are obtained from laboratory testing with 3σ data.
Note2: Offset error refers to ratiometric output mode of unipolar output or fixed output mode of differential output.

ACS72xLLCTR-10AB-T-JSM DEVICE PERFORMANCE CHARACTERISTICS

T_A=25°C, V_{CC}=5V/3.3V, C_{REF}=1nF, C_L=1nF, C_{VCC}=100nF(Unless otherwise noted)

Characteristic	Symbol	Unit	Test Conditions	Min.	Typ.[Note1]	Max.
NOMINAL PERFORMANCE						
Current Sensing Range	I_{PR}	A	/	-10	/	10
Sensitivity(ACS725)	Sens	mV/A	$I_{PRmin} < I_{PR} < I_{PRmax}$	/	132	/
Sensitivity(ACS724)	Sens	mV/A	$I_{PRmin} < I_{PR} < I_{PRmax}$	/	200	/
Zero Current Output Voltage	$V_{IOUT(Q)}$	V	Bipolar, I_{PR}=0A, V_{CC}=3.3V, Fixed output	1.64	1.65	1.66
			Bipolar, I_{PR}=0A, V_{CC}=5V, Fixed output	2.49	2.5	2.51
			Bipolar, I_{PR}=0A, Ratiometric output	/	V_{CC}*0.5	/
ACCURACY PERFORMANCE						
Total Output Error	E_{TOT}	%	$I_P=I_{PRmax}$, T_A=-40°C ~ 125°C	-1.6	±0.6	1.6
TOTAL OUTPUT ERROR COMPONENTS: $E_{TOT} = (V_{IOUT}-V_{IOUT\,Ideal})/(Sens_{Ideal}\times I_P)\times 100\%$, $E_{TOT}= ((V_{IOUT\,Meas}-V_{REF\,Meas})-(V_{IOUT\,Ideal}-V_{REF\,Ideal}))/(Sens_{Ideal}\times I_P)\times 100\%$						
Sensitivity Error	E_{SENS}	%	$I_P=I_{PRmax}$, T_A=25°C ~ 125°C	-1.4	±0.6	1.4
			$I_P=I_{PRmax}$, T_A=-40°C ~ 25°C	-1.0	±0.6	1.0
Offset Error[Note2]	V_{OE}	mV	I_P=0A, T_A=25°C ~ 125°C	-10	±2	10
			I_P=0A, T_A=25°C	-5	±2	5
			I_P=0 A, T_A=-40°C ~ 125°C	-10	±2	10
LIFETIME DRIFT CHARACTERISTICS						
Sensitivity Error Lifetime Drift	E_{SENS_drift}	%	After reliability test, T_A=25°C	/	±0.5	/
Total Output Error Lifetime Drift	E_{TOT_drift}	%	After reliability test, T_A=25°C	/	±0.5	/

Note1: These parameters are obtained from laboratory testing with 3σ data.
Note2: Offset error refers to ratiometric output mode of unipolar output or fixed output mode of differential output.

ACS72xLLCTR-20AB-T-JSM DEVICE PERFORMANCE CHARACTERISTICS

T_A=25°C, V_{CC}=5V/3.3V, C_{REF}=1nF, C_L=1nF, C_{VCC}=100nF(Unless otherwise noted)

Characteristic	Symbol	Unit	Test Conditions	Min.	Typ.[Note1]	Max.
NOMINAL PERFORMANCE						
Current Sensing Range	I_{PR}	A	/	-20	/	20
Sensitivity(ACS725)	Sens	mV/A	$I_{PRmin} < I_{PR} < I_{PRmax}$	/	66	/
Sensitivity(ACS724)	Sens	mV/A	$I_{PRmin} < I_{PR} < I_{PRmax}$	/	100	/
Zero Current Output Voltage	$V_{IOUT(Q)}$	V	Bipolar, I_{PR}=0A, V_{CC}=3.3V, Fixed output	1.64	1.65	1.66
			Bipolar, I_{PR}=0A, V_{CC}=5V, Fixed output	2.49	2.5	2.51
			Bipolar, I_{PR}=0A, Ratiometric output	/	V_{CC}*0.5	/
ACCURACY PERFORMANCE						
Total Output Error	E_{TOT}	%	$I_P=I_{PRmax}$, T_A=-40°C ~ 125°C	-1.6	±0.5	1.6
TOTAL OUTPUT ERROR COMPONENTS: $E_{TOT} = (V_{IOUT}-V_{IOUT\,Ideal})/(Sens_{Ideal}\times I_P)\times 100\%$, $E_{TOT}= ((V_{IOUT\,Meas}-V_{REF\,Meas})-(V_{IOUT\,Ideal}-V_{REF\,Ideal}))/(Sens_{Ideal}\times I_P)\times 100\%$						
Sensitivity Error	E_{SENS}	%	$I_P=I_{PRmax}$, T_A=25°C ~ 125°C	-1.5	±0.5	1.5
			$I_P=I_{PRmax}$, T_A=-40°C ~ 25°C	-1.0	±0.5	1.0
Offset Error[Note2]	V_{OE}	mV	I_P=0A, T_A=25°C ~ 125°C	-10	±2	10
			I_P=0A, T_A=25°C	-5	±2	5
			I_P=0 A, T_A=-40°C ~ 125°C	-10	±2	10
LIFETIME DRIFT CHARACTERISTICS						
Sensitivity Error Lifetime Drift	E_{SENS_drift}	%	After reliability test, T_A=25°C	/	±0.5	/
Total Output Error Lifetime Drift	E_{TOT_drift}	%	After reliability test, T_A=25°C	/	±0.5	/

Note1: These parameters are obtained from laboratory testing with 3σ data.
Note2: Ofset error refers to ratiometric output mode of unipolar output or fxed output mode of diferential output.

ACS72xLLCTR-30AB-T-JSM DEVICE PERFORMANCE CHARACTERISTICS

T_A=25°C, V_{CC}=5V/3.3V, C_{REF}=1nF, C_L=1nF, C_{VCC}=100nF(Unless otherwise noted)

Characteristic	Symbol	Unit	Test Conditions	Min.	Typ.[Note1]	Max.
NOMINAL PERFORMANCE						
Current Sensing Range	I_{PR}	A	/	-30	/	30
Sensitivity(ACS725)	Sens	mV/A	$I_{PRmin} < I_{PR} < I_{PRmax}$	/	44	/
Sensitivity(ACS724)	Sens	mV/A	$I_{PRmin} < I_{PR} < I_{PRmax}$	/	66.7	/
Zero Current Output Voltage	$V_{IOUT(Q)}$	V	Bipolar, I_{PR}=0A, V_{CC}=3.3V, Fixed output	1.64	1.65	1.66
			Bipolar, I_{PR}=0A, V_{CC}=5V, Fixed output	2.49	2.5	2.51
			Bipolar, I_{PR}=0A, Ratiometric output	/	V_{CC}*0.5	/
ACCURACY PERFORMANCE						
Total Output Error	E_{TOT}	%	$I_P=I_{PRmax}$, T_A=-40°C ~ 125°C	-1.6	±0.5	1.6
TOTAL OUTPUT ERROR COMPONENTS: $E_{TOT} = (V_{IOUT}-V_{IOUT\,Ideal})/(Sens_{Ideal}\times I_P)\times 100\%$, $E_{TOT}= ((V_{IOUT\,Meas}-V_{REF\,Meas})-(V_{IOUT\,Ideal}-V_{REF\,Ideal}))/(Sens_{Ideal}\times I_P)\times 100\%$						
Sensitivity Error	E_{SENS}	%	$I_P=I_{PRmax}$, T_A=25°C ~ 125°C	-1.5	±0.5	1.5
			$I_P=I_{PRmax}$, T_A=-40°C ~ 25°C	-1.0	±0.5	1.0
Offset Error[Note2]	V_{OE}	mV	I_P=0A, T_A=25°C ~ 125°C	-8	±2	8
			I_P=0A, T_A=25°C	-5	±2	5
			I_P=0 A, T_A=-40°C ~ 125°C	-8	±2	8
LIFETIME DRIFT CHARACTERISTICS						
Sensitivity Error Lifetime Drift	E_{SENS_drift}	%	After reliability test, T_A=25°C	/	±0.5	/
Total Output Error Lifetime Drift	E_{TOT_drift}	%	After reliability test, T_A=25°C	/	±0.5	/

Note1: These parameters are obtained from laboratory testing with 3σ data.
Note2: Ofset error refers to ratiometric output mode of unipolar output or fxed output mode of diferential output.

ACS72xLLCTR-40AB-T-JSM DEVICE PERFORMANCE CHARACTERISTICS

T_A=25°C, V_{CC}=5V/3.3V, C_{REF}=1nF, C_L=1nF, C_{VCC}=100nF(Unless otherwise noted)

Characteristic	Symbol	Unit	Test Conditions	Min.	Typ.[Note1]	Max.
NOMINAL PERFORMANCE						
Current Sensing Range	I_{PR}	A	/	-40	/	40
Sensitivity(ACS725)	Sens	mV/A	$I_{PRmin} < I_{PR} < I_{PRmax}$	/	33	/
Sensitivity(ACS724)	Sens	mV/A	$I_{PRmin} < I_{PR} < I_{PRmax}$	/	50	/
Zero Current Output Voltage	$V_{IOUT(Q)}$	V	Bipolar, I_{PR}=0A, V_{CC}=3.3V, Fixed output	1.64	1.65	1.66
			Bipolar, I_{PR}=0A, V_{CC}=5V, Fixed output	2.49	2.5	2.51
			Bipolar, I_{PR}=0A, Ratiometric output	/	V_{CC}*0.5	/
ACCURACY PERFORMANCE						
Total Output Error	E_{TOT}	%	$I_P=I_{PRmax}$, T_A=-40°C ~125°C	-1.6	±0.6	1.6
TOTAL OUTPUT ERROR COMPONENTS:$E_{TOT} = (V_{IOUT}-V_{IOUT\ Ideal})/(Sens_{Ideal}\times I_P)\times 100\%$, $E_{TOT}= ((V_{IOUT\ Meas}-V_{REF\ Meas})-(V_{IOUT\ Ideal}-V_{REF\ Ideal}))/(Sens_{Ideal}\times I_P)\times 100\%$						
Sensitivity Error	E_{SENS}	%	$I_P=I_{PRmax}$, T_A=25°C ~ 125°C	-1.5	±0.6	1.5
			$I_P=I_{PRmax}$, T_A=-40°C ~ 25°C	-1.5	±0.6	1.5
Offset Error[Note2]		mV	I_P=0A, T_A=25°C ~ 125°C	-7	±2	7
			I_P=0A, T_A=25°C	-5	±2	5
			I_P=0 A, T_A=-40°C ~ 125°C	-7	±2	7
LIFETIME DRIFT CHARACTERISTICS						
Sensitivity Error Lifetime Drift	E_{SENS_drift}	%	After reliability test, T_A=25°C	/	±0.5	/
Total Output Error Lifetime Drift	E_{TOT_drift}	%	After reliability test, T_A=25°C	/	±0.5	/

Note1: These parameters are obtained from laboratory testing with 3σ data.
Note2: Ofset error refers to ratiometric output mode of unipolar output or fxed output mode of diferential output.

ACS72xLLCTR-50AB-T-JSM DEVICE PERFORMANCE CHARACTERISTICS

T_A=25°C, V_{CC}=5V/3.3V, C_{REF}=1nF, C_L=1nF, C_{VCC}=100nF(Unless otherwise noted)

Characteristic	Symbol	Unit	Test Conditions	Min.	Typ.[Note1]	Max.
NOMINAL PERFORMANCE						
Current Sensing Range	I_{PR}	A	/	-50	/	50
Sensitivity(ACS725)	Sens	mV/A	$I_{PRmin} < I_{PR} < I_{PRmax}$	/	26.4	/
Sensitivity(ACS724)	Sens	mV/A	$I_{PRmin} < I_{PR} < I_{PRmax}$	/	40	/
Zero Current Output Voltage	$V_{IOUT(Q)}$	V	Bipolar, I_{PR}=0A, V_{CC}=3.3V, Fixed output	1.64	1.65	1.66
			Bipolar, I_{PR}=0A, V_{CC}=5V, Fixed output	2.49	2.5	2.51
			Bipolar, I_{PR}=0A, Ratiometric output	/	V_{CC}*0.5	/
ACCURACY PERFORMANCE						
Total Output Error	E_{TOT}	%	$I_P=I_{PRmax}$, T_A=-40°C ~ 125°C	-1.6	±0.6	1.6
TOTAL OUTPUT ERROR COMPONENTS:$E_{TOT} = (V_{IOUT}-V_{IOUT\ Ideal})/(Sens_{Ideal}\times I_P)\times 100\%$, $E_{TOT}= ((V_{IOUT\ Meas}-V_{REF\ Meas})-(V_{IOUT\ Ideal}-V_{REF\ Ideal}))/(Sens_{Ideal}\times I_P)\times 100\%$						
Sensitivity Error	E_{SENS}	%	$I_P=I_{PRmax}$, T_A=25°C ~ 125°C	-1.5	±0.6	1.5
			$I_P=I_{PRmax}$, T_A=-40°C ~ 25°C	-1.0	±0.6	1.0
Offset Error[Note2]	V_{OE}	mV	I_P=0 A, T_A=25°C ~ 125°C	-6	±2	6
			I_P=0 A, T_A=25°C	-5	±2	5
			I_P=0 A, T_A=-40°C ~ 25°C	-6	±2	6
LIFETIME DRIFT CHARACTERISTICS						
Sensitivity Error Lifetime Drift	E_{SENS_drift}	%	After reliability test, T_A=25°C	/	±0.5	/
Total Output Error Lifetime Drift	E_{TOT_drift}	%	After reliability test, T_A=25°C	/	±0.5	/

Note1: These parameters are obtained from laboratory testing with 3σ data.
Note2: Ofset error refers to ratiometric output mode of unipolar output or fxed output mode of diferential output.

ACS72xLLCTR-10AU-T-JSM DEVICE PERFORMANCE CHARACTERISTICS

T_A=25°C, V_{CC}=5V/3.3V, C_{REF}=1nF, C_L=1nF, C_{VCC}=100nF(Unless otherwise noted)

Characteristic	Symbol	Unit	Test Conditions	Min.	Typ.[Note1]	Max.
NOMINAL PERFORMANCE						
Current Sensing Range	I_{PR}	A	/	0	/	10
Sensitivity(ACS725)	Sens	mV/A	$I_{PRmin} < I_{PR} < I_{PRmax}$	/	264	/
Sensitivity(ACS724)	Sens	mV/A	$I_{PRmin} < I_{PR} < I_{PRmax}$	/	400	/
Zero Current Output Voltage	$V_{IOUT(Q)}$	V	Unipolar, I_{PR}=0A, V_{CC}=3.3V, Fixed output	0.32	0.33	0.34
			Unipolar, I_{PR}=0A, V_{CC}=5V, Fixed output	0.49	0.5	0.51
			Unipolar, I_{PR}=0A, Ratiometric output	/	V_{CC}*0.1	/
ACCURACY PERFORMANCE						
Total Output Error	E_{TOT}	%	$I_P=I_{PRmax}$, T_A=-40°C ~ 125°C	-1.6	±0.5	1.6
TOTAL OUTPUT ERROR COMPONENTS:$E_{TOT} = (V_{IOUT}-V_{IOUT\ Ideal})/(Sens_{Ideal}\times I_P)\times 100\%$, $E_{TOT}= ((V_{IOUT\ Meas}-V_{REF\ Meas})-(V_{IOUT\ Ideal}-V_{REF\ Ideal}))/(Sens_{Ideal}\times I_P)\times 100\%$						
Sensitivity Error	E_{SENS}	%	$I_P=I_{PRmax}$, T_A=25°C ~ 125°C	-1.5	±0.5	1.5
			$I_P=I_{PRmax}$, T_A=-40°C ~ 25°C	-1.0	±0.5	1.0
Offset Error[Note2]	V_{OE}	mV	I_P=0A, T_A=25°C ~ 125°C	-10	±2	10
			I_P=0A, T_A=25°C	-5	±2	5
			I_P=0 A, T_A=-40°C ~ 125°C	-10	±2	10
LIFETIME DRIFT CHARACTERISTICS						
Sensitivity Error Lifetime Drift	E_{SENS_drift}	%	After reliability test, T_A=25°C	/	±0.5	/
Total Output Error Lifetime Drift	E_{TOT_drift}	%	After reliability test, T_A=25°C	/	±0.5	/

Note1: These parameters are obtained from laboratory testing with 3σ data.
Note2: Ofset error refers to ratiometric output mode of unipolar output or fxed output mode of diferential output.

ACS72xLLCTR-20AU-T-JSM DEVICE PERFORMANCE CHARACTERISTICS

T_A=25°C, V_{CC}=5V/3.3V, C_{REF}=1nF, C_L=1nF, C_{VCC}=100nF(Unless otherwise noted)

Characteristic	Symbol	Unit	Test Conditions	Min.	Typ.[Note1]	Max.
NOMINAL PERFORMANCE						
Current Sensing Range	I_{PR}	A	/	0	/	30
Sensitivity(ACS725)	Sens	mV/A	$I_{PRmin} < I_{PR} < I_{PRmax}$	/	132	/
Sensitivity(ACS724)	Sens	mV/A	$I_{PRmin} < I_{PR} < I_{PRmax}$	/	200	/
Zero Current Output Voltage	$V_{IOUT(Q)}$	V	Unipolar, I_{PR}=0A, V_{CC}=3.3V, Fixed output	0.32	0.33	0.34
			Unipolar, I_{PR}=0A, V_{CC}=5V, Fixed output	0.49	0.5	0.51
			Unipolar, I_{PR}=0A, Ratiometric output	/	V_{CC}*0.1	/
ACCURACY PERFORMANCE						
Total Output Error	E_{TOT}	%	$I_P=I_{PRmax}$, T_A=-40°C ~ 125°C	-1.6	±0.5	1.6
TOTAL OUTPUT ERROR COMPONENTS:$E_{TOT} = (V_{IOUT}-V_{IOUT\ Ideal})/(Sens_{Ideal}\times I_P)\times 100\%$, $E_{TOT}= ((V_{IOUT\ Meas}-V_{REF\ Meas})-(V_{IOUT\ Ideal}-V_{REF\ Ideal}))/(Sens_{Ideal}\times I_P)\times 100\%$						
Sensitivity Error	E_{SENS}	%	$I_P=I_{PRmax}$, T_A=25°C ~ 125°C	-1.5	±0.5	1.5
			$I_P=I_{PRmax}$, T_A=-40°C ~ 25°C	-1.0	±0.5	1.0
Offset Error[Note2]	V_{OE}	mV	I_P=0A, T_A=25°C ~ 125°C	-10	±2	10
			I_P=0A, T_A=25°C	-5	±2	5
			I_P=0 A, T_A=-40°C ~ 125°C	-10	±2	10
LIFETIME DRIFT CHARACTERISTICS						
Sensitivity Error Lifetime Drift	E_{SENS_drift}	%	After reliability test, T_A=25°C	/	±0.5	/
Total Output Error Lifetime Drift	E_{TOT_drift}	%	After reliability test, T_A=25°C	/	±0.5	/

Note1: These parameters are obtained from laboratory testing with 3σ data.
Note2: Ofset error refers to ratiometric output mode of unipolar output or fxed output mode of diferential output.

ACS72xLLCTR-30AU-T-JSM DEVICE PERFORMANCE CHARACTERISTICS

T_A=25°C, V_{CC}=5V/3.3V, C_{REF}=1nF, C_L=1nF, C_{VCC}=100nF(Unless otherwise noted)

Characteristic	Symbol	Unit	Test Conditions	Min.	Typ.[Note1]	Max.
NOMINAL PERFORMANCE						
Current Sensing Range	I_{PR}	A	/	0	/	30
Sensitivity(ACS725)	Sens	mV/A	$I_{PRmin} < I_{PR} < I_{PRmax}$	/	88	/
Sensitivity(ACS724)	Sens	mV/A	$I_{PRmin} < I_{PR} < I_{PRmax}$	/	133.3	/
Zero Current Output Voltage	$V_{IOUT(Q)}$	V	Unipolar, I_{PR}=0A, V_{CC}=3.3V, Fixed output	0.32	0.33	0.34
			Unipolar, I_{PR}=0A, V_{CC}=5V, Fixed output	0.49	0.5	0.51
			Unipolar, I_{PR}=0A, Ratiometric output	/	V_{CC}*0.1	/
ACCURACY PERFORMANCE						
Total Output Error	E_{TOT}	%	$I_P=I_{PRmax}$, T_A=-40°C ~ 125°C	-1.6	±0.5	1.6
TOTAL OUTPUT ERROR COMPONENTS:$E_{TOT} = (V_{IOUT}-V_{IOUT\,Ideal})/(Sens_{Ideal}\times I_P)\times 100\%$, $E_{TOT}= ((V_{IOUT\,Meas}-V_{REF\,Meas})-(V_{IOUT\,Ideal}-V_{REF\,Ideal}))/(Sens_{Ideal}\times I_P)\times 100\%$						
Sensitivity Error	E_{SENS}	%	$I_P=I_{PRmax}$, T_A=25°C ~ 125°C	-1.5	±0.5	1.5
			$I_P=I_{PRmax}$, T_A=-40°C ~ 25°C	-1.0	±0.5	1.0
Offset Error[Note2]	V_{OE}	mV	I_P=0A, T_A=25°C ~ 125°C	-8	±2	8
			I_P=0A, T_A=25°C	-5	±2	5
			I_P=0 A, T_A=-40°C ~ 125°C	-8	±2	8
LIFETIME DRIFT CHARACTERISTICS						
Sensitivity Error Lifetime Drift	E_{SENS_drift}	%	After reliability test, T_A=25°C	/	±0.5	/
Total Output Error Lifetime Drift	E_{TOT_drift}	%	After reliability test, T_A=25°C	/	±0.5	/

Note1: These parameters are obtained from laboratory testing with 3σ data.
Note2: Ofset error refers to ratiometric output mode of unipolar output or fxed output mode of diferential output.

T_A=25°C, V_{CC}=5V/3.3V, C_{REF}=1nF, C_L=1nF, C_{VCC}=100nF(Unless otherwise noted)

Characteristic	Symbol	Unit	Test Conditions	Min.	Typ.[Note1]	Max.
NOMINAL PERFORMANCE						
Current Sensing Range	I_{PR}	A	/	0	/	30
Sensitivity(ACS725)	Sens	mV/A	$I_{PRmin} < I_{PR} < I_{PRmax}$	/	66	/
Sensitivity(ACS724)	Sens	mV/A	$I_{PRmin} < I_{PR} < I_{PRmax}$	/	100	/
Zero Current Output Voltage	$V_{IOUT(Q)}$	V	Unipolar, I_{PR}=0A, V_{CC}=3.3V, Fixed output	0.32	0.33	0.34
			Unipolar, I_{PR}=0A, V_{CC}=5V, Fixed output	0.49	0.5	0.51
			Unipolar, I_{PR}=0A, Ratiometric output	/	V_{CC}*0.1	/
ACCURACY PERFORMANCE						
Total Output Error	E_{TOT}	%	$I_P=I_{PRmax}$, T_A=-40°C ~ 125°C	-1.6	±0.5	1.6
TOTAL OUTPUT ERROR COMPONENTS:$E_{TOT} = (V_{IOUT}-V_{IOUT\,Ideal})/(Sens_{Ideal}\times I_P)\times 100\%$, $E_{TOT}= ((V_{IOUT\,Meas}-V_{REF\,Meas})-(V_{IOUT\,Ideal}-V_{REF\,Ideal}))/(Sens_{Ideal}\times I_P)\times 100\%$						
Sensitivity Error	E_{SENS}	%	$I_P=I_{PRmax}$, T_A=25°C ~ 125°C	-1.5	±0.5	1.5
			$I_P=I_{PRmax}$, T_A=-40°C ~ 25°C	-1.0	±0.5	1.0
Offset Error[Note2]	V_{OE}	mV	I_P=0A, T_A=25°C ~ 125°C	-7	±2	7
			I_P=0A, T_A=25°C	-5	±2	5
			I_P=0 A, T_A=-40°C ~ 125°C	-7	±2	7
LIFETIME DRIFT CHARACTERISTICS						
Sensitivity Error Lifetime Drift	E_{SENS_drift}	%	After reliability test, T_A=25°C	/	±0.5	/
Total Output Error Lifetime Drift	E_{TOT_drift}	%	After reliability test, T_A=25°C	/	±0.5	/

Note1: These parameters are obtained from laboratory testing with 3σ data.
Note2: Ofset error refers to ratiometric output mode of unipolar output or fxed output mode of diferential output.

ACS72xLLCTR-50AU-T-JSM DEVICE PERFORMANCE CHARACTERISTICS

T_A=25°C, V_{CC}=5V/3.3V, C_{REF}=1nF, C_L=1nF, C_{VCC}=100nF(Unless otherwise noted)

Characteristic	Symbol	Unit	Test Conditions	Min.	Typ.[Note1]	Max.
NOMINAL PERFORMANCE						
Current Sensing Range	I_{PR}	A	/	0	/	30
Sensitivity(ACS725)	Sens	mV/A	$I_{PRmin} < I_{PR} < I_{PRmax}$	/	50.8	/
Sensitivity(ACS724)	Sens	mV/A	$I_{PRmin} < I_{PR} < I_{PRmax}$	/	80	/
Zero Current Output Voltage	$V_{IOUT(Q)}$	V	Unipolar, I_{PR}=0A, V_{CC}=3.3V, Fixed output	0.32	0.33	0.34
			Unipolar, I_{PR}=0A, V_{CC}=5V, Fixed output	0.49	0.5	0.51
			Unipolar, I_{PR}=0A, Ratiometric output	/	V_{CC}*0.1	/
ACCURACY PERFORMANCE						
Total Output Error	E_{TOT}	%	I_P=I_{PRmax}, T_A=-40°C ~ 125°C	-1.6	±0.5	1.6
TOTAL OUTPUT ERROR COMPONENTS:E_{TOT} = (V_{IOUT}-$V_{IOUT\ Ideal}$)/($Sens_{Ideal}$×I_P)×100%, E_{TOT}= (($V_{IOUT\ Meas}$-$V_{REF\ Meas}$)-($V_{IOUT\ Ideal}$-$V_{REF\ Ideal}$))/($Sens_{Ideal}$×I_P)×100%						
Sensitivity Error	E_{SENS}	%	I_P=I_{PRmax}, T_A=25°C ~ 125°C	-1.5	±0.5	1.5
			I_P=I_{PRmax}, T_A=-40°C ~ 25°C	-1.0	±0.5	1.0
Offset Error[Note2]	V_{OE}	mV	I_P=0A, T_A=25°C ~ 125°C	-6	±2	6
			I_P=0A, T_A=25°C	-5	±2	5
			I_P=0 A, T_A=-40°C ~ 125°C	-6	±2	6
LIFETIME DRIFT CHARACTERISTICS						
Sensitivity Error Lifetime Drift	E_{SENS_drift}	%	After reliability test, T_A=25°C	/	±0.5	/
Total Output Error Lifetime Drift	E_{TOT_drift}	%	After reliability test, T_A=25°C	/	±0.5	/

Note1: These parameters are obtained from laboratory testing with 3σ data.
Note2: Ofset error refers to ratiometric output mode of unipolar output or fxed output mode of diferential output.

6. PARAMETERS DESCRIPTION

Sensitivity Sens

The change in sensor IC output in response to a 1A change through the primary conductor. The sensitivity is the product of the magnetic circuit sensitivity (G/A) (1G = 0.1 mT) and the linear IC amplifier gain (mV/G). The linear IC amplifier gain is programmed at the factory to optimize the sensitivity (mV/A) for the full-scale current of the device.

Sensitivity error E_{SENS}

Sensitivity error E_{SENS} refers to the percentage deviation between the actual measured sensitivity and the ideal sensitivity.

For example, when V_{CC} = 5V,

$$E_{SENS}=(Sens_{Meas(5V)}-Sens_{Ideal(5V)})/Sens_{Ideal(5V)}\times 100\%$$

The sensitivity temperature drift of dS_{ERR}

Over the entire operating temperature range is defined as:

$$dS_{ERR}=(Sens_{(TA)}-Sens_{(25℃)})/Sens_{(25℃)}\times 100\%$$

Saturation output voltage $V_{OUT-SAT(H/L)}$

$V_{OUT-SAT(H)}$ is the maximum output of the chip under the positive current.

$V_{OUT-SAT(L)}$ is the maximum output of the chip under negative current.

Zero current output voltage $V_{IOUT(Q)}$

I_p=0, Output voltage of the sensor $V_{IOUT(Q)}$.

For bipolar devices, the output voltage $V_{IOUT(Q)}=V_{CC}\times 0.5$

, For unipolar devices, the output voltage $V_{IOUT(Q)}=V_{CC}\times 0.1$

Variation in $V_{IOUT(Q)}$ can be attributed to the resolution of the linear IC quiescent voltage trim and thermal drift.

Ofset voltage V_{OE}

Used to measure the influence of external non-magnetic factors. Under zero-current conditions, in ratiometric output mode, it is the difference between the actual output voltage and the theoretical output voltage. In fixed output mode, it is the difference between the actual output voltage and the actual V_{REF} voltage.

Ofset temperature drift $V_{IOUT(Q)TC}$

Due to internal circuit tolerance and heat dissipation, static output voltage due to internal circuit tolerance and heat dissipation $V_{OUT(Q)}$ differential static output voltage V_{OE}. May shift with operating temperature $V_{OUT(Q)TC}$.

Defined in ratiometric output mode:

$$V_{IOUT(Q)TC}=V_{OUT(Q)(TA)}-V_{OUT(25℃)}$$

Defined in fixed output mode:

$$V_{IOUT(Q)TC}=(V_{OUT(Q)(TA)}-V_{REF(TA)})-(V_{OUT(Q)(25℃)}-V_{REF(25℃)})$$

Noise V_N

Noise is the macroscopic sum of thermal noise and shot noise inside the current sensor.

Dividing the noise (mV) by the sensitivity (mV/A) gives the smallest current that the device can resolve.

Symmetry E_{SYM}

Definition: The relationship between the actual output voltage $V_{IOUT(Q)}$ and the forward half-range $V_{IOUT-POSHALF}$ and reverse half-range $V_{IOUT-NEGHALF}$ outputs.

The formula is defined as follows:

$$E_{SYM}=(1-(V_{IOUT-POSHALF}-V_{IOUT(Q)})/(V_{IOUT(Q)}-V_{IOUT-NEGHALF}))\times 100\%$$

Nonlinearity E_{LIN}

The design output of the device varies linearly with the measured current.

Ideally, under the same supply voltage and ambient temperature conditions, the output sensitivity of the device is the same for two different current sizes I1(half scale current) and I2(full scale current). In practical application, there is a difference in sensitivity for the measurement of two different current sizes I1 and I2, and nonlinear sensitivity error E_{LIN} describes the difference digitally.

In the chip, positive current nonlinearity E_{LINPOS} and negative current nonlinearity E_{LINNEG} are defined as follows:

I_{POSx}、I_{NEGx} is positive current and negative current

$I_{POS2}=2\times I_{POS1}$

$I_{NEG2}=2\times I_{NEG1}$

$$Sens_{Ix}=(V_{IOUT(Ix)}-V_{IOUT(Q)})/Ix$$

$$E_{LINPOS}=(1-(Sens_{IPOS2}/Sens_{IPOS1}))\times 100\%$$

$$E_{LINNEG}=(1-(Sens_{INEG2}/Sens_{INEG1}))\times 100\%$$

6. PARAMETERS DESCRIPTION (CONTINUED)

Proportional output sensitivity error S_{ERR}

The proportional output sensitivity error S_{ERR} is defined based on the supply voltage Vcc:

S_{ERR}= (1- (($Sens_{Vcc}$/$Sens_{5V}$) / (Vcc/5V))) ×100%

S_{ERR}= (1- (($Sens_{Vcc}$/$Sens_{5V}$) / (Vcc/3.3V))) ×100%

Proportional output error of static voltageV_{0zero}

Error between the ratio of V_{out1} and V_{out0} value at V_{CC}=5V and the theoretical ratio when Vcc varies from 4.5V to 5.5V,or at V_{CC}=3.3V and the theoretical ratio when V_{CC} varies from 3.0V to 3.6V.

V_{0zero}= (1- ((Vout1/Vout0) / (Vcc/5V))) ×100%

V_{0zero}= (1- ((Vout1/Vout0) / (Vcc/3.3V))) ×100%

Total output error E_{TOT}

The difference between the current measurement from the sensor IC and the actual current (I_P), relative to the actual current. This is equivalent to the difference between the ideal output voltage and the actual output voltage,divided by the ideal sensitivity, relative to the current flowing through the primary conduction path:

E_{TOT}=(V_{IOUT}-$V_{IOUTIdeal}$)/($Sens_{Ideal}$×I_P)×100%

Defined in fixed output mode:

E_{TOT}=(($V_{IOUT\ Meas}$-$V_{REF\ Meas}$)-($V_{IOUT\ Ideal}$-$V_{REF\ Ideal}$))/($Sens_{Ideal}$×I_P) ×100%

Where: Total output error E_{TOT} contains all error sources and is a function of IP.

$V_{IOUTIdeal}$=$V_{IOUT(Q)}$+ ($Sens_{Ideal}$×I_P)

At relatively large current, E_{TOT} is mainly sensitivity error, while at relatively small current, E_{TOT} is mainly zero current sensitivity error voltage V_{OE}. As I_P approaches zero, E_{TOT} approaches infinity due to the bias voltage.

Dynamic response characteristic

Power-On time T_{PO}

When the supply is ramped to its operating voltage, the device requires a finite amount of time to power its internal components before responding to an input magnetic field. Power-On Time (T_{PO}) is defined as the time interval between the power supply has reached its minimum specified operating voltage (V_{UVLOD}) and the sensor output has settled within ±10% of its steady-state value under an applied magnetic field.

Rise time T_r

The time interval between the sensor output voltage reaches 10% of its full-scale value and it reaches 90% of its full-scale value.

Propagation delay T_{PROP}

The time interval between the sensed primary current reaches 20% of its final value and the sensor output voltage reaches 20% of its full-scale value.

ResponseTime$T_{RESPONSE}$

The time interval between the sensed primary current reaches 90% of its final value and the sensor output voltage reaches 90% of its full-scale value.

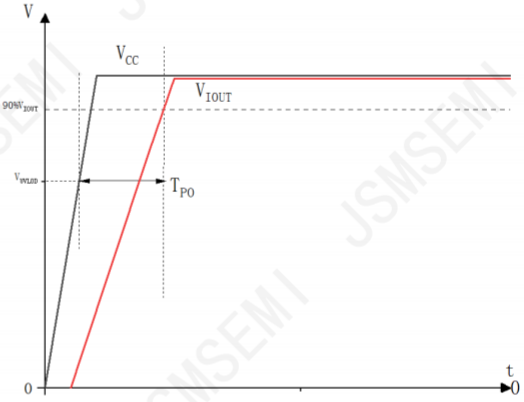


Figure 2. Power-On Time T_{PO}

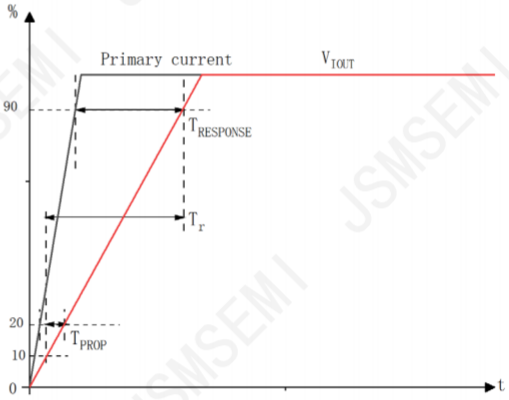


Figure 3. Dynamic Response Time Parameters

7.THERMAL EVALUATION

The product will naturally heat up during useing, and the thermal curve performance of this device was measured in a windless environment at 25±3°C in application laboratory using a ACS72xREVA0 EVM.

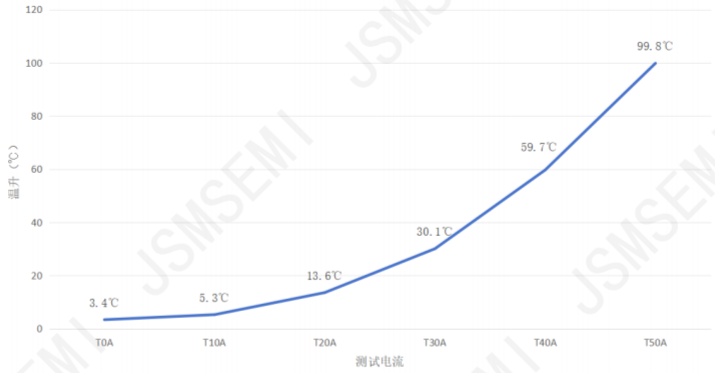


Figure 4. Thermal curve

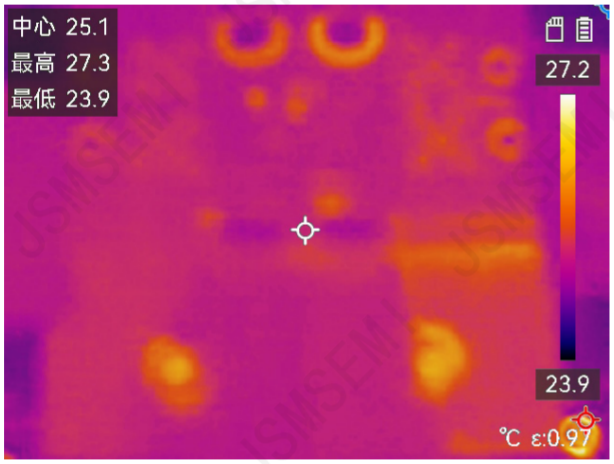


Figure 5. Thermal performance of 0A

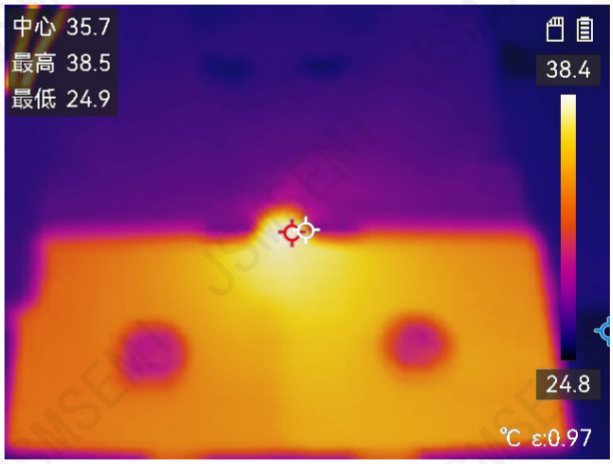


Figure 6. Thermal performance of 20A

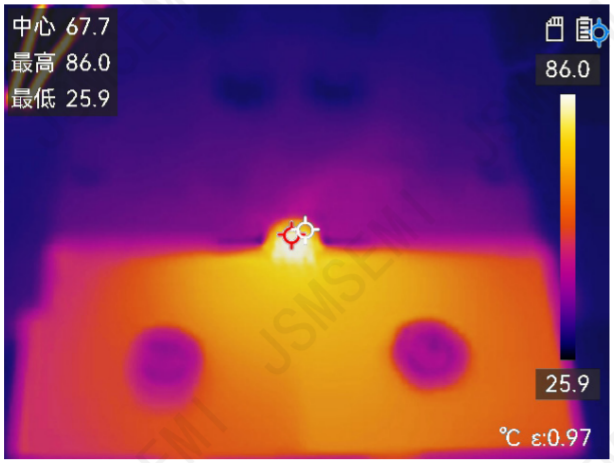


Figure 7. Thermal performance of 40A

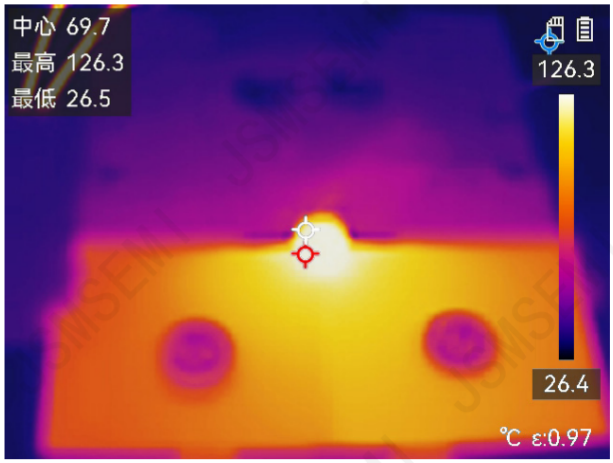


Figure 8. Thermal performance of 50A

8.LAYOUT GUIDELINES

Test information of the demo board

The IP heat dissipation copper thickness of the demo board is 4oz,the heat dissipation area is 2×750 (mm^2),the test wiring uses Kelvin sense to avoid the voltage drop caused by GND impedance, and capacitors should set to the chip pins as close as possible.C_L=1nF, C_{REF}=1nF, C_{VCC}=100nF

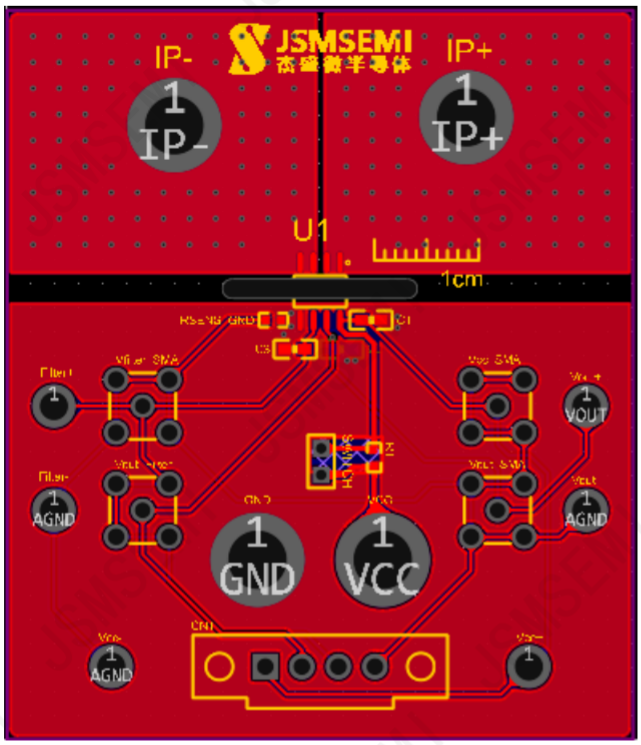


Figure 9. The front of the demo board

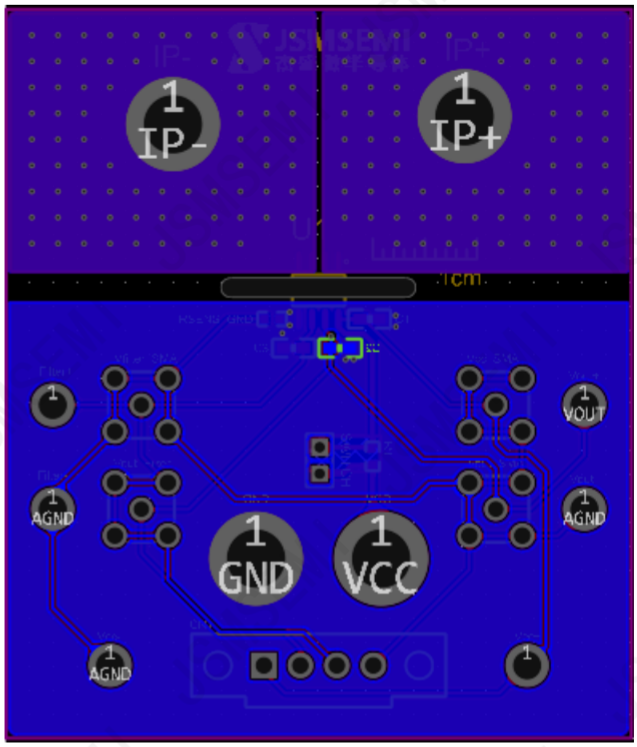
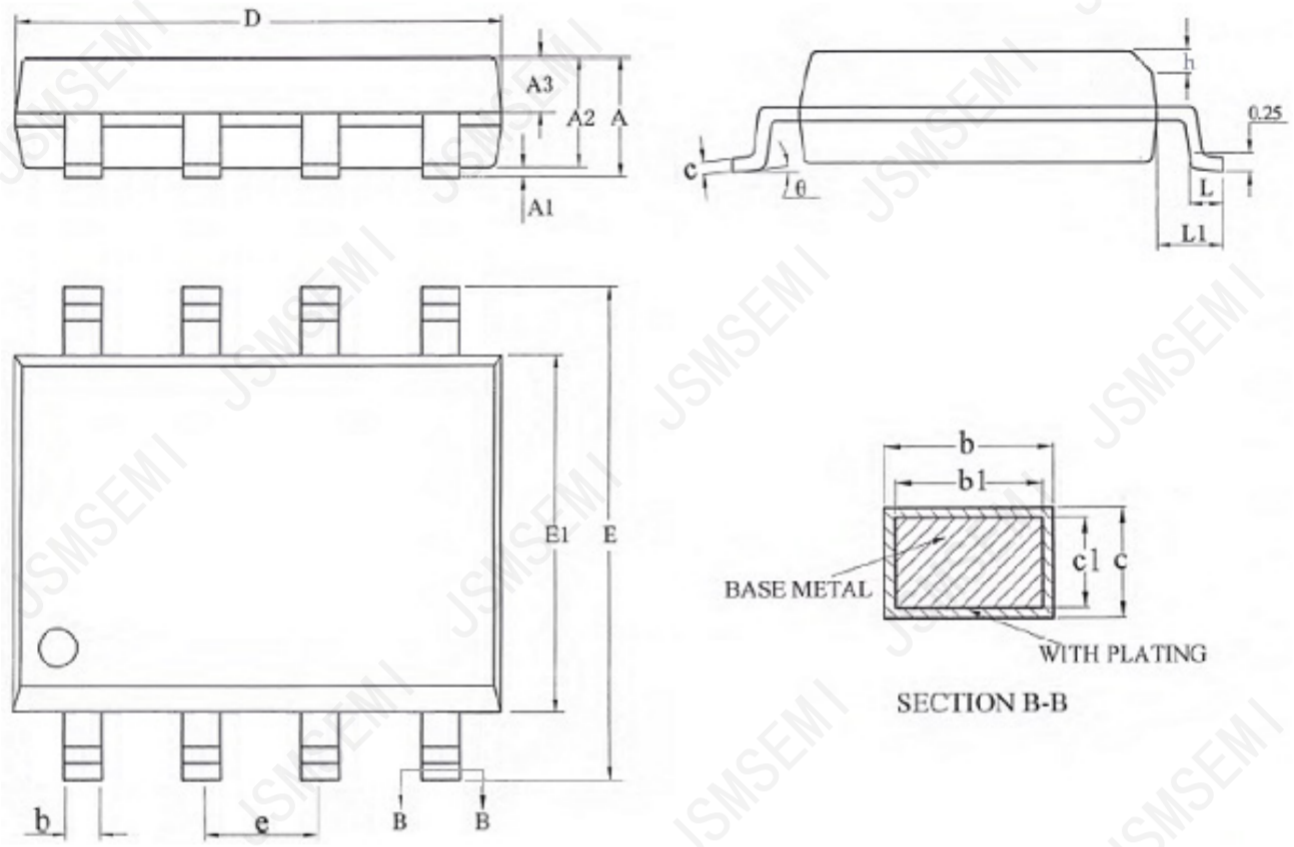


Figure 10. The back of the demo board

SOIC-8 Package Outlines



SOIC-8 Package Dimensions

Size / Symbol	MIN(mm)	TYP(mm)	MAX(mm)	Size / Symbol	MIN(mm)	TYP(mm)	MAX(mm)
A	-	-	1.75	D	4.70	4.90	5.10
A1	0.10	-	0.225	E	5.80	6.00	6.20
A2	1.30	1.40	1.50	E1	3.70	3.90	4.10
A3	0.60	0.65	0.70	e		1.27BSC	
b	0.39	-	0.48	h	0.25	-	0.50
b1	0.38	0.41	0.43	L		0.50	
c	0.21	-	0.26	L1	1.05BSC		
c1	0.19	0.20	0.21	θ	0	-	8°

Revision History

Rev.	Change	Date
V1.0	Initial version	3/17/2021
V1.1	Add description for ACS725 and optimize parameters.	8/22/2021
V1.2	Add Ordering Information.	12/17/2025

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