5-25W, AC-DC converter

FEATURES

- Universal input range:85~264VAC, 50/60Hz
- Regulated output, low ripple and noise
- Efficiency up to 85%
- Over-current, short circuit and over- voltage protection
- Plastic case, meets UL94V-0
- Meet UL60950,EN60950 standards
- 3 years product warranty
- PCB mounting, Chassis mounting, DIN-Rail mounting

c UL us CE E235235 RoHS

LH series -----a compact size power converter offered by Mornsun. It features universal input voltage, taking both DC and AC input voltage, low power consumption, high efficiency, high reliability, safer isolation. It offers good EMC performance, which meet IEC/EN61000-4, CISPR22/EN55022, UL60950 and EN60950 standards, and it's widely used in industrial, office and civil applications. For harsh EMC environment, the application circuit in the datasheet is strongly recommended.

Selection Guide

Certification	Part No.*	Output Power	Nominal Output Voltage and Current		Efficiency (230VAC, %/Typ.)	Max. Capacitive Load(μF)	
			(Vo1/Io1)	(Vo2/Io2)		Vo1	Vo2
UL/CE	LH05-10B03	4W	3.3V/1250mA	--	70	8100	--
	LH05-10B05	5W	5V/1000mA	--	75	6800	--
	LH05-10B09		9V/550mA	--	77	1200	--
	LH05-10B12		12V/420mA	--	79	1000	--
	LH05-10B15		15V/330mA	--	80	680	--
	LH05-10B24		24V/230mA	--	82	270	--
--	LH05-10A05		+5V/500mA	-5V/500mA	75	1480	1480
	LH05-10A12		+12V/210mA	-12V/210mA	79	130	130
	LH05-10A15		+15V/160mA	-15V/160mA	79	110	110
	LH05-10A24		+24V/100mA	-24V/100mA	80	16	16
	LH05-10C0505-01		5V/800mA	±5V/100mA	70	2400	370
	LH05-10C0512-01		5V/600mA	±12V/100mA	73	1600	170
	LH05-10C0515-01		5V/600mA	±15V/80mA	74	1760	80
	LH05-10C0524-01		5V/600mA	±24V/50mA	75	1170	50
	LH05-10D0505-01		5V/900mA	5V/100mA	71	3360	370
	LH05-10D0512-01		5V/750mA	12V/100mA	73	2400	170
	LH05-10D0515-01		5V/700mA	15V/100mA	73	2160	170
	LH05-10D0524-01		5V/600mA	24V/100mA	75	3000	100
UL/CE	LH10-10B03	6.6 W	3.3V/2000mA	--	70	26400	--
	LH10-10B05	10W	5V/2000mA	--	76	9440	--
	LH10-10B09		9V/1100mA	--	78	3600	--
	LH10-10B12		12V/900mA	--	80	2400	--
	LH10-10B15		15V/700mA	--	81	1170	--
	LH10-10B24		24V/450mA	--	82	370	--
	LH10-10A05		+5V/1000mA	-5V/1000mA	76	8800	8800

Selection Guide

Certification	Part No.*	Output Power	Nominal Output Voltage and Current		Efficiency (230VAC, %/Typ.)	Max. Capacitive Load(μF)	
			(Vo1/Io1)	(Vo2/Io2)		Vo1	Vo2
UL/CE	LH10-10A12	10W	+12V/450mA	-12V/450mA	80	1970	1970
	LH10-10A15		+15V/350mA	-15V/350mA	81	1970	1970
	LH10-10A24		+24V/200mA	-24V/200mA	84	660	660
--	LH10-10C0512-02		5V/1000mA	±12V/200mA	75	3200	260
	LH10-10C0515-02		5V/900mA	±15V/200mA	75	2160	80
UL/CE	LH10-10D0505-02		5V/1800mA	5V/200mA	75	8000	540
	LH10-10D0512-02		5V/1500mA	12V/200mA	79	4400	260
	LH10-10D0515-02		5V/1400mA	15V/200mA	79	4400	170
	LH10-10D0524-02		5V/1000mA	24V/200mA	81	4000	170
	LH15-10B03	9.9W	3.3V/3000mA	--	73	72000	--
	LH15-10B05	15W	5V/2800mA	--	76	44800	--
	LH15-10B09		9V/1600mA	--	78	13760	--
	LH15-10B12		12V/1250mA	--	80	5200	--
	LH15-10B15		15V/1000mA	--	80	5120	--
	LH15-10B24		24V/625mA	--	84	880	--
	LH15-10B48		48V/320mA	--	85	370	--
--	LH15-10A05		+5V/1500mA	-5V/1500mA	76	12800	12800
	LH15-10A12		+12V/650mA	-12V/650mA	81	2350	2350
	LH15-10A15		+15V/500mA	-15V/500mA	83	3120	3120
	LH15-10A24		+24V/310mA	-24V/310mA	83	400	400
	LH15-10C0505-05		5V/2000mA	±5V/500mA	75	10800	2160
	LH15-10C0512-02		5V/2000mA	±12V/200mA	77	17280	2160
	LH15-10C0515-02		5V/1800mA	±15V/200mA	78	5920	370
	LH15-10C0524-01		5V/2000mA	±24V/100mA	78	1600	130
	LH15-10D0505-08		5V/2200mA	5V/800mA	76	10800	2960
	LH15-10D0512-04		5V/2000mA	12V/400mA	80	8640	1200
	LH15-10D0515-03		5V/2000mA	15V/300mA	80	6480	800
	LH15-10D0524-02		5V/2000mA	24V/200mA	81	12900	800
UL/CE	LH20-10B03	13.53W	3.3V/4100mA	--	73	48000	--
	LH20-10B05	20W	5V/3500mA	--	75	12240	--
	LH20-10B09		9V/2100mA	--	77	7200	--
	LH20-10B12		12V/1600mA	--	81	5400	--
	LH20-10B15		15V/1300mA	--	83	2720	--
	LH20-10B24		24V/850mA	--	85	1840	--
--	LH20-10B48		48V/420mA	--	85	500	--
	LH20-10A05		+5V/2000mA	-5V/2000mA	75	8000	8000
	LH20-10A12		+12V/830mA	-12V/830mA	82	960	960
	LH20-10A15		+15V/650mA	-15V/650mA	83	880	880
	LH20-10C0505-05		5V/2500mA	±5V/500mA	74	11200	4480
	LH20-10C0512-04		5V/2000mA	±12V/400mA	75	16000	1600
	LH20-10C0515-03		5V/2000mA	±15V/300mA	76	13520	370
	LH20-10C0524-02		5V/2000mA	±24V/200mA	77	11200	370
	LH20-10D0512-06		5V/2500mA	12V/600mA	75	32400	3250
	LH20-10D0515-05		5V/2500mA	15V/500mA	76	28000	1980
	LH20-10D0524-03		5V/2500mA	24V/300mA	77	28000	720
UL/CE	LH25-10B03	13.53W	3.3V/4100mA	--	73	48000	--

Selection Guide

Certification	Part No.*	Output Power	Nominal Output Voltage and Current		Efficiency (230VAC, %/Typ.)	Max. Capacitive Load(μF)	
			(Vo1/Io1)	(Vo2/Io2)		Vo1	Vo2
UL/CE	LH25-10B05	25W	5V/4100mA	--	74	12240	--
	LH25-10B09		9V/2500mA	--	78	5600	--
	LH25-10B12		12V/2100mA	--	82	5400	--
	LH25-10B15		15V/1600mA	--	83	2400	--
	LH25-10B24		24V/1100mA	--	85	1440	--
	LH25-10B48		48V/500mA	--	87	500	--

Note: *About LH05-10AXX,we use Vo2 as sampling feedback; LH10/15/20-10AXX, use both positive and negative output as sampling feedback; and all others use Vo1 as sampling feedback.

Input Specifications

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Input Voltage Range	AC input		85	--	264	VAC
	DC input		120	--	370	VDC
Input frequency			47	--	63	Hz
Input current	115VAC	LH05 models	--	--	0.125	A
		LH10 models	--	--	0.26	
		LH15 models	--	--	0.37	
		LH20 models	--	--	0.6	
		LH25 models	--	--	0.6	
	230VAC	LH05 models	--	--	0.08	
		LH10 models	--	--	0.16	
		LH15 models	--	--	0.22	
		LH20 models	--	--	0.34	
		LH25 models	--	--	0.34	
Inrush current	115VAC	LH05 models	--	10	--	
		LH10 models	--	10	--	
		LH15 models	--	10	--	
		LH20/ LH25 models	--	16	--	
	230VAC	LH05 models	--	20	--	
		LH10 models	--	20	--	
		LH15 models	--	20	--	
		LH20/ LH25 models	--	30	--	
Leakage current			0.3mA RMS typ./230VAC/50Hz			
Recommended External Input Fuse(Special package series include fuse)	LH05 models		1A/250V, slow fusing			
	LH10/LH15 models		2A/250V, slow fusing			
	LH20/ LH25 models		3.15A/250V, slow fusing			
Hot Plug			Unavailable			

Output Specifications

Item	Operating Conditions			Min.	Typ.	Max.	Unit
Output Voltage Accuracy	Main circuit			--	±2	--	%
Line Regulation	Full load	Main circuit		--	±0.5	--	
		Auxiliary circuit		--	±1.5	--	
Load Regulation	10%-100% load	Single output		--	±1	--	
		Dual output(balanced load)		--	±2	--	
		Isolated triple output (balanced load)	Main circuit	--	±3	--	
			Auxiliary circuit	--	±5	--	

		Isolated and separated twin output (balanced load)	Main circuit	--	±3	--	
			Auxiliary circuit	--	±5	--	
Ripple & Noise*	20MHz bandwidth (peak-peak value)			--	50	150	mV
Temperature Coefficient	Main circuit			--	±0.02	--	%/°C
Short Circuit Protection				Continuous, self-recovery			
Over-current Protection				≥110%Io self-recovery			
Over-voltage Protection	Main circuit	3.3 / 5VDC Output		≤7.5VDC			
		9VDC Output		≤13VDC			
		12 /15VDC Output		≤20VDC			
		24VDC Output		≤30VDC			
		48VDC Output		≤60VDC			
Min. Load	Single output models			0	--	--	%
	Dual output models (balanced load)			10	--	--	
	Isolated and separated twin output (balanced load)			10	--	--	
	Isolated triple output (balanced load)			10	--	--	
Hold-up Time	115VAC input			--	15	--	ms
	230VAC input			--	80	--	
Note: * Ripple and noise are measured by "parallel cable" method, please see AC-DC Converter Application Notes for specific operation.							

General Specifications

Item		Operating Conditions	Min.	Typ.	Max.	Unit
Isolation Voltage	Input-output	Test time: 1min	3000	--	--	VAC
Operating Temperature			-25	--	+70	°C
Storage Temperature			-25	--	+105	
Storage Humidity			--	--	95	%RH
Welding Temperature		Wave-soldering	260±5℃; time:5~10s			
		Manual-welding	360±10℃; time:3~5s			
Switching Frequency		LH05-10B/D series	--	--	140	kHz
		Other series	--	65	--	
Power Derating		-25℃~-10℃	2.0	--	--	%/°C
		55℃~+70℃	3.75	--	--	
Safety Standard		IEC60950/EN60950/UL60950				
Safety Certification		EN60950/UL60950				
Safety Class		LH15-10BXX	CLASS II			
		Other series	CLASS I			
MTBF		MIL-HDBK-217F@25°C > 300,000 h				

Physical Specifications

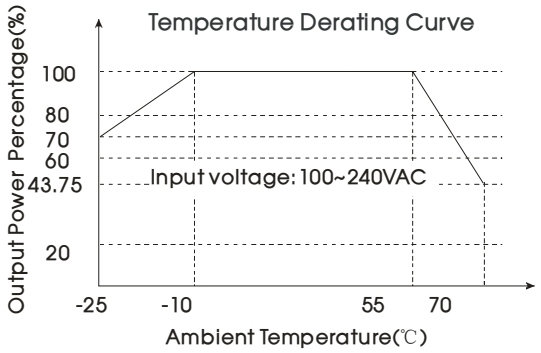
Casing Material	Black flame-retardant and heat-resistant plastic (UL94-V0)
Dimension	Refer to the Dimensions
Weight	Refer to the Dimensions
Cooling method	Free air convection

EMC Specifications

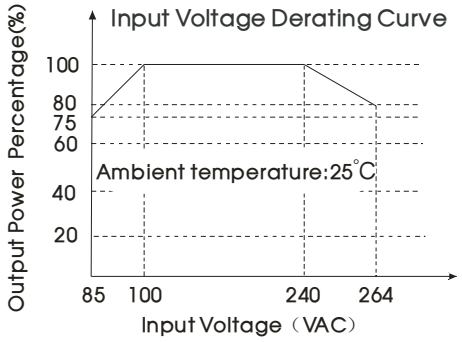
EMI	CE	CISPR22/EN55022, CLASS B (Without External Circuit)	
	RE	CISPR22/EN55022, CLASS B (Without External Circuit)	
EMS	ESD	IEC/EN61000-4-2 ±6KV/±8KV	Perf. Criteria B
	RS	IEC/EN61000-4-3 10V/m	perf. Criteria A
	EFT	IEC/EN61000-4-4 ±2KV (Without External Circuit)	perf. Criteria B
		IEC/EN61000-4-4 ±4KV (See Fig. 5 for recommended circuit)	perf. Criteria B

	Surge	IEC/EN61000-4-5	±1KV/±2KV(Without External Circuit)	perf. Criteria B
		IEC/EN61000-4-5	±2KV/4KV (See Fig. 5 for recommended circuit)	perf. Criteria B
EMS	CS	IEC/EN61000-4-6	10 Vr.m.s	perf. Criteria A
	PFM	IEC/EN61000-4-8	10A/m	perf. Criteria A
	Immunities of voltage dip, drop and short interruption	IEC/EN61000-4-11	0%-70%	perf. Criteria B

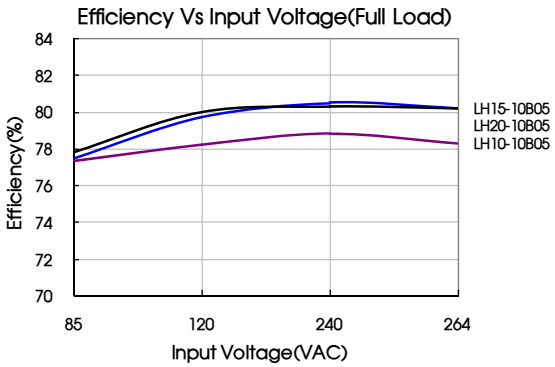
Product Characteristic Curve

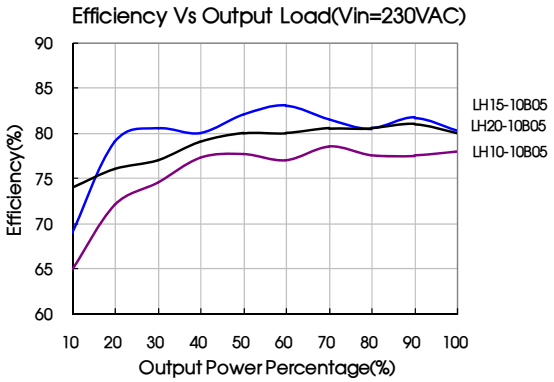


Note: Input voltage should be derated based on temperature derating when it is 85~100VAC/240~264VAC.



Note: When input DC, VDC=1.414*VAC-20.





Design Reference

1. Typical application circuit

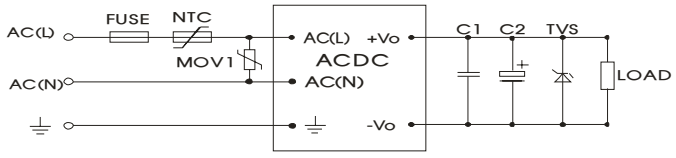


Fig. 1: Typical application circuit

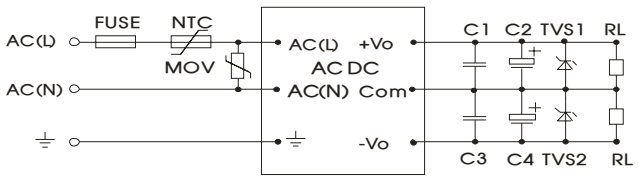


Fig. 2: LHxx-10Axx (Dual Output) series typical application circuit

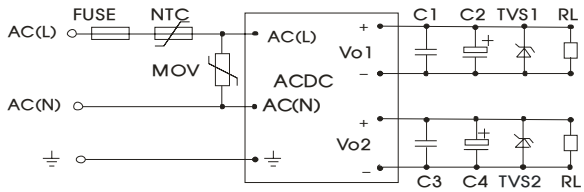


Fig. 3: LHxx-10Dxx (Isolate Twin Output) series typical application circuit

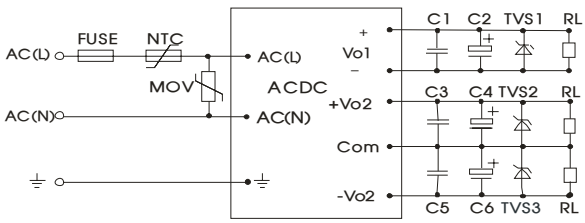


Fig. 4: LHxx-10Cxx (Triple Output) series typical application circuit

Model	C2(μF)	C4(μF)	C6(μF)	TVS1	TVS2	TVS3
LH05-10B03	330			SMBJ7.0A		
LH05-10B05	330			SMBJ7.0A		
LH05-10B09	120			SMBJ12A		
LH05-10B12	120			SMBJ20A		
LH05-10B15	68			SMBJ20A		
LH05-10B24	68			SMBJ30A		
LH05-10A05	120	120		SMBJ7.0A	SMBJ7.0A	
LH05-10A12	68	68		SMBJ20A	SMBJ20A	
LH05-10A15	47	47		SMBJ20A	SMBJ20A	
LH05-10A24	10	10		SMBJ30A	SMBJ30A	
LH05-10C0505-01	220	22	22	SMBJ7.0A	SMBJ7.0A	SMBJ7.0A
LH05-10C0512-01	120	22	22	SMBJ7.0A	SMBJ20A	SMBJ20A
LH05-10C0515-01	120	22	22	SMBJ7.0A	SMBJ20A	SMBJ20A
LH05-10C0524-01	120	22	22	SMBJ7.0A	SMBJ30A	SMBJ30A
LH05-10D0505-01	220	22		SMBJ7.0A	SMBJ7.0A	
LH05-10D0512-01	220	22		SMBJ7.0A	SMBJ20A	
LH05-10D0515-01	120	22		SMBJ7.0A	SMBJ20A	
LH05-10D0524-01	120	22		SMBJ7.0A	SMBJ30A	
LH10-10B03	470			SMBJ7.0A		
LH10-10B05	330			SMBJ7.0A		
LH10-10B09	120			SMBJ12A		
LH10-10B12	120			SMBJ20A		
LH10-10B15	120			SMBJ20A		
LH10-10B24	68			SMBJ30A		
LH10-10A05	220	220		SMBJ7.0A		
LH10-10A12	120	120		SMBJ20A	SMBJ20A	
LH10-10A15	47	47		SMBJ20A	SMBJ20A	
LH10-10A24	33	33		SMBJ30A	SMBJ30A	
LH10-10C0512-02	220	68	68	SMBJ7.0A	SMBJ20A	SMBJ20A
LH10-10C0515-02	220	47	47	SMBJ7.0A	SMBJ20A	SMBJ20A
LH10-10D0505-02	220	68		SMBJ7.0A	SMBJ7.0A	
LH10-10D0512-02	220	68		SMBJ7.0A	SMBJ20A	
LH10-10D0515-02	220	47		SMBJ7.0A	SMBJ20A	
LH10-10D0524-02	220	47		SMBJ7.0A	SMBJ30A	
LH15-10B03	680			SMBJ7.0A		
LH15-10B05	680			SMBJ7.0A		
LH15-10B09	470			SMBJ12A		
LH15-10B12	220			SMBJ20A		
LH15-10B15	220			SMBJ20A		
LH15-10B24	68			SMBJ30A		
LH15-10B48	33			SMBJ64A		
LH15-10A05	470	470		SMBJ7.0A	SMBJ7.0A	
LH15-10A12	220	220		SMBJ20A	SMBJ20A	
LH15-10A15	120	120		SMBJ20A	SMBJ20A	
LH15-10A24	68	68		SMBJ30A	SMBJ30A	
LH15-10C0505-05	470	220	220	SMBJ7.0A	SMBJ7.0A	SMBJ7.0A
LH15-10C0512-02	470	120	120	SMBJ7.0A	SMBJ20A	SMBJ20A
LH15-10C0515-02	470	120	120	SMBJ7.0A	SMBJ20A	SMBJ20A
LH15-10C0524-01	470	120	120	SMBJ7.0A	SMBJ30A	SMBJ30A
LH15-10D0505-08	470	470		SMBJ7.0A	SMBJ7.0A	
LH15-10D0512-04	470	220		SMBJ7.0A	SMBJ20A	
LH15-10D0515-03	470	120		SMBJ7.0A	SMBJ20A	
LH15-10D0524-02	470	47		SMBJ7.0A	SMBJ30A	

Model	C2(μF)	C4(μF)	C6(μF)	TVS1	TVS2	TVS3
LH20-10B03	330			SMBJ7.0A		
LH20-10B05	330			SMBJ7.0A		
LH20-10B09	220			SMBJ12A		
LH20-10B12	220			SMBJ20A		
LH20-10B15	220			SMBJ20A		
LH20-10B24	220			SMBJ30A		
LH20-10A05	470	470		SMBJ7.0A	SMBJ7.0A	
LH20-10A12	120	120		SMBJ20A	SMBJ20A	
LH20-10A15	68	68		SMBJ20A	SMBJ20A	
LH20-10C0505-05	330	120	120	SMBJ7.0A	SMBJ7.0A	SMBJ7.0A
LH20-10C0512-04	330	120	120	SMBJ7.0A	SMBJ20A	SMBJ20A
LH20-10C0515-03	330	120	120	SMBJ7.0A	SMBJ20A	SMBJ20A
LH20-10C0524-02	330	47	47	SMBJ7.0A	SMBJ30A	SMBJ30A
LH20-10D0512-06	330	220		SMBJ7.0A	SMBJ20A	
LH20-10D0515-05	330	220		SMBJ7.0A	SMBJ20A	
LH20-10D0524-03	330	120		SMBJ7.0A	SMBJ30A	
LH25-10B03	330			SMBJ7.0A		
LH25-10B05	330			SMBJ7.0A		
LH25-10B09	330			SMBJ12A		
LH25-10B12	330			SMBJ20A		
LH25-10B15	330			SMBJ20A		
LH25-10B24	120			SMBJ30A		
LH25-10B48	68			SMBJ64A		

Note:
Note: Output filtering capacitors C2, C4, C6 are electrolytic capacitors, it is recommended to use high frequency and low impedance electrolytic capacitor. For capacitance and current of capacitor please refer to manufacture's datasheet. Capacitor withstand voltage derating should be 80% or above. C1,C3, C5 are ceramic capacitors, which is used to filter high-frequency noise. TVS is a recommended component to protect post-circuits if converter fails. External input NTC is recommended to use 5D-9.

2. EMC solution-recommended circuit

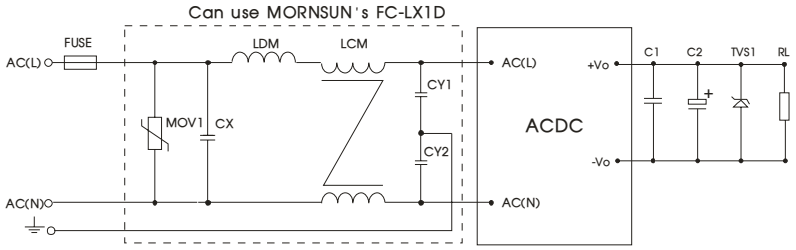


Fig 5: EMC Recommended circuit with higher requirements

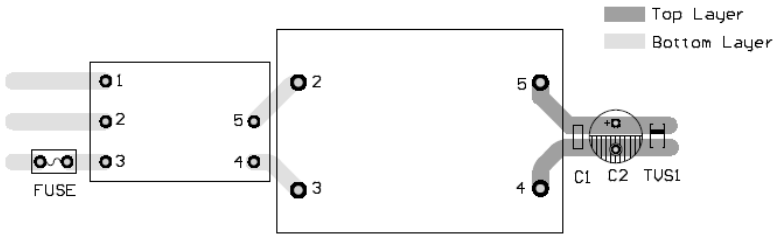
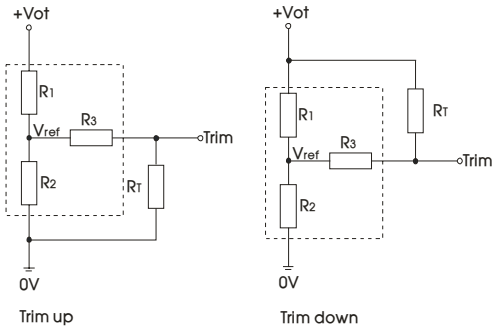


Fig 6: Recommended EMC circuit-PCB layout

Suggestions for safety regulation and wiring width: wire width≥3mm, distance between wires≥6mm, and distance between wire and ground≥6mm

Element model	Recommended value	Element model	Recommended value	
MOV1	S14K350	FC-LX1D	2KV/4KV EMC filter	
CY1 , CY2	1000pF/400VAC	FUSE	LH05	1A/250V slow fusing, necessary
CX	0.1μF/275VAC		LH10/15	2A/250V slow fusing, necessary
LCM	10mH, recommended to use MORNSUN's FL2D-Z5-103		LH20/25	3.15A/250V slow fusing, necessary
LDM	4.7μH/2A	--	--	

3. Application of Trim and calculation of Trim resistance



Applied circuits of Trim (Part in broken line is the interior of models):

Calculation formula of Trim resistance:

up: $R_T = \frac{aR_2}{R_2-a} - R_3$ $\quad a = \frac{Vref}{Vot-Vref} \cdot R_1$

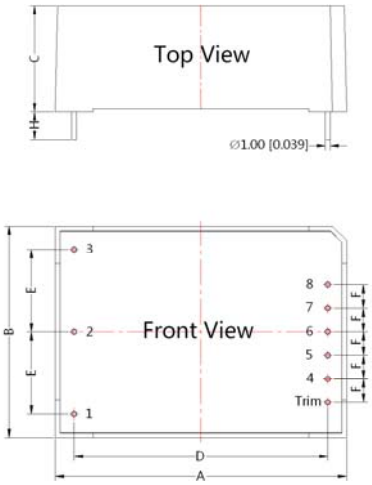
down: $R_T = \frac{aR_1}{R_1-a} - R_3$ $\quad a = \frac{Vot-Vref}{Vref} \cdot R_2$

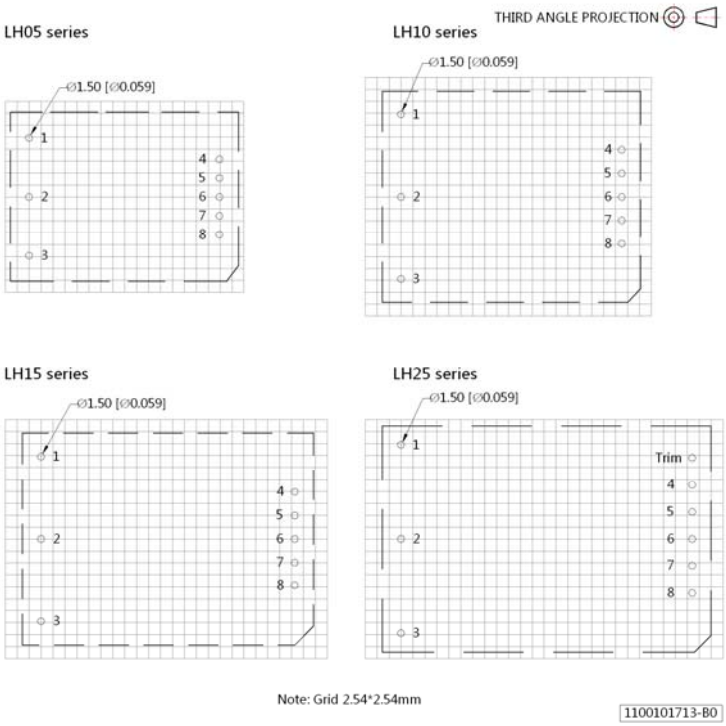
R_T is Trim resistance
a is a self-defined parameter, with no real meaning.

Vout	R1(KΩ)	R2(KΩ)	R3(KΩ)	Vref(V)	Vot(V)
3.3V	3.3	1.98	1	1.24	Output voltage after regulation, variation ≤ ±10%
5V	3.3	3.3	1	2.5	
9V	7.5	2.87	1	2.5	
12V	3.83	1	1	2.5	
15V	7.5	1.5	1	2.5	
24V	8.66	1	1	2.5	
48V	68	3.73	1	2.5	

4. For more information about Mornsun EMC Filter products, please visit www.mornsun-power.com to download the Selection Guide of EMC Filter

Dimensions and Recommended Layout





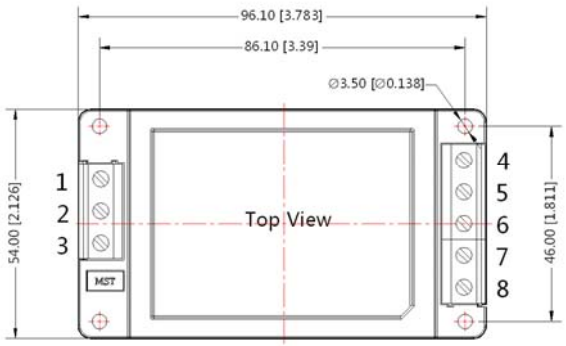
Dimensions (Unit: mm)					
NO.	LH05	LH10	LH15	LH20	LH25
A	48.50	55.00	62.00	70.00	70.00
B	36.00	45.00	45.00	48.00	48.00
C	20.50	21.00	22.50	23.50	23.50
D	40.50	47.00	54.00	62.00	62.00
E	12.50	17.50	17.50	20.00	20.00
F	4.00	5.00	5.00	5.75	5.75
G	10.00	12.50	12.50	12.50	12.50

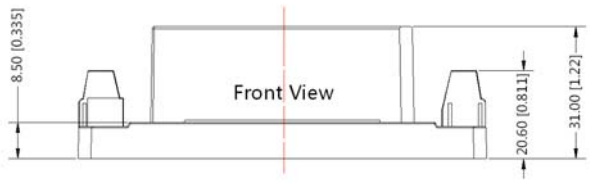
Models Weight					
Weight	LH05	LH10	LH15	LH20	LH25
(Typ.)	50g	80g	85g	120g	120g

Pin Connection				
Pin	LHXX-10B	LHXX-10A	LHXX-10C	LHXX-10D
1	⏚	⏚	⏚	⏚
2	AC(N)	AC(N)	AC(N)	AC(N)
3	AC(L)	AC(L)	AC(L)	AC(L)
4	-Vo	-Vo	-Vo1	-Vo1
5	No Pin	No Pin	+Vo1	+Vo1
6	No Pin	COM	-Vo2	No Pin
7	No Pin	No Pin	COM	-Vo2
8	+Vo	+Vo	+Vo2	+Vo2
Trim	Trim**	No Pin	No Pin	No Pin
There is no pin "1" ⏚ on LH15-10BXX Trim**: only for LH20/25-10BXX Series.				

LHXXA2 Dimensions

THIRD ANGLE PROJECTION





Pin	LHXX-10B	LHXX-10A	LHXX-10C	LHXX-10D
1	⏚	⏚	⏚	⏚
2	AC(N)	AC(N)	AC(N)	AC(N)
3	AC(L)	AC(L)	AC(L)	AC(L)
4	-Vo	-Vo	-Vo1	-Vo1
5	NC	NC	+Vo1	+Vo1
6	NC/Trim**	COM	-Vo2	NC
7	NC	NC	COM	-Vo2
8	+Vo	+Vo	+Vo2	+Vo2
There is no pin "1" , ⏚ on LH15-10BXXA2. NC/Trim** : The pin is Trim on LH20/25-10BXXA2 , The pin is not connected on other single output products.				

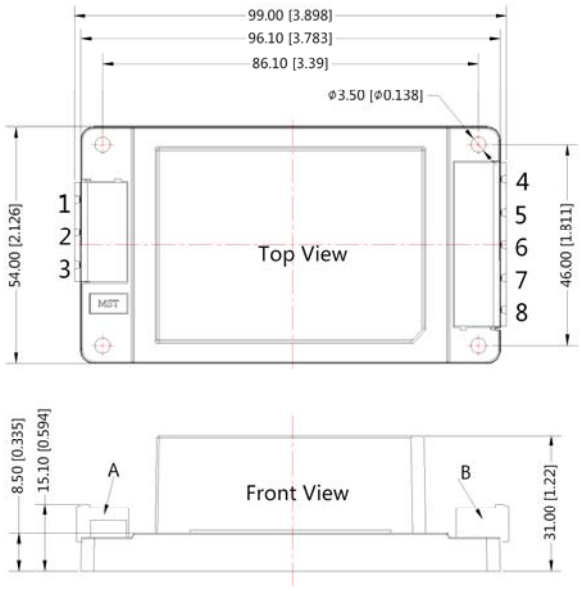
*The figure above is related to LH15XXA2 series, the height of other series is different.

Note:
Unit:mm[inch]
Wire range : 24~12 AWG
General tolerances:±0.50[±0.020]

Dimensions (Unit: mm)	
Model	Dimensions
LH05XXA2	96.10*54.00*29.00
LH10XXA2	96.10*54.00*29.50
LH15XXA2	96.10*54.00*31.00
LH20XXA2	96.10*54.00*32.00
LH25XXA2	96.10*54.00*32.00

Models weight					
Weight	LH05	LH10	LH15	LH20	LH25
Typ.	100g	130g	135g	170g	170g

LHXXA3 Dimensions



THIRD ANGLE PROJECTION

Pin	LHXX-10B	LHXX-10A	LHXX-10C	LHXX-10D
1	⏚	⏚	⏚	⏚
2	AC(N)	AC(N)	AC(N)	AC(N)
3	AC(L)	AC(L)	AC(L)	AC(L)
4	-Vo	-Vo	-Vo1	-Vo1
5	NC	NC	+Vo1	+Vo1
6	NC/Trim**	COM	-Vo2	NC
7	NC	NC	COM	-Vo2
8	+Vo	+Vo	+Vo2	+Vo2

There is no pin "1", ⏚ on LH15-10BXXA3. NC/Trim** :
The pin is Trim on LH20/25-10BXXA3 ,
The pin is not connected on other single output products.

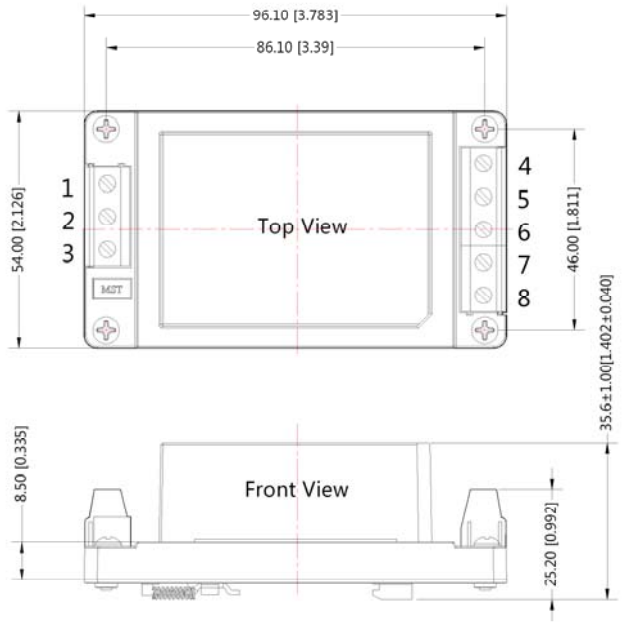
*The figure above is related to LH15XXA3 series, the height of other series is different.

Note:
Unit:mm[inch]
General tolerances:±0.50[±0.020]
A:DEGSON P/N: 2EDGRC-7.5-03P-14-100A (H)
B: DEGSON P/N: 2EDGRC-7.5-05P-14-100A (H)

Outline and dimensions (Unit: mm)	
Model	Dimensions
LH05XXA3	99.00*54.00*29.00
LH10XXA3	99.00*54.00*29.50
LH15XXA3	99.00*54.00*31.00
LH20XXA3	99.00*54.00*32.00
LH25XXA3	99.00*54.00*32.00

Models weight					
Weight	LH05	LH10	LH15	LH20	LH25
Typ.	100g	130g	135g	170g	170g

LHXXA4 Dimensions



THIRD ANGLE PROJECTION

Pin	LHXX-10B	LHXX-10A	LHXX-10C	LHXX-10D
1	⏚	⏚	⏚	⏚
2	AC(N)	AC(N)	AC(N)	AC(N)
3	AC(L)	AC(L)	AC(L)	AC(L)
4	-Vo	-Vo	-Vo1	-Vo1
5	NC	NC	+Vo1	+Vo1
6	NC/Trim**	COM	-Vo2	NC
7	NC	NC	COM	-Vo2
8	+Vo	+Vo	+Vo2	+Vo2

There is no pin "1", ⏚ on LH15-10BXXA4. NC/Trim** :
The pin is Trim on LH20/25-10BXXA4 ,
The pin is not connected on other single output products.

*The figure above is related to LH15XXA4 series, the height of other series is different.

Note:
Unit:mm[inch]
Wire range : 24~12 AWG
General tolerances:±0.50[±0.020]

Dimensions (Unit: mm)	
Model	Dimensions
LH05XXA4	96.10*54.00*33.60
LH10XXA4	96.10*54.00*34.10
LH15XXA4	96.10*54.00*35.60
LH20XXA4	96.10*54.00*36.60
LH25XXA4	96.10*54.00*36.60

Models weight					
Weight	LH05	LH10	LH15	LH20	LH25
Typ.	140g	170g	175g	210g	210g

Note:

1. Packing information please refer to Product Packing Information which can be downloaded from www.mornsun-power.com. Packing bag number of Horizontal package : 58220007 (LH05), 58220006(others), the Packing bag number of A2/A3/A4 package:58220010;
2. If the product is not operated within the required load range, the product performance cannot be guaranteed to comply with all parameters in the datasheet;
3. Unless otherwise specified, parameters in this datasheet were measured under the conditions of Ta=25 ℃, humidity<75% with nominal input voltage and rated output load;
4. All index testing methods in this datasheet are based on our Company's corporate standards;
5. The performance parameters of the product models listed in this manual are as above, but some parameters of non-standard model products may exceed the requirements mentioned above. Please contact our technicians directly for specific information;
6. We can provide product customization service;
7. Specifications are subject to change without prior notice.

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