









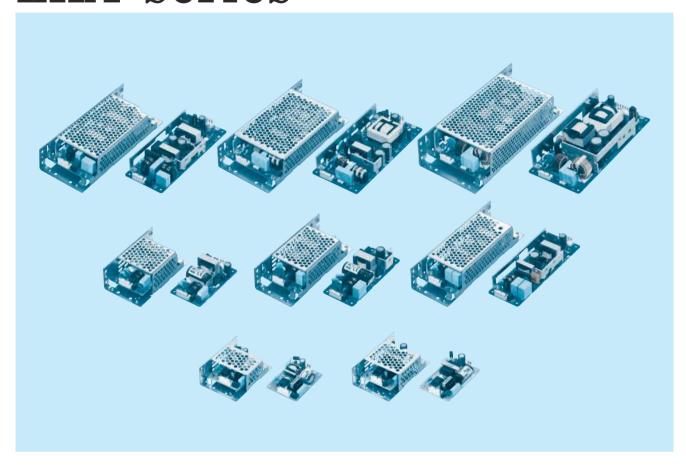








LHA-series



Feature

EN62477-1 (OVC III)

Low-profile

Small and compact PCB construction

High efficiency

Low noise

Harmonic attenuator (Complies with IEC61000-3-2)

Power factor correction (LHA75F-300F)

Universal input (85-264VAC)

Built-in inrush current, overcurrent and overvoltage protection circuits

Safety agency approvals

UL62368-1, C-UL (equivalent to CAN/CSA-C22.2 No.62368-1),

EN62368-1

EN62477-1 (OVC III): LHA150F, 300F

Complies with DEN-AN

5-year warranty (refer to Instruction Manual)

CE marking

Low Voltage Directive RoHS Directive

UKCA marking

Electrical Equipment Safety Regulations RoHS Regulations

EMI

Complies with FCC-B, CISPR11-B, CISPR32-B, EN55011-B, EN55032-B, VCCI-B

EMS Compliance : EN61204-3, EN61000-6-2

EN61000-4-2

EN61000-4-3

EN61000-4-4

EN61000-4-5

EN61000-4-6

EN61000-4-8

EN61000-4-11

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High voltage pulse noise type : EAP series Low leakage current type : EAM series

*A higher current rating EMI/EMC filter may be recommended in view of the other devices that could be connected in parallel with the power supply. Series name
 Single output
 Output wattage

4)Universal input ⑤Output voltage

Optional *1
 C: with Coating
 J4: EP (TE Connectivity) connector type

S: with Chassis

SN: with Chassis & cover Y: with Potentiometer

For option details, refer to

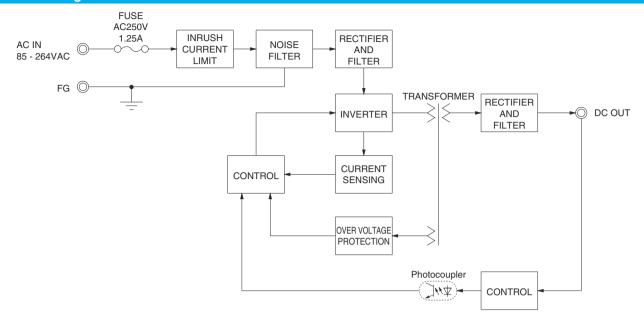
Instruction Manual 6.

This power supply is manufactured by SMD technology. The stress to PCB like twisting or bending causes the defect of the unit, so handle the unit with care. *Make sure necessary tests will be carried out on your end equipment with the power supply installed in accordance with any required EMC/EMI regulations.

MODEL	LHA10F-3R3-Y	LHA10F-5	LHA10F-12	LHA10F-15	LHA10F-24
MAX OUTPUT WATTAGE[W] *2	6.6	10	10.8	10.5	12
DC OUTPUT *2	3.3V 2A	5V 2A	12V 0.9A	15V 0.7A	24V 0.5A

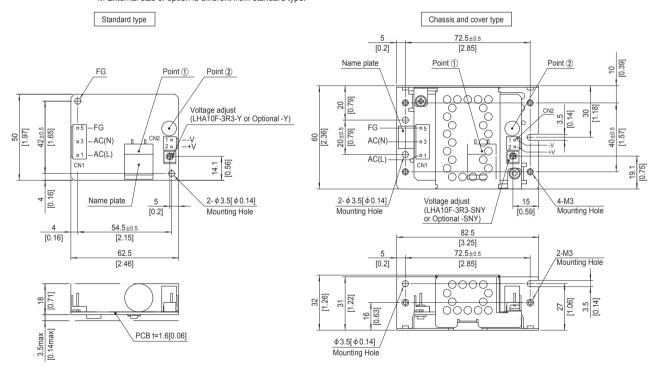
	MODEL		LHA10F-3R3-Y	LHA10F-5	LHA10F-12	LHA10F-15	LHA10F-24	
	VOLTAGE[VAC]	*2	85 - 264 1 φ (Refer to	"Derating" and Inst	ruction Manual 1.1)			
	CURRENT[A]	ACIN 100V	0.18typ	0.26typ				
	CURRENT[A]	ACIN 230V	0.10typ	0.14typ				
	FREQUENCY[Hz]		50 / 60 (45 - 440)					
NPUT	EFFICIENCY[%]	ACIN 100V	72.0typ	77.0typ	79.5typ	81.0typ	82.5typ	
	EFFICIENCY[%]	ACIN 230V	72.0typ	78.5typ	81.0typ	83.0typ	84.5typ	
	INRUSH CURRENT[A]	ACIN 100V	15typ (lo=100%)					
	INNUSH CURRENT[A]	ACIN 230V	35typ (lo=100%)					
	LEAKAGE CURREN	T[mA]	0.07 / 0.15max (ACIN	100V / 240V, 60H	z, Io=100%, According to	IEC62368-1, and DEN	I-AN)	
	VOLTAGE[V]		3.3	5	12	15	24	
	CURRENT[A]	*2	2.0	2.0	0.9	0.7	0.5	
	LINE REGULATION[mV] *3	20max	20max	48max	60max	96max	
	LOAD REGULATION	[mV] *3	40max	40max	100max	120max	150max	
	DIDDI EL V	0 to +60°C *7	80max	80max	120max	120max	120max	
	RIPPLE[mVp-p]	-10 to 0°C	140max	140max	160max	160max	160max	
	***	lo=0 to 25%	300max	300max	300max	300max	300max	
		0 to +60°C *7	120max	120max	150max	150max	150max	
UTPUT	RIPPLE NOISE[mVp-p]	-10 to 0°C	160max	160max	180max	180max	180max	
	**	lo=0 to 25%	360max	360max	360max	360max	360max	
	TEMPERATURE REGULATION[mV]	0 to +60°C *7	50max	50max	120max	150max	240max	
	TEMPERATURE REGULATION[mv]	-10 to +60℃ *7	60max	60max	150max	180max	290max	
	DRIFT[mV]	*5	20max	20max	48max	60max	96max	
	START-UP TIME[ms]		40typ (ACIN 100V, lo	40typ (ACIN 100V, lo=100%)				
	HOLD-UP TIME[ms]		20typ (ACIN 100V, lo=100%) / 150typ (ACIN 230V, lo=100%)					
	OUTPUT VOLTAGE ADJUSTMENT	RANGE[V]	2.85 to 3.63	2.85 to 3.63 Fixed ("Y"option is available for adjusting output voltage between ±10%)				
	OUTPUT VOLTAGE SET	TING[V]	3.30 to 3.40	4.90 to 5.30	11.50 to 12.50	14.40 to 15.60	23.00 to 25.00	
	OVERCURRENT PROT	ECTION	Works over 105% of	rating and recovers	automatically	·		
ROTECTION	OVERVOLTAGE PROTE	ECTION	4.00 to 6.00	5.75 to 8.00	13.80 to 18.00	17.25 to 23.30	27.60 to 34.50	
IRCUIT AND	OPERATING INDICA	TION	Not provided		·		·	
לחבווי	REMOTE SENSING		Not provided					
	INPUT-OUTPUT		AC3,000V 1minute, C	Cutoff current = 10m	A, DC500V 100MΩ mir	(At Room Temperature	e)	
SOLATION	INPUT-FG		AC2,000V 1minute, C	Cutoff current = 10m	A, DC500V 100MΩ mir	(At Room Temperature	e)	
	OUTPUT-FG		AC500V 1minute, Cutoff current = 25mA, DC500V 100M Ω min (At Room Temperature)					
	OPERATING TEMP., HUMID. AND A	ALTITUDE *2	-10 to +70°C, 20 - 90%RH (Non condensing), 5,000m (16,500feet) max					
NIN (IDONIMENT	STORAGE TEMP., HUMID. AND	ALTITUDE	-20 to +75°C, 20 - 90%RH (Non condensing), 9,000m (30,000feet) max					
NVIRONMENT	VIBRATION		10 - 55Hz, 19.6m/s ² (0 - 55Hz, 19.6m/s² (2G), 3minutes period, 60minutes each along X, Y and Z axis				
	IMPACT	196.1m/s² (20G), 11ms, once each X, Y and Z axis						
AFETY AND	AGENCY APPROVAL	LS	UL62368-1, C-UL (ed	quivalent to CAN/CS	SA-C22.2No.62368-1), E	N62368-1, Complies w	ith DEN-AN	
IOISE	CONDUCTED NOISE		Complies with FCC-E	B, VCCI-B, CISPR1	-B, CISPR32-B, EN550	11-B, EN55032-B		
REGULATIONS	HARMONIC ATTENU	JATOR *6			No built-in power factor			
	CASE SIZE/WEIGHT		50×21.5×62.5mm [1.97×0.85×2.46 ir	nches] (WXHXD) / 45g	max		
OTHERS	COOLING METHOD	*2	Convection/Forced air (Reguires external fan) (Refer to "Derating")					

- The listed options may affect the published standard specifications. Please contact us for detailed product specifications.
- Derating is required.
- At low load conditions, the burst mode operation will start. To check load regulation, you will
- need to measure the characteristics at average mode with instruments. This is the value that measured on measuring board with capacitor of 22 μ F and 0.1 μ F at 150mm from output terminal. Measured by 20MHz oscilloscope or Ripple-Noise meter (Equivalent to KEISOKU-GIKEN:RM104).
 - Ripple and ripple noise spec is change at lo=0 to 25% by burst operation. Audible noise may be generated.
- *****5 Drift is the change in DC output for an eight hour period after a half-hour warm-up at 25°C, with the input voltage held constant at the rated input/output.
- Please contact us about another class. When two or more units are operating it may not comply with the IEC61000-3-2. Please contact us for details.
- 3.3V, 5V, 12V output product, the maximum temperature of 55°C.
- To meet the specification, do not operate overload condition.
- Parallel operation is not possible.
- Sound noise may be generated by power supply in case of pulse load.



External view

* External size of option is different from standard type.



- % The back side of PCB of the power supply is assembled some
- Be careful not to bump against the attached area by vibration. W Use the spacer of 8mm [0.31] length or more for isolation.
- And do not use press-fitting bush.
- % Point ①, Point ② are thermometry points. Please refer to Instruction Manual 3.

I/O	Connector	Mating connector	Terminal	
CNIA	DODE VIII	VHR-5N	Chain	SVH-21T-P1.1
CNT	CN1 B3P5-VH	VHK-5IN	Loose	BVH-21T-P1.1
CNIO	DOD VIII	VHR-2N	Chain	SVH-21T-P1.1
CINZ	CN2 B2P-VH	VHR-ZN	Loose	BVH-21T-P1.1

(Mfr: J.S.T.)

- ※ I/O Connector is Mfr.J.S.T.
- ※ Option:-J4:EP (TE Connectivity) connector type.

CN2

CN₁

Pin No.	Input	Pin No.	Output	
1	AC(L)	4	-V	
2		'	-v	
3	AC(N)	2	+V	
4				
5	FG			

- % Pin No.2 and 4 is NC at CN1.

- Dimensions in mm, []=inches
 Tolerance: ±1 [±0.04]
 Weight: 45g max (with chassis and cover: 115g max)
- PCB Material / thickness : CEM-3 / 1.6mm [0.06]
 Optional chassis and cover material : Galvanizing steel board
- Mounting torque (Mounting hole of chassis): 1.5N m max

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*A higher current rating EMI/EMC filter may be recommended in view of the other devices that could be connected in parallel with the power supply.

- Series name
 Single output
 Output wattage
- 4)Universal input
- ⑤Output voltage
- Optional *1
 C: with Coating
 J4: EP (TE Connectivity) connector type
 - S: with Chassis
 - SN: with Chassis & cover Y: with Potentiometer

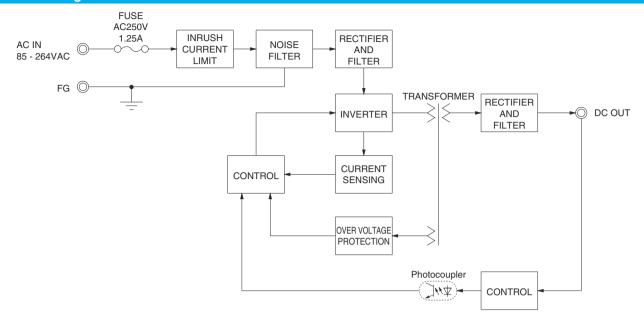
For option details, refer to Instruction Manual 6.

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MODEL	LHA15F-3R3-Y	LHA15F-5	LHA15F-12	LHA15F-15	LHA15F-24
MAX OUTPUT WATTAGE[W] *2	9.9	15	15.6	15	16.8
DC OUTPUT *2	3.3V 3A	5V 3A	12V 1.3A	15V 1.0	24V 0.7A

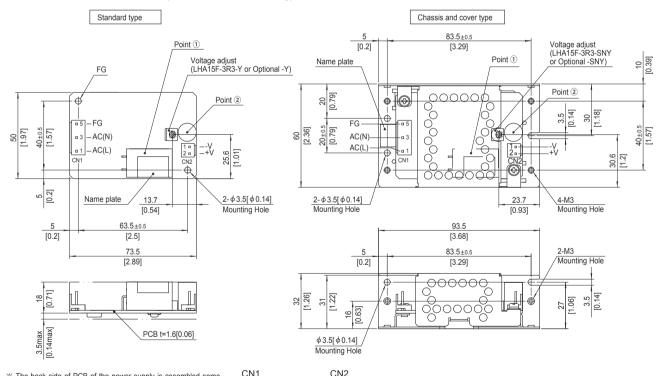
	MODEL		LHA15F-3R3-Y	LHA15F-5	LHA15F-12	LHA15F-15	LHA15F-24	
	VOLTAGE[VAC]	*2	85 - 264 1 φ (Refer to	"Derating" and Instructi	on Manual 1.1)			
	CURRENT[A]	ACIN 100V	0.24typ	0.35typ				
	CONNENT[A]	ACIN 230V	0.15typ	0.19typ				
FREQUENCY[H	FREQUENCY[Hz]		50 / 60 (45 - 440)					
NPUT	ACIN 100V 71.5typ 75.0typ				79.0typ	80.0typ	81.5typ	
	EFFICIENCI[%]	ACIN 230V	72.5typ	77.0typ	82.0typ	83.0typ	84.5typ	
	INRUSH CURRENT[A]	ACIN 100V	15typ (lo=100%) Ta=2	5℃ at cold start				
	INNUSH CONNENT[A]	ACIN 230V	35typ (lo=100%) Ta=2	5℃ at cold start				
	LEAKAGE CURREN	T[mA]	0.05 / 0.10max (ACIN	100V / 240V, 60Hz, lo=	=100%, According to IE	C62368-1, and DEN-A	V)	
	VOLTAGE[V]		3.3	5	12	15	24	
	CURRENT[A]		3.0	3.0	1.3	1.0	0.7	
	LINE REGULATION[20max	48max	60max	96max	
	LOAD REGULATION	[mV] *3	40max	40max	100max	120max	150max	
	DIDDI Elm\/m m3	0 to +60°C *7	80max	80max	120max	120max	120max	
	RIPPLE[mVp-p]	-10 to 0°C	140max	140max	160max	160max	160max	
		lo=0 to 25%	300max	300max	300max	300max	300max	
	DIDDLE MOIOEL-W1	0 to +60°C *7	120max	120max	150max	150max	150max	
DUTPUT	RIPPLE NOISE[mVp-p]	-10 to 0°C	160max	160max	180max	180max	180max	
	,	lo=0 to 25%	360max	360max	360max	360max	360max	
	TEMPERATURE REGULATION[mV]	0 to +60°C *7	50max	50max	120max	150max	240max	
	TEMIT ETIATORIE REGOLATION[IIIV]	-10 to +60°C * 7	60max	60max	150max	180max	290max	
	DRIFT[mV]	*5	20max	20max	48max	60max	96max	
	START-UP TIME[ms]			40typ (ACIN 100V, Io=100%)				
	HOLD-UP TIME[ms]	_	20typ (ACIN 100V, lo=100%) / 150typ (ACIN 230V, lo=100%)					
	OUTPUT VOLTAGE ADJUSTMENT	RANGE[V]	2.85 to 3.63	Fixed ("Y"option is ava	ailable for adjusting out	out voltage between ±1	0%)	
	OUTPUT VOLTAGE SET		3.30 to 3.40	4.90 to 5.30	11.50 to 12.50	14.40 to 15.60	23.00 to 25.00	
ROTECTION	OVERCURRENT PROT			ating and recovers auto				
IRCUIT AND	OVERVOLTAGE PROTI		4.00 to 6.00	5.75 to 8.00	13.80 to 18.00	17.25 to 23.30	27.60 to 34.50	
THERS	OPERATING INDICA	TION	Not provided					
	REMOTE SENSING		Not provided	1	4	4		
	INPUT-OUTPUT		, ,		C500V 100M Ω min (A			
SOLATION	INPUT-FG		, ,		C500V 100M Ω min (A			
	OUTPUT-FG		,		500V 100M Ω min (At F			
	OPERATING TEMP., HUMID. AND A		-10 to +70°C, 20 - 90%RH (Non condensing), 5,000m (16,500feet) max					
NVIRONMENT	STORAGE TEMP.,HUMID.AND ALTITUDE				, 9,000m (30,000feet) n			
	VIBRATION		10 - 55Hz, 19.6m/s² (2G), 3minutes period, 60minutes each along X, Y and Z axis					
	IMPACT 196.1m/s² (20G), 11ms, once each X, Y and Z axis D AGENCY APPROVALS UL62368-1, C-UL (equivalent to CAN/CSA-C22.2No.62368-1), EN62368-1, Complies with DE							
AFETY AND	AGENCY APPROVA						DEN-AN	
IOISE	CONDUCTED NOISE				CISPR32-B, EN55011-I			
REGULATIONS	HARMONIC ATTENU				uilt-in power factor corr			
OTHERS	CASE SIZE/WEIGHT				s] (W×H×D) / 60g ma	X		
	COOLING METHOD	*2	Convection/Forced air	(Requires external fan) (Refer to "Derating")			

- The listed options may affect the published standard specifications. Please contact us for detailed product specifications.
- Derating is required.
- At low load conditions, the burst mode operation will start. To check load regulation, you will need to measure the characteristics at average mode with instruments. This is the value that measured on measuring board with capacitor of 22 μ F and 0.1 μ F
- at 150mm from output terminal. Measured by 20MHz oscilloscope or Ripple-Noise meter (Equivalent to KEISOKU-GIKEN:RM104).
 - Ripple and ripple noise spec is change at lo=0 to 25% by burst operation. Audible noise may be generated.
- Drift is the change in DC output for an eight hour period after a half-hour warm-up at 25°C, with the input voltage held constant at the rated input/output.
- Please contact us about another class. When two or more units are operating it may not comply with the IEC61000-3-2. Please contact us for details
- 3.3V, 5V, 12V output product, the maximum temperature of 55°C.
- To meet the specification, do not operate overload condition.
- Parallel operation is not possible
- Sound noise may be generated by power supply in case of pulse load.



External view

* External size of option is different from standard type.



- * The back side of PCB of the power supply is assembled some SMDs.
- Be careful not to bump against the attached area by vibration.
- * Use the spacer of 8mm [0.31] length or more for isolation. And do not use press-fitting bush.
- % Point ①, Point ② are thermometry points. Please refer to Instruction Manual 3.

I/O	Connector	Mating connector	Terminal	
ONIA	DODE VIII	VHR-5N	Chain	SVH-21T-P1.1
CNT	CN1 B3P5-VH	VHK-5IN	Loose	BVH-21T-P1.1
ONIO	DOD VIII	VHR-2N	Chain	SVH-21T-P1.1
CN2 B2P-VH	VHR-ZN	Loose	BVH-21T-P1.1	

(Mfr: J.S.T.)

- * I/O Connector is Mfr.J.S.T.
- ※ Option:-J4:EP (TE Connectivity) connector type.
- Pin No 2 3 4 5

CN2									
Input		Pin No.	Output						
AC(L)		1	-V						
AC(N)		2	+V						
FG	1								

- % Pin No.2 and 4 is NC at CN1.

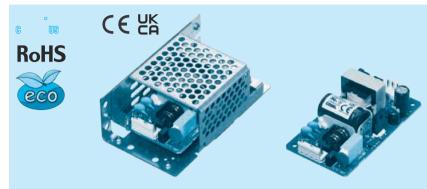
- Dimensions in mm, []=inches
 Tolerance: ±1 [±0.04]
 Weight: 60g max (with chassis and cover: 140g max)
- # PCB Material / thickness : CEM-3 / 1.6mm [0.06]

 Optional chassis and cover material : Galvanizing steel board

 Mounting torque (Mounting hole of chassis) : 1.5N m max

LHA30F

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Example recommended EMI/EMC filter

High voltage pulse noise type : EAP series Low leakage current type : EAM series

*A higher current rating EMI/EMC filter may be recommended in view of the other devices that could be connected in parallel with the power supply.

- Series name
 Single output
 Output wattage
- 4)Universal input
- ⑤Output voltage
- Optional *1
 C : with Coating
 G: Low leakage current J4 : EP (TE Connectivity) connector type
 - S: with Chassis
 - SN: with Chassis & cover
- Y: with Potentiometer

For option details, refer to Instruction Manual 6.

This power supply is manufactured by SMD technology. The stress to PCB like twisting or bending causes the defect of the unit, so handle the unit with care. *Make sure necessary tests will be carried out on your end equipment with the power supply installed in accordance with any required EMC/EMI regulations.

MODEL	LHA30F-3R3-Y	LHA30F-5	LHA30F-12	LHA30F-15	LHA30F-24
MAX OUTPUT WATTAGE[W] *2	19.8	30	30	30	31.2
DC OUTPUT *2	3.3V6A	5V6A	12V2.5A	15V2A	24V1.3A

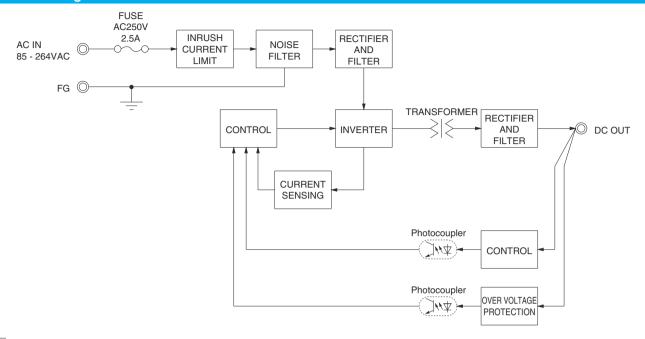
SPECIFICATIONS

	MODEL		LHA30F-3R3-Y	LHA30F-5	LHA30F-12	LHA30F-15	LHA30F-24	
	VOLTAGE[VAC]	*2	85 - 264 1 φ (Refer to	"Derating" and Instruc	tion Manual 1.1)			
	CURRENT[A]	ACIN 100V	0.42typ	0.62typ				
	CONNENT[A]	ACIN 230V	0.23typ	0.32typ				
FREQUENCY[Hz]		50 / 60 (45 - 440)						
INPUT	EFFICIENCY[%]	ACIN 100V	83.0typ	83.0typ	85.0typ	85.5typ	87.0typ	
	EFFICIENCI[/6]	ACIN 230V	85.5typ	87.0typ	88.5typ	89.0typ	90.0typ	
	INRUSH CURRENT[A]	ACIN 100V	15typ (lo=100%) Ta=2					
	INNOSTI CONNENT[A]	ACIN 230V	35typ (lo=100%) Ta=2	25℃ at cold start				
	LEAKAGE CURREN	T[mA]	0.20 / 0.45max (ACIN	100V / 240V 60Hz, k	=100%, According to	IEC62368-1 and DEN-	AN)	
	VOLTAGE[V]		3.3	5	12	15	24	
	CURRENT[A]	*2	6.0	6.0	2.5	2.0	1.3	
	LINE REGULATION[20max	20max	48max	60max	96max	
	LOAD REGULATION			40max	100max	120max	150max	
	DIDDI ElmVn n3	0 to +50°C		80max	120max	120max	120max	
	RIPPLE[mVp-p]	-10 to 0℃	140max	140max	160max	160max	160max	
			300max	300max	300max	300max	300max	
	DIDDI E NOICEIMV:1		120max	120max	150max	150max	150max	
DUTPUT	RIPPLE NOISE[mVp-p] *4	-10 to 0℃	160max	160max	180max	180max	180max	
		lo=0 to 15%	360max	360max	360max	360max	360max	
	TEMPERATURE REGULATION[mV]	0 to +50°C		50max	120max	150max	240max	
	TEMPERATURE REQUESTION[IIIV]	-10 to +50°C	60max	60max	150max	180max	290max	
	DRIFT[mV]	*5	20max	20max	48max	60max	96max	
	START-UP TIME[ms]		40typ (ACIN 100V, Io=100%)					
	HOLD-UP TIME[ms]		25typ (ACIN 100V, lo=100%) / 170typ (ACIN 230V, lo=100%)					
	OUTPUT VOLTAGE ADJUSTMENT		2.85 to 3.63	<u> </u>	, ,	utput voltage between :		
	OUTPUT VOLTAGE SET	TING[V]	3.30 to 3.40	4.90 to 5.30	11.50 to 12.50	14.40 to 15.60	23.00 to 25.00	
PROTECTION	OVERCURRENT PROT	ECTION		ating and recovers aut	omatically			
CIRCUIT AND	OVERVOLTAGE PROTE		4.00 to 5.25	5.75 to 7.00	13.80 to 16.80	17.25 to 21.00	27.60 to 33.60	
OTHERS	OPERATING INDICA	TION	Not provided					
	REMOTE SENSING		Not provided		1	1		
,	INPUT-OUTPUT		, ,			At Room Temperature)		
SOLATION	INPUT-FG		, ,	AC2,000V 1minute, Cutoff current = 10mA, DC500V 100M Ω min (At Room Temperature)				
	OUTPUT-FG		,	toff current = 25mA, Do				
,	OPERATING TEMP., HUMID. AND A			%RH (Non condensing				
ENVIRONMENT	STORAGE TEMP., HUMID. AND	ALTITUDE		%RH (Non condensing	,, , , , ,			
	VIBRATION			2G), 3minutes period,		X, Y and Z axis		
	IMPACT	_		ns, once each X, Y and				
SAFETY AND	AGENCY APPROVAL					62368-1, Complies wit	h DEN-AN	
NOISE	CONDUCTED NOISE			, VCCI-B, CISPR11-B,				
REGULATIONS	HARMONIC ATTENU			000-3-2 (Class A) (No				
OTHERS	CASE SIZE/WEIGHT		•			ax (with chassis & cove	er : 210g max)	
· · · · · · ·	COOLING METHOD	*2	Convection/Forced ai	r (Requires external fa	n) (Refer to "Derating")			

- The listed options may affect the published standard specifications. Please contact us for detailed product specifications.
- Derating is required.
- At low load conditions, the burst mode operation will start. To check load regulation, you will
- need to measure the characteristics at average mode with instruments. This is the value that measured on measuring board with capacitor of 22 μ F and 0.1 μ F at 150mm from output terminal. Measured by 20MHz oscilloscope or Ripple-Noise meter (Equivalent to KEISOKU-GIKEN:RM104). Ripple and ripple noise spec is change at lo=0 to 15% by burst operation.
- Drift is the change in DC output for an eight hour period after a half-hour warm-up at 25°C, with the input voltage held constant at the rated input/output.
- Please contact us about another class. When two or more units are operating it may not comply with the IEC61000-3-2. Please contact us for details.
- To meet the specification, do not operate overload condition
- Parallel operation is not possible.
- Sound noise may be generated by power supply in case of pulse load.

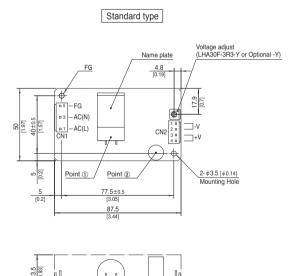
LHA-6 December 27, 2022 www.cosel.co.jp/en/

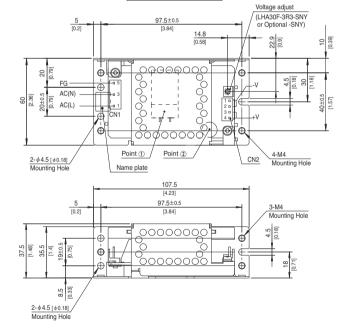




External view

* External size of option is different from standard type.





Chassis and cover type

 $\ensuremath{\,\times\,}$ The back side of PCB of the power supply is assembled some SMDs.

PCB t=1.6 [0.06]

- Be careful not to bump against the attached area by vibration.
- W Use the spacer of 8mm [0.31] length or more for isolation. And do not use press-fitting bush.
- $\ensuremath{\,\times\,}$ Point ①, Point ② are thermometry points. Please refer to Instruction Manual 3.

1/0 (Connector	Mating connector		Terminal
ONIA	DODE VIII	VHR-5N	Chain	SVH-21T-P1.1
CNT	CN1 B3P5-VH	VHK-5IN	Loose	BVH-21T-P1.1
ONIO	B4P-VH	VHR-4N	Chain	SVH-21T-P1.1
CNZ	B4P-VH	VHR-4N	Loose	BVH-21T-P1.1

(Mfr: J.S.T.)

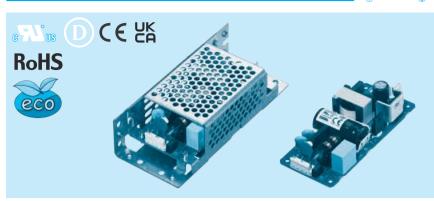
- % I/O Connector is Mfr.J.S.T.
- ※ Option:-J4:EP (TE Connectivity) connector type.
- Pin No. 2 3 4

CN1

CN2								
Input		Pin No.	Output					
AC(L)		1, 2	-V					
		1, 2	-v					
AC(N)		3, 4	+V					
		3, 4	ΨV					
FG								

- * Pin No.2 and 4 is NC at CN1.
- ※ Keep drawing current per pin below 5A for CN2.
- ※ Dimensions in mm, []=inches
- ※ Tolerance: ±1 [±0.04]
- Weight: 100g max (with chassis and cover: 210g max)
- ※ PCB Material / thickness : FR-4 / 1.6mm [0.06]
- ※ Optional chassis and cover material : Galvanizing steel board
- Mounting torque (Mounting hole of chassis): 1.5N·m max

50



Example recommended EMI/EMC filter EAC-03-472

High voltage pulse noise type : EAP series Low leakage current type : EAM series

*A higher current rating EMI/EMC filter

may be recommended in view of the other devices that could be connected in parallel with the power supply.

- Series name
 Single output
 Output wattage
- 4)Universal input
- ⑤Output voltage
- Optional *1
 C : with Coating
 G: Low leakage current
 - J4 : EP (TE Connectivity) connector type
 - S: with Chassis SN: with Chassis & cover
- Y: with Potentiometer

For option details, refer to Instruction Manual 6.

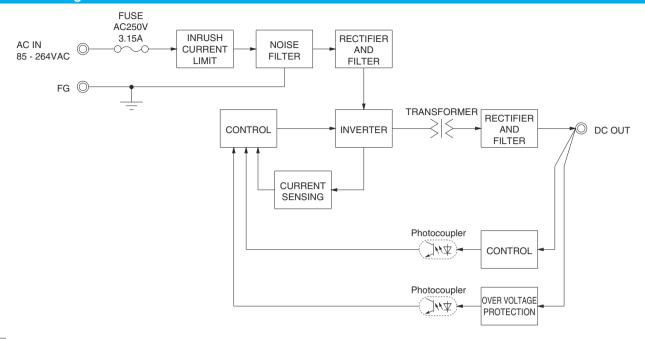
This power supply is manufactured by SMD technology. The stress to PCB like twisting or bending causes the defect of the unit, so handle the unit with care. *Make sure necessary tests will be carried out on your end equipment with the power supply installed in accordance with any required EMC/EMI regulations.

MODEL	LHA50F-3R3-Y	LHA50F-5	LHA50F-12	LHA50F-15	LHA50F-24	LHA50F-36	LHA50F-48
MAX OUTPUT WATTAGE[W] *2	26.4	40	51.6	52.5	50.4	50.4	52.8
DC OUTPUT *2	3.3V8A	5V8A	12V4.3A	15V3.5A	24V2.1A	36V1.4A	48V1.1A

	MODEL		LHA50F-3R3-Y	LHA50F-5	LHA50F-12	LHA50F-15	LHA50F-24	LHA50F-36	LHA50F-48
	VOLTAGE[VAC]	*2	85 - 264 1 φ (R	efer to "Derating	" and Instruction	Manual 1.1)			
	CUDDENTIAL	ACIN 100V	0.56typ	0.82typ	1.05typ				
	CURRENT[A]	ACIN 230V	0.30typ	0.42typ	0.52typ				
	FREQUENCY[Hz]		50 / 60 (45 - 44	0)					
INPUT	EEEIOIENOVIO/1	ACIN 100V	80.0typ	83.0typ	87.0typ	85.5typ	86.0typ	86.5typ	86.5typ
	EFFICIENCY[%]	ACIN 230V	83.5typ	86.5typ	90.5typ	89.0typ	89.0typ	90.0typ	90.0typ
	INDUCUI QUEDENTIAL	ACIN 100V	15typ (lo=100%	a) Ta=25℃ at col	d start		, , ,	, , ,	, , ,
	INRUSH CURRENT[A]	ACIN 230V	35typ (lo=100%	at col	d start				
	LEAKAGE CURREN	T[mA]	0.30 / 0.65max	(ACIN 100V / 24	0V 60Hz, lo=10	00%, According t	o IEC62368-1 ar	nd DEN-AN)	
	VOLTAGE[V]		3.3	5	12	15	24	36	48
	CURRENT[A]	*2	8.0	8.0	4.3	3.5	2.1	1.4	1.1
	LINE REGULATION	mV] *3	20max	20max	48max	60max	96max	144max	192max
	LOAD REGULATION	I[mV] *3	40max	40max	100max	120max	150max	240max	240max
RIPPLE[mVp-p]		0 to +50℃		80max	120max	120max	120max	150max	150max
	RIPPLE[mVp-p]	-10 to 0℃	140max	140max	160max	160max	160max	200max	200max
	* 4	lo=0 to 15%	300max	300max	300max	300max	300max	300max	300max
OUTPUT RIPPLE NOISE[mVp-p		0 to +50°C	120max	120max	150max	150max	150max	250max	250max
	RIPPLE NOISE[mVp-p]	-10 to 0℃	160max	160max	180max	180max	180max	300max	300max
	*4.	lo=0 to 15%	360max	360max	360max	360max	360max	360max	360max
	TEMPERATURE REGULATION[mV]	0 to +50°C	50max	50max	120max	150max	240max	360max	480max
		-10 to +50°C	60max	60max	150max	180max	290max	450max	600max
	DRIFT[mV]	*5		20max	48max	60max	96max	144max	192max
	START-UP TIME[ms]		40typ (ACIN 10	0V, lo=100%)		'			'
	HOLD-UP TIME[ms]		20typ (ACIN 100V, Io=100%) / 140typ (ACIN 230V, Io=100%)						
	OUTPUT VOLTAGE ADJUSTMENT	RANGE[V]	2.85 to 3.63	Fixed ("Y"option	n is available for	adjusting output	voltage between	±10%)	
	OUTPUT VOLTAGE SET	TING[V]	3.30 to 3.40	4.90 to 5.30	11.50 to 12.50	14.40 to 15.60	23.00 to 25.00	34.50 to 37.50	46.00 to 50.00
	OVERCURRENT PROT	ECTION	Works over 105	% of rating and	recovers automa	atically			•
ROTECTION	OVERVOLTAGE PROTE	ECTION	4.00 to 5.25	5.75 to 7.00	13.80 to 16.80	17.25 to 21.00	27.60 to 33.60	41.40 to 50.40	55.20 to 67.20
IRCUIT AND	OPERATING INDICA	TION	Not provided				·		
ITIENS	REMOTE SENSING		Not provided						
	INPUT-OUTPUT		AC3,000V 1mir	ute, Cutoff curre	nt = 10mA, DC5	$000V~100M\Omega~mir$	n (At Room Temp	perature)	
SOLATION	INPUT-FG		AC2,000V 1mir	ute, Cutoff curre	nt = 10mA, DC5	$000V~100M\Omega~mir$	n (At Room Temp	perature)	
	OUTPUT-FG		AC500V 1minu	te, Cutoff current	= 25mA, DC500	0V 100M Ω min (At Room Tempe	rature)	
	OPERATING TEMP., HUMID. AND A	ALTITUDE *2	-10 to +70°C, 20	0 - 90%RH (Non	condensing), 5,	000m (16,500fee	et) max		
NI/IDONIAENT	STORAGE TEMP., HUMID. AND	ALTITUDE	-20 to +75°C, 20	0 - 90%RH (Non	condensing), 9,	000m (30,000fee	et) max		
NVIRONMENT	VIBRATION		-20 to +75°C, 20 - 90%RH (Non condensing), 9,000m (30,000feet) max 10 - 55Hz, 19.6m/s² (2G), 3minutes period, 60minutes each along X, Y and Z axis						
	IMPACT		196.1m/s² (20G), 11ms, once each X, Y and Z axis						
AFETY AND	AGENCY APPROVAL	LS	UL62368-1, C-I	JL (equivalent to	CAN/CSA-C22.	.2No.62368-1), E	N62368-1, Com	plies with DEN-A	N
OISE	CONDUCTED NOISE	•	Complies with F	CC-B, VCCI-B,	CISPR11-B, CIS	SPR32-B, EN550	11-B, EN55032-	В	
EGULATIONS	HARMONIC ATTENU	JATOR *6				t-in power factor			
	CASE SIZE/WEIGHT		50×27×112m	m [1.97×1.07×	4.41 inches] (W	XHXD) / 140g r	nax (with chassis	s & cover : 280g i	max)
OTHERS	COOLING METHOD	*2	Convection/For	ced air (Requires	s external fan) (F	Refer to "Derating	1")		

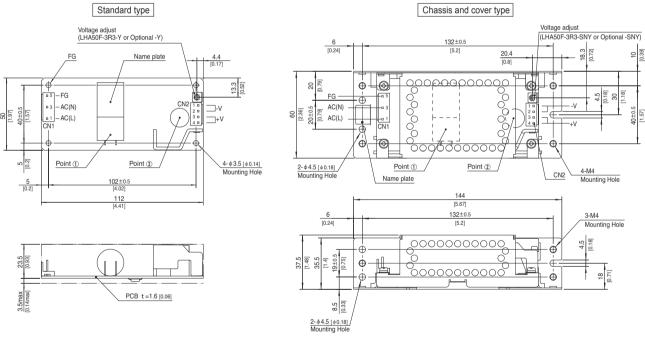
- The listed options may affect the published standard specifications. Please contact us for detailed product specifications.
- Derating is required.
- At low load conditions, the burst mode operation will start. To check load regulation, you
- will need to measure the characteristics at average mode with instruments. This is the value that measured on measuring board with capacitor of 22 μ F and 0.1 μ F at 150mm from output terminal. Measured by 20MHz oscilloscope or Ripple-Noise meter (Equivalent to KEISOKU-GIKEN:RM104). Ripple and ripple noise spec is change at lo=0 to 15% by burst operation.
- Drift is the change in DC output for an eight hour period after a half-hour warm-up at 25°C, with the input voltage held constant at the rated input/output.
- Please contact us about another class. When two or more units are operating it may not comply with the IEC61000-3-2. Please contact us for details.
- To meet the specification, do not operate overload condition
- Parallel operation is not possible.
- Sound noise may be generated by power supply in case of pulse load.





External view

* External size of option is different from standard type.



- $\ensuremath{\,\times\,}$ The back side of PCB of the power supply is assembled some SMDs.
- Be careful not to bump against the attached area by vibration. W Use the spacer of 8mm [0.31] length or more for isolation. And do not use press-fitting bush.
- * Point ①, Point ② are thermometry points. Please refer to Instruction Manual 3.

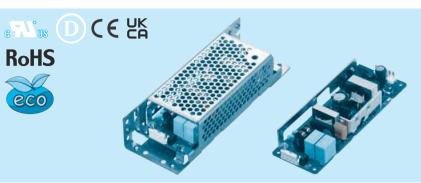
I/O	Connector	Mating connector			
ONIA	DODE VIII	VIIID EN	Chain	SVH-21T-P1.1	
CNT	B3P5-VH	VHR-5N	Loose	BVH-21T-P1.1	
ONIO	B4P-VH	VHR-4N	Chain	SVH-21T-P1.1	
CN2	B4P-VH	VHR-4N	Loose	BVH-21T-P1.1	

(Mfr: J.S.T.)

- % I/O Connector is Mfr.J.S.T.
- ※ Option:-J4:EP (TE Connectivity) connector type.
- CN2 CN1 Pin No. Pin No. Output Input AC(L) 1, 2 -V AC(N) 3 3. 4 4 FG
- ※ Pin No.2 and 4 is NC at CN1.
- ※ Keep drawing current per pin below 5A for CN2.
- ※ Dimensions in mm, []=inches
- % Tolerance : ±1 [±0.04]
- Weight: 140g max (with chassis and cover: 280g max)
- ※ PCB Material / thickness : FR-4 / 1.6mm [0.06]
- ※ Optional chassis and cover material : Galvanizing steel board
- Mounting torque (Mounting hole of chassis): 1.5N·m max

LHA75F

A 75 F



Example recommended EMI/EMC filter

High voltage pulse noise type : EAP series Low leakage current type : EAM series

*A higher current rating EMI/EMC filter

may be recommended in view of the other devices that could be connected in parallel with the power supply.

- Series name
 Single output
 Output wattage 4)Universal input
- ⑤Output voltage
- Optional *1
 C : with Coating
 G: Low leakage current
 - J4 : EP (TE Connectivity) connector type
 - S: with Chassis
 - SN: with Chassis & cover
- Y: with Potentiometer

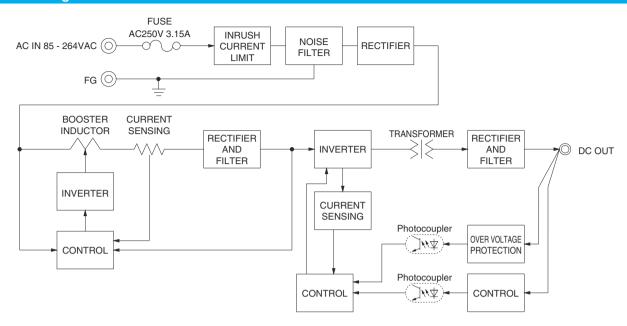
For option details, refer to Instruction Manual 6.

This power supply is manufactured by SMD technology. The stress to PCB like twisting or bending causes the defect of the unit, so handle the unit with care. *Make sure necessary tests will be carried out on your end equipment with the power supply installed in accordance with any required EMC/EMI regulations.

MODEL	LHA75F-3R3-Y	LHA75F-5	LHA75F-12	LHA75F-15	LHA75F-24	LHA75F-36	LHA75F-48
MAX OUTPUT WATTAGE[W] *2	39.6	60	75.6	75	76.8	75.6	76.8
DC OUTPUT *2	3.3V12A	5V12A	12V6.3A	15V5A	24V3.2A	36V2.1A	48V1.6A

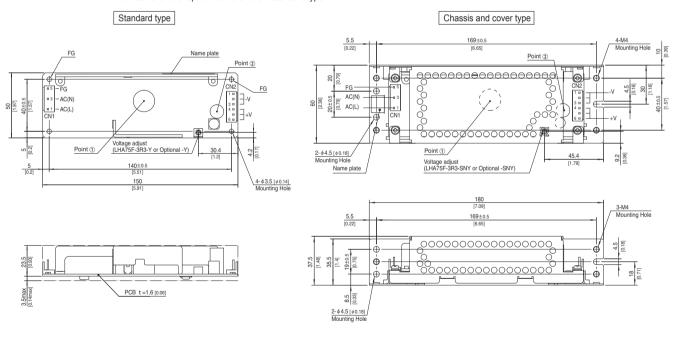
	MODEL		LHA75F-3R3-Y	LHA75F-5	LHA75F-12	LHA75F-15	LHA75F-24	LHA75F-36	LHA75F-48
	VOLTAGE[VAC]	*2	85 - 264 1 φ (R	efer to "Derating	and Instruction	Manual 1.1)			
	CURRENT[A]	ACIN 100V	71	0.8typ	0.9typ				
	CONNENT[A]	ACIN 230V		0.4typ	0.5typ				
	FREQUENCY[Hz]		50 / 60 (45 - 66))					
ΙΔ		ACIN 100V	74.0typ	79.0typ	84.5typ	85.5typ	86.0typ	87.5typ	87.5typ
	EFFICIENCY[%]	ACIN 230V	75.0typ	81.0typ	86.5typ	87.5typ	88.0typ	89.5typ	89.5typ
	ACIN 100V	0.96typ	0.97typ						
	POWER FACTOR (10=100%)	ACIN 230V	0.70typ	0.80typ					
	INRUSH CURRENT[A]	ACIN 100V	15typ (lo=100%	at col	d start				
	INNUSH CONNENT[A]	ACIN 230V		at col					
	LEAKAGE CURREN	T[mA]	0.40 / 0.75max	(ACIN 100V / 24	0V 60Hz, lo=10	00%, According	to IEC62368-1 ar	nd DEN-AN)	
	VOLTAGE[V]		3.3	5	12	15	24	36	48
	CURRENT[A]	*2	12.0	12.0	6.3	5.0	3.2	2.1	1.6
	LINE REGULATION[mV] *3	20max	20max	48max	60max	96max	144max	192max
	LOAD REGULATION	[mV] *3	40max	40max	100max	120max	150max	240max	240max
RIPPLE[mVp-p] *4	0 to +50°C *7	80max	80max	120max	120max	120max	150max	150max	
	-10 to 0℃	140max	140max	160max	160max	160max	200max	200max	
	***	lo=0 to 15%	300max	300max	360max	500max	500max	500max	500max
OUTPUT RIPPLE NOISE[mVp-p]	0 to +50°C *7	120max	120max	150max	150max	150max	250max	250max	
	-10 to 0℃	160max	160max	180max	180max	180max	300max	300max	
		lo=0 to 15%	360max	360max	400max	600max	600max	600max	600max
	TEMPEDATIDE DECIII ATION(mV)	0 to +50°C *7	50max	50max	120max	150max	240max	360max	480max
	TEMPERATURE REGULATION[MV]	-10 to +50°C *7	60max	60max	150max	180max	290max	450max	600max
	DRIFT[mV]	*5	20max	20max	48max	60max	96max	144max	192max
	START-UP TIME[ms]		100typ (ACIN 1	00V, Io=100%)					
	HOLD-UP TIME[ms]		20typ (ACIN 100V, Io=100%)						
	OUTPUT VOLTAGE ADJUSTMENT	RANGE[V]	2.85 to 3.63	Fixed ("Y"option		djusting output vo	oltage between ±	10%)	
	OUTPUT VOLTAGE SET	TING[V]	3.30 to 3.40	4.90 to 5.30	11.50 to 12.50	14.40 to 15.60	23.00 to 25.00	34.50 to 37.50	46.00 to 50.00
POTEOTION	OVERCURRENT PROT	ECTION	Works over 105	% of rating and	recovers automa	atically		-	
ROTECTION RICUIT AND	OVERVOLTAGE PROTE	CTION	4.00 to 5.25	5.75 to 7.00	13.80 to 16.80	17.25 to 21.00	27.60 to 33.60	41.40 to 50.40	55.20 to 67.20
THERS	OPERATING INDICA	TION	Not provided						
ITIENS	REMOTE SENSING		Not provided						
	INPUT-OUTPUT		AC3,000V 1minute, Cutoff current = 10mA, DC500V 100MΩ min (At Room Temperature)						
SOLATION	INPUT-FG		AC2,000V 1min	ute, Cutoff curre	nt = 10mA, DC5	$000V~100 \mathrm{M}\Omega$ mi	n (At Room Temp	perature)	
	OUTPUT-FG		AC500V 1minut	te, Cutoff current	= 25mA, DC500	0V 100M Ω min	(At Room Tempe	rature)	
	OPERATING TEMP., HUMID. AND A	ALTITUDE *2	-10 to +70°C, 20	0 - 90%RH (Non	condensing), 5,	000m (16,500fe	et) max		
NVIRONMENT	STORAGE TEMP., HUMID. AND	ALTITUDE	-20 to +75°C, 20	0 - 90%RH (Non	condensing), 9,	000m (30,000fe	et) max		
INVINUINIENI	VIBRATION		10 - 55Hz, 19.6	m/s² (2G), 3minu	ites period, 60m	inutes each alor	ng X, Y and Z axis	s	
	IMPACT), 11ms, once ea					
AFETY AND	AGENCY APPROVAL	_S	UL62368-1, C-l	JL (equivalent to	CAN/CSA-C22.	.2No.62368-1), E	N62368-1, Com	plies with DEN-A	N.
IOISE	CONDUCTED NOISE		Complies with F	CC-B, VCCI-B,	CISPR11-B, CIS	SPR32-B, EN550	011-B, EN55032-	В	
EGULATIONS	HARMONIC ATTENU	IATOR *6		EC61000-3-2 (C					
THERE	CASE SIZE/WEIGHT		50×27×150mi	m [1.97×1.07×5	5.91 inches] (W X	(H×D) / 190g m	ax (with chassis	& cover : 370g m	nax)
OTHERS CASE SIZE/WEIGHT COOLING METHOD *			Convection/Ford						

- The listed options may affect the published standard specifications. Please contact us for detailed product specifications.
- Derating is required.
- At low load conditions, the burst mode operation will start. To check load regulation, you
- will need to measure the characteristics at average mode with instruments. This is the value that measured on measuring board with capacitor of 22 μ F and 0.1 μ F at 150mm from output terminal. Measured by 20MHz oscilloscope or Ripple-Noise meter (Equivalent to KEISOKU-GIKEN:RM104).
- Ripple and ripple noise spec is change at lo=0 to 15% by burst operation.
- Drift is the change in DC output for an eight hour period after a half-hour warm-up at 25°C, with the input voltage held constant at the rated input/output.
- Please contact us about another class.
- 3.3V and 5V output product, the maximum temperature of 40°C. To meet the specification, do not operate overload condition.
- Parallel operation is not possible.
- Sound noise may be generated by power supply in case of pulse load.



External view

* External size of option is different from standard type.



- $\ensuremath{\,\times\,}$ The back side of PCB of the power supply is assembled some SMDs.
- Be careful not to bump against the attached area by vibration. W Use the spacer of 8mm [0.31] length or more for isolation.
- And do not use press-fitting bush.
- % Point ①, Point ② are thermometry points. Please refer to Instruction Manual 3.

I/O	Connector	Mating connector			
ONIA	DODE VIII	VILID EN	Chain	SVH-21T-P1.1	
CNT	B3P5-VH	VHR-5N	Loose	BVH-21T-P1.1	
ONIO	B6P-VH	V/LID ON	Chain	SVH-21T-P1.1	
CN2	B6P-VH	VHR-6N	Loose	BVH-21T-P1.1	

(Mfr: J.S.T.)

- % I/O Connector is Mfr.J.S.T.
- ※ Option:-J4:EP (TE Connectivity) connector type.

CN1		CN2	
Pin No.	Input	Pin No.	Outpu
1	AC(L)	1 to 3	-V
2		1 10 3	-v
3	AC(N)	4 to 6	+V
4		4 10 6	+v
-	FG		

- * Pin No.2 and 4 is NC at CN1.
- ※ Keep drawing current per pin below 5A for CN2.
- * Dimensions in mm, []=inches
- % Tolerance : ±1 [±0.04]
- Weight: 190g max (with chassis and cover: 370g max)
- * PCB Material / thickness : FR-4 / 1.6mm [0.06]
- ※ Optional chassis and cover material : Galvanizing steel board

LHA100F

100



Example recommended EMI/EMC filter EAC-03-472

High voltage pulse noise type : EAP series

Low leakage current type : EAM series

*A higher current rating EMI/EMC filter

may be recommended in view of the other devices that could be connected in parallel with the power supply.

Series name
 Single output
 Output wattage

4)Universal input

⑤Output voltage

Optional *1
 C: with Coating
 G: Low leakage current

J4 : EP (TE Connectivity) connector type R2: with Remote ON/OFF

S: with Chassis

SN: with Chassis & cover

Y: with Potentiometer

For option details, refer to Instruction Manual 6.

This power supply is manufactured by SMD technology. The stress to PCB like twisting or bending causes the defect of the unit, so handle the unit with care. *Make sure necessary tests will be carried out on your end equipment with the power supply installed in accordance with any required EMC/EMI regulations.

					-	
MODEL	LHA100F-5	LHA100F-12	LHA100F-15	LHA100F-24	LHA100F-36	LHA100F-48
MAX OUTPUT WATTAGE[W] *2	75	102	100.5	103.2	100.8	100.8
DC OUTPUT *2	5V15A	12V8.5A	15V6.7A	24V4.3A	36V2.8A	48V2.1A

	MODEL		LHA100F-5	LHA100F-12	LHA100F-15	LHA100F-24	LHA100F-36	LHA100F-48	
L	VOLTAGE[VAC]	*2	85 - 264 1 φ (Refe	er to "Derating" and	Instruction Manual	l 1.1)			
	CURRENT[A]	ACIN 100V	1.0typ	1.2typ					
Ľ	CONNENT[A]	ACIN 230V		0.6typ					
	FREQUENCY[Hz]		50 / 60 (45 - 66)						
	EFFICIENCY[%]	ACIN 100V	82.0typ	87.0typ	88.0typ	86.5typ	87.0typ	87.0typ	
IPUT	EFFICIENCY[%]	ACIN 230V	84.0typ	89.0typ	90.0typ	89.0typ	89.0typ	89.0typ	
	POWER FACTOR (Io=100%)	ACIN 100V	0.97typ	0.97typ					
Ľ	POWER PACTOR (IO=100%)	ACIN 230V	0.83typ	0.87typ					
	INRUSH CURRENT[A]	ACIN 100V		a=25°C at cold sta					
Ľ	INNOSTI CONNENT[A]	ACIN 230V	71 \	a=25°C at cold sta					
	LEAKAGE CURREN	T[mA]				cording to IEC6236	8-1 and DEN-AN)		
	VOLTAGE[V]		5	12	15	24	36	48	
	CURRENT[A]	*2	15.0	8.5	6.7	4.3	2.8	2.1	
⊢	LINE REGULATION[48max	60max	96max	144max	192max	
	LOAD REGULATION		40max	100max	120max	150max	240max	240max	
RIPPLE[mVp-p]	0 to +50°C *7		120max	120max	120max	150max	150max		
	*4		140max	160max	160max	160max	200max	200max	
			300max	360max	500max	500max	500max	500max	
RIPPLE NOISE[mVp-p]	0 to +50°C *7	120max	150max	150max	150max	250max	250max		
UTPUT	NIPPLE NOISE[IIIVP-P] *4	-10 to 0℃	160max	180max	180max	180max	300max	300max	
		lo=0 to 15%	360max	400max	600max	600max	600max	600max	
.	TEMPERATURE REGULATION[mV]	0 to +50°C *7	50max	120max	150max	240max	360max	480max	
		-10 to +50°C *7	60max	150max	180max	290max	450max	600max	
_	DRIFT[mV]	*5	20max	48max	60max	96max	144max	192max	
<u> </u>	START-UP TIME[ms]		100typ (ACIN 100						
<u> </u>	HOLD-UP TIME[ms]		20typ (ACIN 100V, lo=100%) Fixed ("Y"option is available for adjusting output voltage between ±10%)						
	OUTPUT VOLTAGE ADJUSTMENT	- 11							
	OUTPUT VOLTAGE SET		4.90 to 5.30	11.50 to 12.50	14.40 to 15.60	23.00 to 25.00	34.50 to 37.50	46.00 to 50.00	
	OVERCURRENT PROT			of rating and recov					
	OVERVOLTAGE PROTE		5.75 to 7.00	13.80 to 16.80	17.25 to 21.00	27.60 to 33.60	41.40 to 50.40	55.20 to 67.20	
⊢	OPERATING INDICA	TION	Not provided						
⊢	REMOTE SENSING		Not provided						
	REMOTE CONTROL			struction Manual 6					
⊢	INPUT-OUTPUT-RC	*8				0MΩ min (At Room			
COLATION ⊢	INPUT-FG		,			0MΩ min (At Room			
⊢	OUTPUT·RC-FG					<u>ΛΩ min (At Room 1</u>			
	OUTPUT-RC					Ω min (At Room Te	emperature)		
	OPERATING TEMP., HUMID. AND A				lensing), 5,000m (1				
VIRONMENI –	STORAGE TEMP., HUMID. AND	ALIIIUDE			lensing), 9,000m (3				
	VIBRATION					ach along X, Y and	∠ axis		
	IMPACT	_		11ms, once each X		000 d) Eticoco: :	0	NI ANI	
	AGENCY APPROVAL						, Complies with DE	N-AN	
	CONDUCTED NOISE				· · · · · · · · · · · · · · · · · · ·	B, EN55011-B, EN5	5032-B		
	HARMONIC ATTENU			61000-3-2 (Class A		1,050	1	0	
HERS -	CASE SIZE/WEIGHT						chassis & cover : 45	ug max)	
	COOLING METHOD	*2	Convection/Force	air (Hequires exte	rnal fan) (Refer to '	Derating")			

- The listed options may affect the published standard specifications. Please contact us for detailed product specifications.
- specifications.

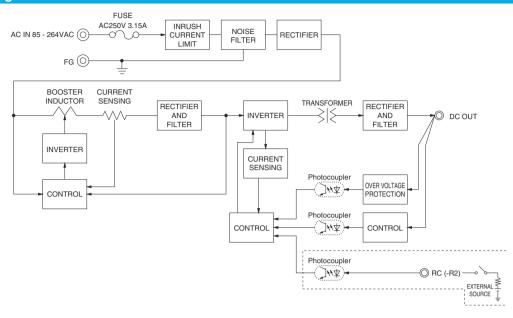
 Derating is required.

 At low load conditions, the burst mode operation will start. To check load regulation, you will need to measure the characteristics at average mode with instruments.

 This is the value that measured on measuring board with capacitor
- of 22 µ F and 0.1 µ F at 150mm from output terminal. Measured by 20MHz oscilloscope or Ripple-Noise meter (Equivalent to KEISOKU-GIKEN:RM104).
- Ripple and ripple noise spec is change at lo=0 to 15% by burst operation.
- operation. Drift is the change in DC output for an eight hour period after a half-hour warm-up at 25 $^{\circ}$ C, with the input voltage held constant at the rated input/output.
- Please contact us about another class.

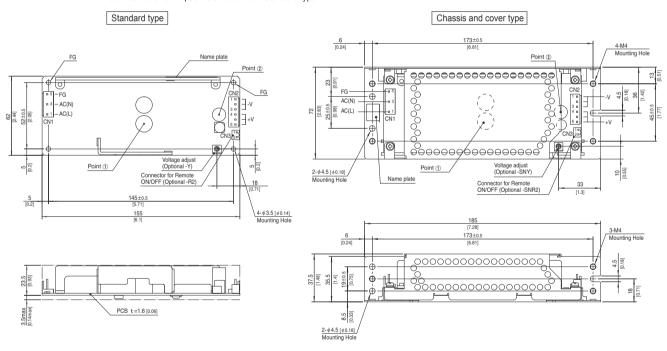
- Please contact us about another class. 5V output product, the maximum temperature of 40°C. Applicable when Remote ON/OFF (optional) is added. To meet the specification, do not operate overload condition. Parallel operation is not possible. Sound noise may be generated by power supply in case of pulse load.





External view

* External size of option is different from standard type.



- $\ensuremath{\,\times\,}$ The back side of PCB of the power supply is assembled some SMDs.
- Be careful not to bump against the attached area by vibration. W Use the spacer of 8mm [0.31] length or more for isolation.
- And do not use press-fitting bush.
- * Point ①, Point ② are thermometry points. Please refer to Instruction Manual 3.

	0) // 01 04T D4 4
CN1 B3P5-VH VHR-5	Chain SVH-21T-P1.1
CN1 B3P5-VH VHR-5	Loose BVH-21T-P1.1
CN2 B6P-VH VHR-6	Chain SVH-21T-P1.1
CN2 B6P-VH VHR-6	Loose BVH-21T-P1.1

(Mfr: J.S.T.)

- % I/O Connector is Mfr.J.S.T.
- ※ Option:-J4:EP (TE Connectivity) connector type.

- ※ Dimensions in mm, []=inches
- % Tolerance : ±1 [±0.04]
- Weight: 250g max (with chassis and cover: 450g max)
- ※ PCB Material / thickness : FR-4 / 1.6mm [0.06]
- * Optional chassis and cover material: Galvanizing steel board
- Mounting torque (Mounting hole of chassis) : 1.5N⋅m max

CN1		C١
Pin No.	Input	Pi
1	AC(L)	1
2		'
3	AC(N)	1
4		4
5	FG	

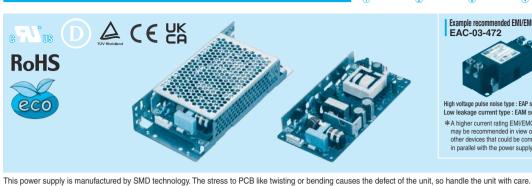
(CN2						
	Pin No.	Output					
	1 to 3	-V					
	4 to 6	+V					

CN3 Option (Mfr:J.S.T.)							
PIN No. Contents							
1 RC(+)							
2							
Model B2B Mating Cor	-XH-A nnector (Term	inal)					

- ※ Pin No.2 and 4 is NC at CN1. ※ Keep drawing current per pin below 5A for CN2.
- XHP-2 BXH-001T-P0.6 or SXH-001T-P0.6

LHA150F

150



Example recommended EMI/EMC filter EAC-03-472



High voltage pulse noise type : EAP series Low leakage current type : EAM series

*A higher current rating EMI/EMC filter may be recommended in view of the other devices that could be connected in parallel with the power supply. Series name
 Single output
 Output wattage

4)Universal input

⑤Output voltage

Optional *1
 C: with Coating
 G: Low leakage current

J4 : EP (TE Connectivity) connector type R2: with Remote ON/OFF

S: with Chassis

SN: with Chassis & cover

U1: Can be attached the external capacitor unit

Y: with Potentiometer

For option details, refer to Instruction Manual 6.

*Make sure necessary tests will be carried out on you	Instruction Manual 6.						
MODEL LHA150F-12 LHA150F-24 LHA150F-36 LHA150F-48							
MAX OUTPUT WATTAGE[W] *2	150	151.2	151.2	153.6			
DC OUTPUT *2	36V 4.2A	48V 3.2A					

	MODEL		LHA150F-12	LHA150F-24	LHA150F-36	LHA150F-48				
	VOLTAGE[VAC]	*2	85 - 264 1 ¢ (Refer to "Derating" and Instruction Manual 1.1)							
	CUDDENTIAL	ACIN 100V	71							
	CURRENT[A]	ACIN 230V	0.8typ							
	FREQUENCY[Hz]		50 / 60 (45 - 66)							
	EFFICIENCY[%]	ACIN 100V	86.5typ	89.0typ	89.5typ	90.0typ				
INPUT	EFFICIENCY[70]	ACIN 230V	89.5typ	92.0typ	92.5typ	93.0typ				
	POWER FACTOR (Io=100%)	ACIN 100V	0.99typ							
	FOWER FACTOR (10=100 /6)	ACIN 230V	0.91typ							
	INRUSH CURRENT[A]	ACIN 100V	15typ (lo=100%) Ta=25℃ at cold start							
	ACIN 230V		35typ (lo=100%) Ta=25 ℃ at cold start							
	LEAKAGE CURRENT[mA]		` `		cording to IEC62368-1 and D					
	VOLTAGE[V]		12	24	36	48				
	CURRENT[A]	*2		6.3	4.2	3.2				
	LINE REGULATION[48max	96max	144max	192max				
	LOAD REGULATION			150max	240max	240max				
ОИТРИТ	RIPPLE[mVp-p] *4 RIPPLE NOISE[mVp-p] *4	0 to +50°C *7		120max	150max	150max				
		-10 to 0℃	160max	160max	200max	200max				
		lo=0 to 10%	160max	160max	200max	200max				
		0 to +50°C *7	150max	150max	250max	250max				
		-10 to 0℃	180max	180max	300max	300max				
			230max	230max	300max	300max				
	TEMPERATURE REGULATION[mV]	0 to +50°C *7	120max	240max	360max	480max				
		-10 to +50°C *7	150max	290max	450max	600max				
	DRIFT[mV] *5		48max	96max	144max	192max				
	START-UP TIME[ms]		700typ (ACIN 100V, Io=100%)							
	HOLD-UP TIME[ms]		20typ (ACIN 100V, lo=100%) Fixed ("Y"option is available for adjusting output voltage between +10%, -5%)							
	OUTPUT VOLTAGE ADJUSTMENT		` .	e for adjusting output voltage		40.00 +- 50.00				
	OUTPUT VOLTAGE SETTING[V]		11.50 to 12.50		34.50 to 37.50	46.00 to 50.00				
PROTECTION	OVERCURRENT PROT		13.80 to 16.80	and recovers automatically 27.60 to 33.60	41.40 to 50.40	55.20 to 67.20				
PROTECTION	OPERATING INDICA		Not provided	27.60 to 33.60	41.40 (0 50.40	55.20 10 67.20				
OTHERS	REMOTE SENSING	IIION	Not provided							
OTTLETTO	REMOTE ON/OFF		Option (Refer to Instruction Manual 6.1)							
	INPUT-OUTPUT-RC	*9	AC3,000V 1minute, Cutoff current = 10mA, DC500V 100M Ω min (At Room Temperature)							
	INPUT-FG		AC2,000V 1minute, Cutoff current = 10mA, DC500V 100M Ω min (At Room Temperature)							
ISOLATION	OUTPUT:RC-FG	*8	AC500V 1minute, Cutoff current = 10ff/A, DC500V 100MΩ min (At Room Temperature)							
	OUTPUT-RC		AC100V 1minute, Cutoff current = 25mA, DC100V 100MΩ min (At Room Temperature)							
	OPERATING TEMP., HUMID. AND									
	STORAGE TEMP., HUMID. AND		-20 to +75°C, 20 - 90%RH (Non condensing), 9,000m (10,000feet) max							
ENVIRONMENT	VIBRATION			Bminutes period, 60minutes						
	IMPACT		196.1m/s² (20G), 11ms, on							
SAFETY AND	AGENCY APPROVA	LS			3-1), EN62368-1, EN62477-1 (C	VC III), Complies with DEN-AN				
NOISE	CONDUCTED NOISE			CI-B, CISPR11-B, CISPR32-I		-				
REGULATIONS	HARMONIC ATTENU	JATOR *6	Complies with IEC61000-3							
OTHERS	CASE SIZE/WEIGHT) / 320g max (with chassis &	cover : 570g max)				
UTTERS	COOLING METHOD	*2	Convection/Forced air (Red	quires external fan) (Refer to	"Derating")					
	1									

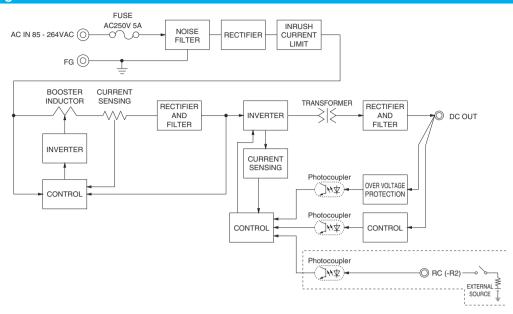
- The listed options may affect the published standard specifications. Please contact us for detailed product specifications.
- Specifications.

 Derating is required.

 At low load conditions, the burst mode operation will start. To check load regulation, you will need to measure the characteristics at average mode with instruments.
- This is the value that measured on measuring board with capacitor of 22 µ F and 0.1 µ F at 150mm from output terminal. Measured
- by 20MHz oscilloscope or Ripple-Noise meter (Equivalent to KEISOKU-GIKEN:RM104). Ripple and ripple noise spec is change at lo=0 to 10% by burst
- operation. Drift is the change in DC output for an eight hour period after a half-hour warm-up at 25 °C, with the input voltage held constant at the
- rated input/output.
- Please contact us about another class.

 12V output product, the maximum temperature of 40°C.
- Applicable when Remote ON/OFF (optional) is added. To meet the specification, do not operate overload condition.
- . arctical operation is not possible. Sound noise may be generated by power supply in case of pulse load.



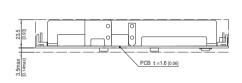


External view

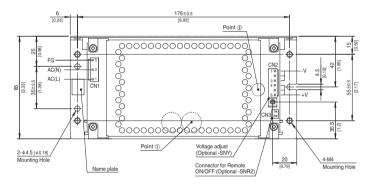
* External size of option is different from standard type.

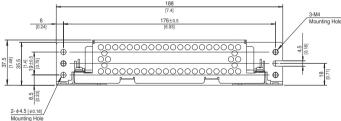
Point ② - AC(N) - AC(L) Point (1 - φ3.5 [φ0.14]

Standard type



Chassis and cover type





- $\ensuremath{\,\times\,}$ The back side of PCB of the power supply is assembled some SMDs.
- Be careful not to bump against the attached area by vibration.
- W Use the spacer of 8mm [0.31] length or more for isolation. And do not use press-fitting bush.
- ※ Point ①, Point ② are thermometry points. Please refer to Instruction Manual 3.

I/O Connector Mating		Mating connector	Terminal		
ONIA	DODE VIII	VHR-5N	Chain	SVH-21T-P1.1	
CN1	B3P5-VH	VHR-5IN	Loose	BVH-21T-P1.1	
ONIO	DOD \ // I	V/LID ON	Chain	SVH-21T-P1.1	
CNZ	B6P-VH	VHR-6N	Loose	BVH-21T-P1.1	

(Mfr: J.S.T.)

- ※ I/O Connector is Mfr.J.S.T.
- ※ Option:-J4:EP (TE Connectivity) connector type.

- % Dimensions in mm, []=inches
 % Tolerance : ±1 [±0.04]
- Weight: 320g max (with chassis and cover: 570g max)
- ※ PCB Material / thickness : FR-4 / 1.6mm [0.06]
- ※ Optional chassis and cover material : Galvanizing steel board
- Mounting torque (Mounting hole of chassis): 1.5N·m max

CN1 Pin No. Input AC(L) 2 AC(N) 3 4 FG

CN2	
Pin No.	Output
1 to 3	-V
4 to 6	+V

CN3 Option (Mfr:J.S.T.					
PIN No.	Contents				
1	RC(+)				
2	RC(-)				
Model B2B Mating Cor (HP-2	-XH-A nnector (Term	inal)			

※ Pin No.2 and 4 is NC at CN1.※ Keep drawing current per pin below 5A for CN2.

LHA300F

300



I HA300E-12-V

Example recommended EMI/EMC filter EAC-06-472



High voltage pulse noise type : EAP series Low leakage current type : EAM series

*A higher current rating EMI/EMC filter may be recommended in view of the other devices that could be connected in parallel with the power supply. 1)Series name 2)Single output

3 Output wattage
4 Universal input
5 Output voltage
6 Optional *1
C: with Coating

G: Low leakage current

4: EDW learkage current
J4: EP (TE Connectivity) connector type
J5: 8 pin type(Output connector)
R2: with Remote ON/OFF
S: with Chassis

SN: with Chassis & cover

T: Terminal block type
T4: Push-in Terminal block type
U1: Can be attached the external

capacitor unit

1 HA300E-48-V

For option details, refer to Instruction Manual 6.

*Make sure necessary tests will be carried out on your end equipment with the power supply installed in accordance with any required EMC/EMI regulations. Instruction Manual 6.							
MODEL LHA300F-12-Y LHA300F-24-Y LHA300F-48-Y							
MAX OUTPUT WATTAGE[W] *2	300	300	302.4				
DC OUTPUT *2	12V 25A	24V 12.5A	48V 6.3A				

I HA300E-24-V

SPECIFICATIONS

MODEL

	MODEL		LHA300F-12-Y	LHA300F-24-Y	LHA300F-48-Y				
	VOLTAGE[VAC]	*2	85 - 264 1 ϕ (Refer to "Derating" and Instruction Manual 1.1)						
	CUDDENTIAL	ACIN 100V	3.5typ	-					
	CURRENT[A]	ACIN 230V	1.6typ						
	FREQUENCY[Hz]		50 / 60 (45 - 66)	50 / 60 (45 - 66)					
INPUT	EEEIOIENOVIO/1	ACIN 100V	90.0typ	91.5typ	92.0typ				
	EFFICIENCY[%]	ACIN 230V	92.0typ	93.5typ	94.0typ				
	DOWED FACTOR (In 1000/)	ACIN 100V	0.99typ						
	POWER FACTOR (Io=100%)	ACIN 230V							
	INRUSH CURRENT[A]	ACIN 100V	20typ (lo=100%) Ta=25℃ at cold star	20typ (lo=100%) Ta=25℃ at cold start					
	ACIN 230V		40typ (lo=100%) Ta=25℃ at cold star	t					
	LEAKAGE CURRENT[mA]		0.40 / 0.75max (ACIN 100V / 240V 6	0Hz, lo=100%, According to IEC62368	-1 and DEN-AN)				
	VOLTAGE[V]		12	24	48				
	CURRENT[A]	*2	25.0	12.5	6.3				
	LINE REGULATION[mV] *3	48max	96max	192max				
	LOAD REGULATION	I[mV] *3	100max	150max	240max				
	RIPPLE[mVp-p] *4	0 to +50°C *7	120max	120max	150max				
		-10 to 0℃	160max	160max	200max				
		lo=0 to 10%	160max	160max	200max				
OUTPUT	RIPPLE NOISE[mVp-p]	0 to +50°C *7	150max	150max	250max				
		-10 to 0℃	180max	180max	300max				
	***	lo=0 to 10%	180max	180max	300max				
	TEMPERATURE REGULATION[mV]	0 to +50°C *7	120max	240max	480max				
		-10 to +50°C *7	150max	290max	600max				
-	DRIFT[mV] *5		48max	96max	192max				
	START-UP TIME[ms]		700typ (ACIN 100V, Io=100%)						
	HOLD-UP TIME[ms]		25typ (ACIN 100V, lo=100%)						
	OUTPUT VOLTAGE ADJUSTMENT RANGE[V]		11.40 to 13.20	22.80 to 26.40	45.60 to 52.80				
	OUTPUT VOLTAGE SET	TING[V]	12.00 to 12.48	24.00 to 24.96	48.00 to 49.92				
	OVERCURRENT PROT	ECTION	Works over 105% of rating and recover	ers automatically					
PROTECTION	OVERVOLTAGE PROTI	ECTION	13.80 to 16.80	27.60 to 33.60	55.20 to 67.20				
CIRCUIT AND	OPERATING INDICA	TION	Not provided						
OTHERS	REMOTE SENSING		Not provided						
	REMOTE ON/OFF		Option (Refer to Instruction Manual 6.1)						
	INPUT-OUTPUT-RC	*8		0mA, DC500V 100M Ω min (At Room					
ISOLATION	INPUT-FG		AC2,000V 1minute, Cutoff current = 10mA, DC500V 100M Ω min (At Room Temperature)						
	OUTPUT-RC-FG		· · · · · · · · · · · · · · · · · · ·	mA, DC500V 100M Ω min (At Room Te	<u>'</u>				
	OUTPUT-RC			mA, DC100V 10M Ω min (At Room Ten					
	OPERATING TEMP., HUMID. AND								
ENVIRONMENT	STORAGE TEMP., HUMID. AND	ALTITUDE	, , , , , ,						
	VIBRATION			eriod, 60minutes each along X, Y and 2	Zaxis				
	IMPACT		196.1m/s ² (20G), 11ms, once each X,						
SAFETY AND	AGENCY APPROVA		, , , ,		2477-1 (OVC III), Complies with DEN-AN				
NOISE	CONDUCTED NOISE			R11-B, CISPR32-B, EN55011-B, EN55	032-B				
REGULATIONS	HARMONIC ATTENU		Complies with IEC61000-3-2 (Class A						
OTHERS	CASE SIZE/WEIGHT			nches] (W×H×D) / 580g max (with ch	assis & cover : 890g max)				
	COOLING METHOD	*2	Convection/Forced air (Requires exte	rnal fan) (Refer to "Derating")					

- The listed options may affect the published standard specifications. Please contact us for detailed product specifications.
- Derating is required.

LHA-16

- At low load conditions, the burst mode operation will start. To check load regulation, you will need to measure the characteristics at average mode with instruments.
- This is the value that measured on measuring board with capacitor of 22 μ F and 0.1 μ F at 150mm from output terminal. Measured
- by 20MHz oscilloscope or Ripple-Noise meter (Equivalent to KEISOKU-GIKEN:RM104).
 Ripple and ripple noise spec is change at lo=0 to 10% by burst operation.
- Drift is the change in DC output for an eight hour period after a halfhour warm-up at 25°C, with the input voltage held constant at the rated input/output.
- Please contact us about another class.
- 12V output product, the maximum temperature of 35℃.
- Applicable when Remote ON/OFF (optional) is added.

- Applicable When Hendrie Ordon (Optional) is acuted.

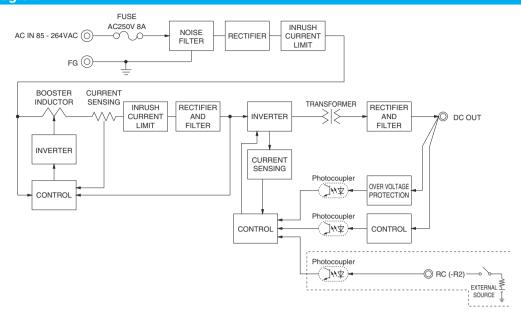
 To meet the specification, do not operate overload condition.

 Parallel operation is not possible.

 Sound noise may be generated by power supply in case of pulse

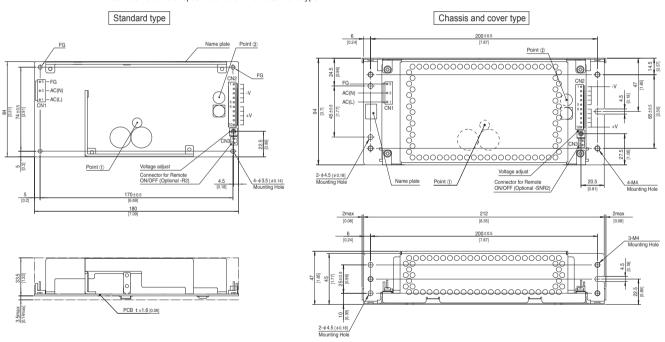
www.cosel.co.jp/en/





External view

* External size of option is different from standard type.



- $\ensuremath{\,\times\,}$ The back side of PCB of the power supply is assembled some SMDs.
- Be careful not to bump against the attached area by vibration.
- W Use the spacer of 8mm [0.31] length or more for isolation. And do not use press-fitting bush.
- ※ Point ①, Point ② are thermometry points. Please refer to Instruction Manual 3.

I/O Connector M		Mating connector	Terminal	
ONIA	B3P5-VH	VHR-5N	Chain	SVH-21T-P1.1
CN1	B3P5-VH	VHR-5IN	Loose	BVH-21T-P1.1
ONIO	D40D \//	VHR-10N	Chain	SVH-21T-P1.1
CNZ	B10P-VH		Loose	BVH-21T-P1.1

(Mfr: J.S.T.)

- * I/O Connector is Mfr.J.S.T.
- ※ Option:-J4:EP (TE Connectivity) connector type.
- * Option:-J5:Output connector as 8 pin type.

- % Dimensions in mm, []=inches
 % Tolerance : ±1 [±0.04]
- Weight: 580g max (with chassis and cover: 890g max)
- ※ PCB Material / thickness : FR-4 / 1.6mm [0.06]
- ※ Optional chassis and cover material : Galvanizing steel board
- Mounting torque (Mounting hole of chassis): 1.5N·m max

CN1 Pin No. Input AC(L) 2 AC(N) 3 4 FG

CN2	
Pin No.	Output
1 to 5	-V
6 to 10	+V

CN3 Option (Mfr:J.S.T.)					
PIN No.	Contents				
1	RC(+)				
2	RC(-)				
Model B2B Mating Cor (HP-2	-XH-A nnector (Term	inal)			

BXH-001T-P0.6 or SXH-001T-P0.6

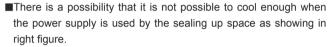
Assembling and Installation Method

Installation method

- ■This power supply is manufactured by SMD technology. Do not touch any SMD components on the unit. Be especially careful when handling.
- ■If using a metal chassis, keep proper insulation between the component and metal chassis, use the spacer of 8mm or more between bottom of power supply and metal chassis.

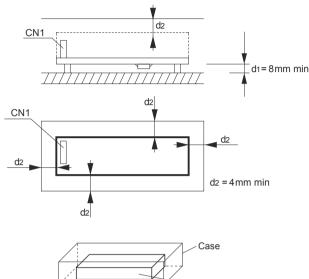
If d1 and/or d2 are less than the value mentioned in right figure, insert an insulating sheet with reinforced insulation between the power supply unit and metal chassis.

The following distance is not satisfactory for cooling condition. Please refer to "Derating" and Instruction Manual 3 for cooling method.

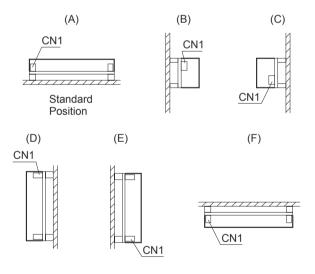


Please use it after confirming the temperature of points ① and points ② of Instraction Manual 3.

- ■Installation method shown right is possible.
- ■In optional -SN, Method (F) is not available with convection cooling. If method (F) is used, use with forced air cooling or derate temperature / load. For more details, please contact us.

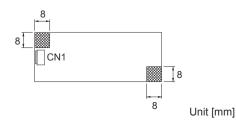


Power supply

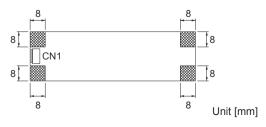


Mounting screw

- ■The mounting screw should be ϕ 3mm. The hatched area shows the allowance of metal parts for mounting.
- LHA10F, LHA15F, LHA30F



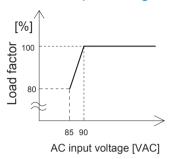
LHA50F, LHA75F, LHA100F, LHA150F, LHA300F



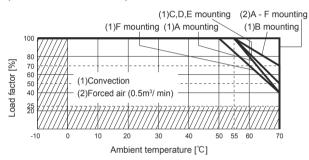
- ■If mounting metallic fittings on the board surface, ensure there is no contact with components.
- ■This product uses SMD technology. Please avoid the PCB installation method which includes the twisting stress or the bending stress.



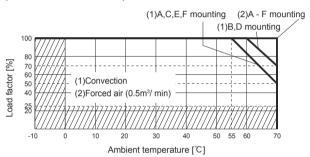
Derating curve for input voltage



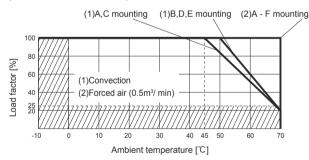
LHA10F-3R3-Y,-5,-12 Ambient temperature derating curve (Reference value)



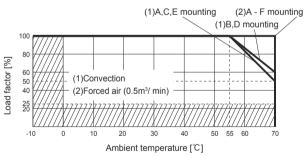
LHA10F-15,-24 Ambient temperature derating curve (Reference value)



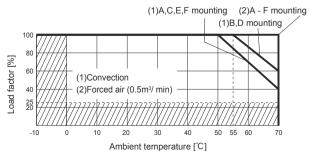
LHA10F-3R3-SNY,-5-SN,-12-SN Ambient temperature derating curve (Reference value)



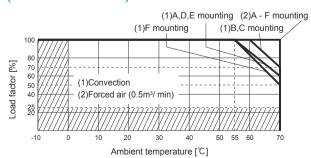
LHA10F-15-SN,-24-SN Ambient temperature derating curve (Reference value)



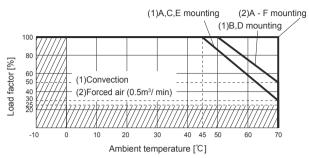
► LHA15F-3R3-Y,-5,-12 Ambient temperature derating curve (Reference value)



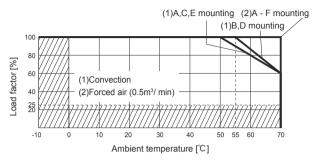
LHA15F-15,-24 Ambient temperature derating curve (Reference value)



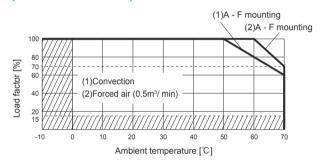
 LHA15F-3R3-SNY,-5-SN,-12-SN Ambient temperature derating curve (Reference value)



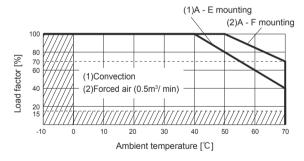
LHA15F-15-SN,-24-SN
 Ambient temperature derating curve (Reference value)



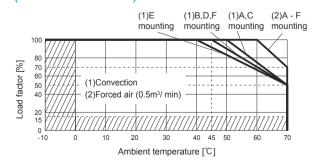
 LHA30F-3R3-Y,-5,-12,-15,-24
 Ambient temperature derating curve (Reference value)



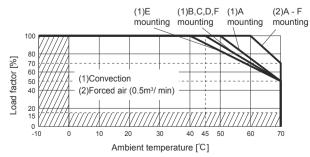
 LHA30F-3R3-SNY,-5-SN,-12-SN,-15-SN,-24-SN Ambient temperature derating curve (Reference value)



■ LHA50F-3R3-Y, -5, -24, -36, -48 Ambient temperature derating curve (Reference value)

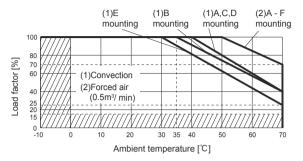


LHA50F-12, -15
 Ambient temperature derating curve (Reference value)



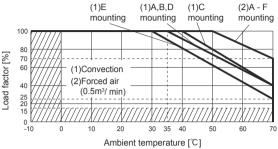


LHA50F-3R3-SNY.-12-SN.-24-SN.-36-SN.-48-SN Ambient temperature derating curve (Reference value)

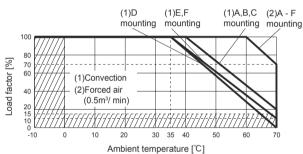


Ambient temperature derating curve (Reference value) (1)A,B,D (1)C

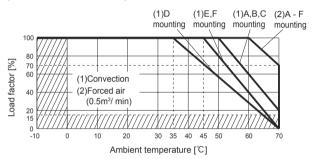
LHA50F-5-SN.-15-SN



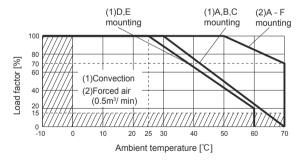
LHA75F-3R3-Y, -5 Ambient temperature derating curve (Reference value)



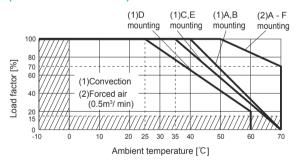
) LHA75F-12, -15, -24, -36, -48 Ambient temperature derating curve (Reference value)



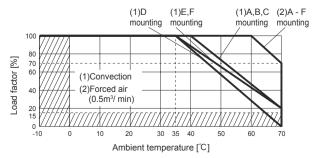
LHA75F-3R3-SNY,-5-SN Ambient temperature derating curve (Reference value)



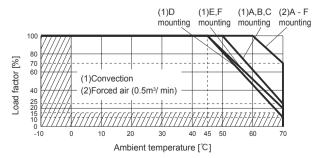
LHA75F-12-SN,-15-SN,-24-SN,-36-SN,-48-SN Ambient temperature derating curve (Reference value)



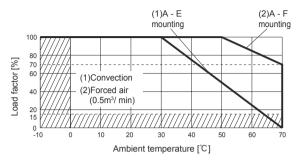
■ LHA100F-5 Ambient temperature derating curve (Reference value)



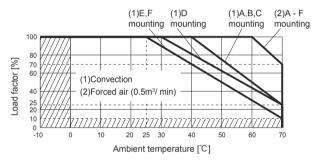
LHA100F-12, -15, -24, -36, -48 Ambient temperature derating curve (Reference value)



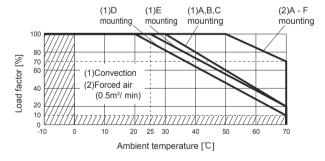
LHA100F-5-SN
 Ambient temperature derating curve (Reference value)



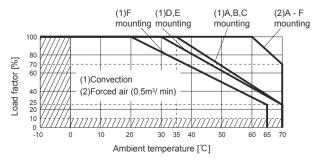
LHA150F-12
 Ambient temperature derating curve (Reference value)



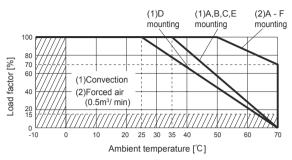
LHA150F-12-SN
 Ambient temperature derating curve (Reference value)



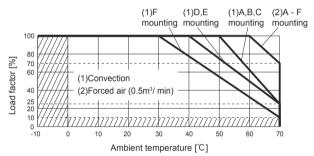
LHA300F-12-Y Ambient temperature derating curve (Reference value)



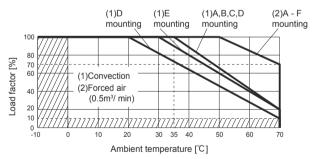
 LHA100F-12-SN,-15-SN,-24-SN,-36-SN,-48-SN Ambient temperature derating curve (Reference value)



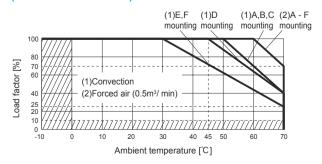
LHA150F-24, -36, -48
 Ambient temperature derating curve (Reference value)



 LHA150F-24-SN, -36-SN, -48-SN Ambient temperature derating curve (Reference value)

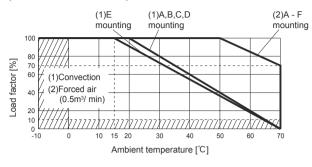


■ LHA300F-24-Y, -48-Y Ambient temperature derating curve (Reference value)

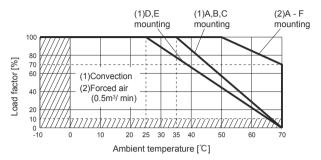




LHA300F-12-SNY Ambient temperature derating curve (Reference value)



LHA300F-24-SNY, -48-SNY Ambient temperature derating curve (Reference value)



- ■The operating ambient temperature is different by with / without chassis cover or mounting position.
- ■In the hatched area, the specification of Ripple, Ripple Noise is different from other area.
- The ambient temperature should be measured 5 to 10 cm away from the power supply so that it won't be influenced by the heat from the power supply.
- ■Please make sure the maximum component temperature rise given in Instruction manual 3 is not exceeded.
- ■Please contact us for more information about operating ambient temperature.

Instruction Manuals

Please see catalog and instructionmanual before you use.

Instruction Manuals https://www.cosel.co.jp/redirect/catalog/en/LHA/ Before using our product https://en.cosel.co.jp/technical/caution/index.html





Basic Characteristics Data

Model	Circuit method	Switching Input d frequency current		Inrush	PCB/Patt	ern		Series/Parallel operation availability	
Model	Circuit method	. ,	*3 [A]	current protection	Material	Single sided	Double sided	Series operation	Parallel operation
LHA10F	Flyback converter	20 to 125	0.26	Resistance *4	CEM-3	Yes	-	Yes	No
LHA15F	Flyback converter	20 to 125	0.35	Thermistor	CEM-3	Yes	-	Yes	No
LHA30F	Flyback converter	30 to 130	0.62	Thermistor	FR-4	-	Yes	Yes	No
LHA50F	Flyback converter	30 to 130	1.05	Thermistor	FR-4	-	Yes	Yes	No
LHA75F	Active filter	15 to 300	0.9	Thermistor	FR-4	_	Yes	Yes	No
LHA75F	Flyback converter	50 to 140	0.9	Thermstor	FN-4	-	res	res	INO
1114400	Active filter	15 to 300	1.2	Theymieter	FR-4		Vas	Yes	No
LHA100F	Flyback converter	35 to 130	1.2	Thermistor	FR-4	-	Yes	res	INO
11144505	Active filter	15 to 300	1.0	Thermister	ED 4		V	Vaa	No
LHA150F	LLC resonant converter	90 to 280	1.8	Thermistor	FR-4	-	Yes	Yes	No
1114000	Active filter	15 to 300	0.5	Theymieter	ED 4		V	.,	No
LHA300F	LLC resonant converter	65 to 200	3.5	Thermistor	FR-4	-	Yes	Yes	No

- *1 The value changes depending on input and load.
- *2 At light load, burst operation is performed to reduce input power. The switching frequency is changed by using condition. Please contact us for more details.
- *3 The value of input current is at ACIN 100V and rated load.
- *4 Resistance of the line filter.