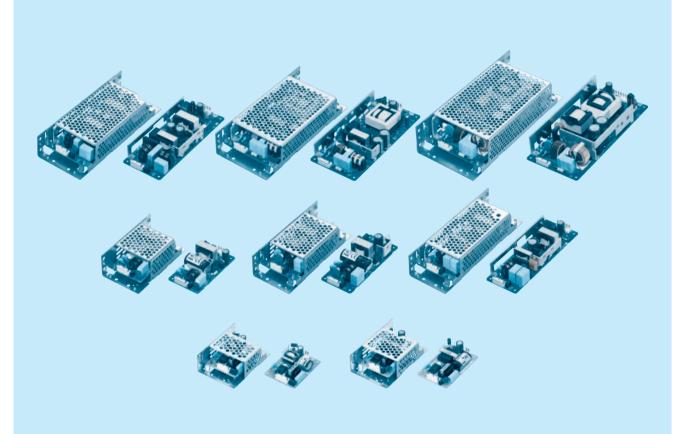
AC-DC Power Supplies Open Frame





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

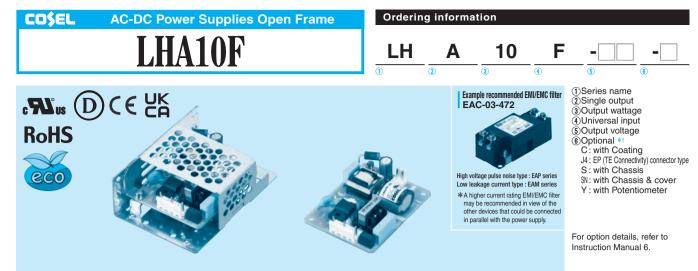
Low Voltage Directive RoHS Directive

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



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	

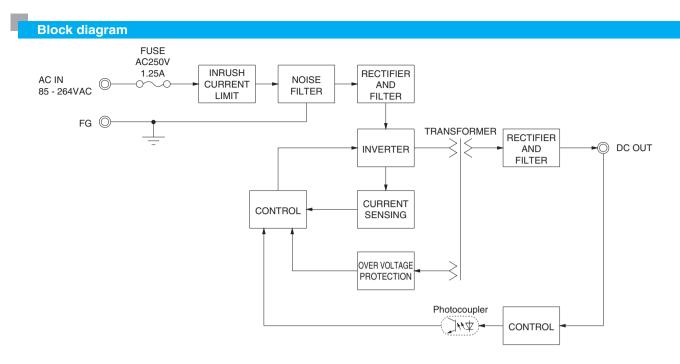
SPECIFICATIONS

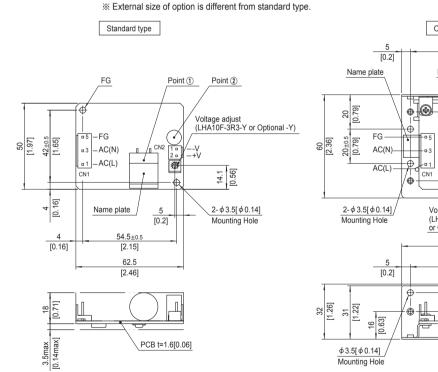
	MODEL		LHA10F-3R3-Y	LHA10F-5	LHA10F-12	LHA10F-15	LHA10F-24				
	VOLTAGE[VAC]	*2	85 - 264 1 φ (Refer to	"Derating" and Inst	ruction Manual 1.1)						
	CURRENT[A]	ACIN 100V	0.18typ	0.26typ							
	CORRENT[A]	ACIN 230V	0.10typ	0.14typ							
	FREQUENCY[Hz]		50 / 60 (45 - 440)	·							
NPUT		ACIN 100V	72.0typ	77.0typ	79.5typ	81.0typ	82.5typ				
	EFFICIENCY[%]	ACIN 230V	72.0typ	78.5typ	81.0typ	83.0typ	84.5typ				
		ACIN 100V	15typ (lo=100%)				,				
	INRUSH CURRENT[A]	ACIN 230V	35typ (lo=100%)								
	LEAKAGE CURREN	T[mA]	0.07 / 0.15max (ACII	N 100V / 240V, 60Hz	, lo=100%, According to	o 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	I[mV] *3	40max	40max	100max	120max	150max				
		0 to +60°C *7	80max	80max	120max	120max	120max				
	RIPPLE[mVp-p]	-10 to 0°C	140max	140max	160max	160max	160max				
	*4	lo=0 to 25%	300max	300max	300max	300max	300max				
DUTPUT RIPPLE NOISE[mVp-p] 0 to +600 \$<7\$ 120max 150max 150max TEMPERATURE REGULATION[m] 10 to 400 \$<7\$	150max										
UTPUT	RIPPLE NOISE[mVp-p]	-10 to 0°C	160max	160max	180max	180max	180max				
	*4	lo=0 to 25%	360max	360max	360max	360max	360max				
		0 to +60℃ *7	50max	50max	120max	150max	240max				
	TEMPERATURE REGULATION[mV]						290max				
	DRIFT[mV]			-			96max				
Н		1									
	HOLD-UP TIME[ms]	I			CIN 230V. lo=100%)						
	OUTPUT VOLTAGE ADJUSTMENT RANGE[V]		2.85 to 3.63	, , ,	available for adjusting	output voltage between	±10%)				
	OUTPUT VOLTAGE SETTING[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		Works over 105% of	rating and recovers	automatically	· · ·					
ROTECTION	OVERVOLTAGE PROTI	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				
	OPERATING INDICA	TION	Not provided								
THERS	REMOTE SENSING		Not provided								
	INPUT-OUTPUT		· ·	Cutoff current = 10m	A, DC500V 100MΩ mir	n (At Room Temperature	e)				
SOLATION	INPUT-FG		AC3,000V 1minute, Cutoff current = 10mA, DC500V 100M Ω min (At Room Temperature) AC2,000V 1minute, Cutoff current = 10mA, DC500V 100M Ω min (At Room Temperature)								
	OUTPUT-FG				DC500V 100MΩ min (
	OPERATING TEMP., HUMID.AND	ALTITUDE *2	-10 to +70°C, 20 - 90			· · · · · · · · · · · · · · · · · · ·					
	STORAGE TEMP., HUMID.AND	ALTITUDE	-20 to +75°C, 20 - 90	%RH (Non condens	ing)						
NVIRONMENT	VIBRATION		10 - 55Hz, 19.6m/s ²	(2G), 3minutes perio	d, 60minutes each alon	g X, Y and Z axis					
	IMPACT		196.1m/s ² (20G), 11r								
AFETY AND	AGENCY APPROVA	LS			A-C22.2No.62368-1), E	N62368-1, Complies w	ith DEN-AN				
IOISE	CONDUCTED NOISE		Complies with FCC-I	, B, VCCI-B, CISPR11	-B, CISPR32-B, EN550	11-B, EN55032-B					
EGULATIONS	HARMONIC ATTENU	JATOR *6	Complies with IEC61	000-3-2 (Class A) (I	No built-in power factor	correction)					
	CASE SIZE/WEIGHT			· / / /	ches] (W×H×D) / 45g	/					
THERS	COOLING METHOD	*2			fan) (Refer to "Derating						
detailed *2 Deratin *3 At low lo need to	ed options may affect the p I product specifications. g is required. aad conditions, the burst mo measure the characteristics he value that measured on r	de operatio	n will start. To check load re mode with instruments.	egulation, you will	 25°C, with the input vo *6 Please contact us abo not comply with the IE *7 3.3V, 5V, 12V output pi 	Itage held constant at the rate	more units are operating it mains for details. Nature of 55° C.				
at 150m	m from output terminal. Mea	asured by 2			 Parallel operation is no 						

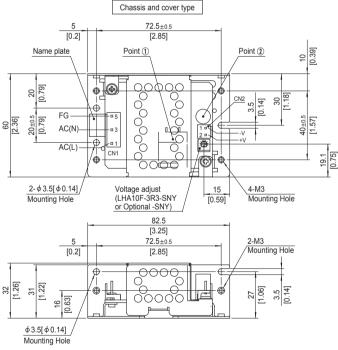
(Equivalent to KEISOKU-GIKEN:RM104). Ripple and ripple noise spec is change at lo=0 to 25% by burst operation. Audible noise may be generated.

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









% 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.

L/	/0	Connector	Mating connector		Terminal
	CN1 B3P5-VH		VHR-5N	Chain SVH-21	
	CN1 B3P5-VH	VHK-SIN	Loose	BVH-21T-P1.1	
	CN2 B2P-VH		VHR-2N	Chain SV/H-21T-P	
	CN2	B2P-VH	VHR-2N	2N Loose	BVH-21T-P1.1
_					(Mfr: J.S.T.)

% I/O Connector is Mfr.J.S.T.

% Option:-J4:EP (TE Connectivity) connector type

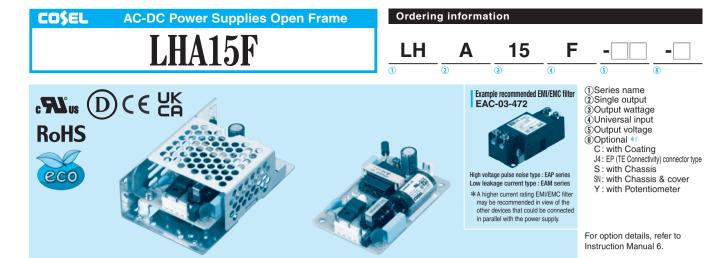
CN2 CN1 Pin No. Pin No. Output Input 1 AC(L) 1 -V 2 AC(N) 3 2 +V 4 FG 5

% 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



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

SPECIFICATIONS

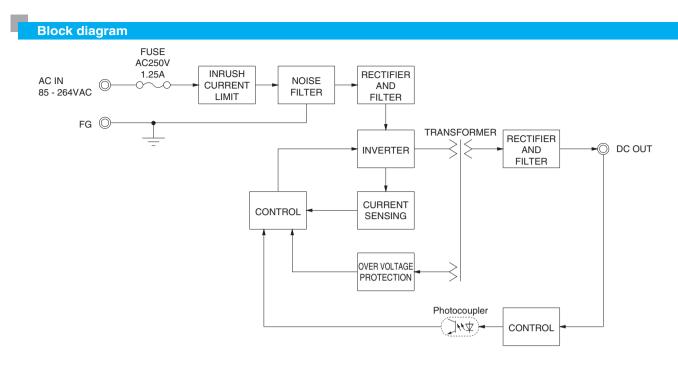
	MODEL		LHA15F-3R3-Y	LHA15F-5	LHA15F-12	LHA15F-15	LHA15F-24			
	VOLTAGE[VAC]	*2	85 - 264 1 φ (Refer to	"Derating" and Instru	ction Manual 1.1)					
		ACIN 100V	0.24typ	0.35typ						
	CURRENT[A]	ACIN 230V	0.15typ	0.19typ						
	FREQUENCY[Hz]		50 / 60 (45 - 440)							
NPUT		ACIN 100V	71.5typ	75.0typ	79.0typ	80.0typ	81.5typ			
	EFFICIENCY[%]	ACIN 230V	72.5typ	77.0typ	82.0typ	83.0typ	84.5typ			
		ACIN 100V	15typ (lo=100%) Ta=							
	INRUSH CURRENT[A]	ACIN 230V								
	LEAKAGE CURREN	T[mA]	0.05 / 0.10max (ACIN	N 100V / 240V, 60Hz, I	o=100%, According to	IEC62368-1, and DEN	I-AN)			
	VOLTAGE[V]		3.3	5	12	15	24			
	CURRENT[A]	*2	3.0	3.0	1.3	1.0	0.7			
	LINE REGULATION	mV] *3	20max	20max	48max	60max	96max			
	LOAD REGULATION	[[mV] *3	40max	40max	100max	120max	150max			
		0 to +60°C *7	80max	80max	120max	120max	120max			
	RIPPLE[mVp-p]	-10 to 0°C	140max	140max	160max	160max	160max			
	*4	lo=0 to 25%	300max	300max	300max	300max	300max			
	CURRENT[A] ACM 100V 2.24yp 0.35yp FREQUENCY[Hz] 50 / 60 (45 - 440) 50 / 60 (45 - 440) EFFICIENCY[%] ACM 100V 71.5typ 75.0typ 79.0typ 80.0typ INRUSH CURRENT[A] ACM 100V 15typ (bc=100%) Ta=25 C at cold start INRUSH CURRENT[A] 0.05 / 0.10max (ACII 100V / 240V, 60Hz, bc=100%, According to IEC62368-1, and DEN-AN VOLTAGE[V] 3.3 5 12 15 CURRENT[A] 0.05 / 0.10max (ACII 100V / 240V, 60Hz, bc=100%, According to IEC62368-1, and DEN-AN VOLTAGE[V] 3.3 5 12 15 CURRENT[A] 40.00max (ACII 100V / 240V, 60Hz, bc=100%, According to IEC62368-1, and DEN-AN VOLTAGE[V] 3.3 5 12 15 CURRENT[A] 40.00max 100max 120max 120max ILINE REGULATION[mV] 9 20max 20max 120max 120max IBVEL[mVPP] 0 0640* 80max 300max 300max 300max IBVEL[mVPP] 0 0640* 50max 120max 120max <	150max								
UTPUT	RIPPLE NOISE[mVp-p]	-10 to 0°C	160max	160max	180max	180max	180max			
	*4	lo=0 to 25%	360max	360max	360max	360max	360max			
			50max	50max	120max	150max	240max			
	TEMPERATURE REGULATION[mV]	-10 to +60°C *7	60max	60max	150max	180max	290max			
	DRIFT[mV]	*5	20max	20max		60max	96max			
	START-UP TIME[ms]		40typ (ACIN 100V, lo	=100%)						
0	HOLD-UP TIME[ms]		20typ (ACIN 100V, lo	=100%) / 150typ (ACI	N 230V, lo=100%)					
	OUTPUT VOLTAGE ADJUSTMENT RANGE[V]		2.85 to 3.63 Fixed ("Y"option is available for adjusting output voltage between ±10%)							
	OUTPUT VOLTAGE SETTING[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 au	tomatically					
ROTECTION	OVERVOLTAGE PROT	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 THERS	OPERATING INDICA	TION	Not provided							
INCRS	REMOTE SENSING									
	INPUT-OUTPUT									
SOLATION	INPUT-FG									
	OUTPUT-FG		AC500V 1minute, Cu	utoff current = 25mA, D	C500V 100MΩ min (/	At Room Temperature)				
	OPERATING TEMP., HUMID.AND	ALTITUDE *2	-10 to +70°C, 20 - 90	%RH (Non condensin	g)					
	STORAGE TEMP., HUMID.AND	ALTITUDE	-20 to +75°C, 20 - 90	%RH (Non condensin	g)					
NVIRONMENT	VIBRATION		10 - 55Hz, 19.6m/s ² ((2G), 3minutes period,	60minutes each along	y X, Y and Z axis				
	IMPACT		196.1m/s2 (20G), 11r	ms, once each X, Y an	d Z axis					
AFETY AND	AGENCY APPROVA	LS	UL62368-1, C-UL (ed	quivalent to CAN/CSA	-C22.2No.62368-1), El	V62368-1, Complies w	ith DEN-AN			
OISE	CONDUCTED NOISE		Complies with FCC-E	B, VCCI-B, CISPR11-E	, CISPR32-B, EN5501	1-B, EN55032-B				
EGULATIONS	HARMONIC ATTENU	JATOR *6	Complies with IEC61	000-3-2 (Class A) (No	built-in power factor c	orrection)				
THERS	CASE SIZE/WEIGHT		50×21.5×73.5mm [1.97×0.85×2.89 incl	nes] (W×H×D) / 60g	max				
THERS	COOLING METHOD	*2	Convection/Forced a	ir (Requires external fa	an) (Refer to "Derating"	")				
detailed *2 Deratin *3 At low lo need to	I product specifications.	de operation at average	n will start. To check load re mode with instruments.	*egulation, you will	25°C, with the input volt Please contact us abou not comply with the IEC 3.3V, 5V, 12V output pro	age held constant at the rate	d input/output. more units are operating it n s for details. ture of 55°C.			
at 150m	m from output terminal. Mea	asured by 2			Parallel operation is not	possible.				

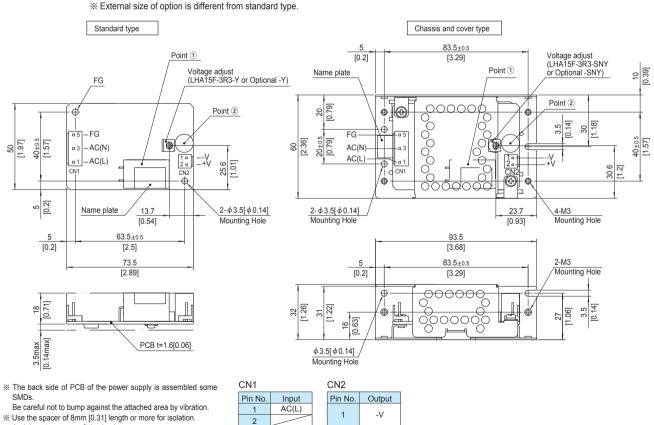
(Equivalent to KEISOKU-GIKEN:RM104). Ripple and ripple noise spec is change at lo=0 to 25% by burst operation.

Audible noise may be generated.

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







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		VHR-5N	Chain	SVH-21T-P1.1
CN1	CN1 B3P5-VH	VHR-5N	Loose	BVH-21T-P1.1
010		VHR-2N	Chain	SVH-21T-P1.1
CN2	B2P-VH	VHR-2N		BVH-21T-P1.1
				(Mfr: J.S.T.)

% I/O Connector is Mfr.J.S.T.

% Option:-J4:EP (TE Connectivity) connector type

AC(N)

FG

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

3

4

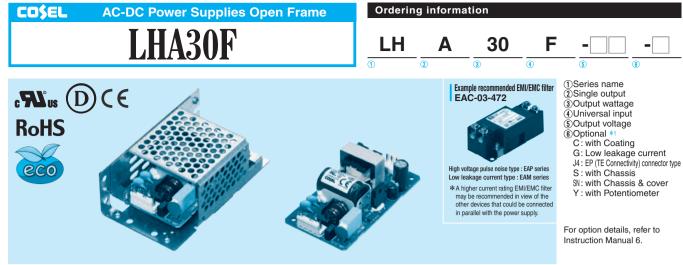
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Dimensions in mm, []=inches
 Tolerance : ±1 [±0.04]
 Weight : 60g max (with chassis and cover : 140g max)

2

+\/

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



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

SPECIFICATIONS

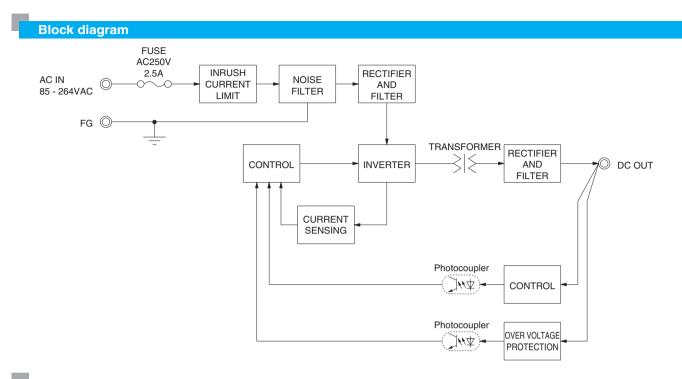
FREQUENCY[Hz]	*2 mV] *3 [mV] *3 0 to +50°C	0.23typ 50 / 60 (45 - 440) 83.0typ 85.5typ 15typ (lo=100%) Ta= 35typ (lo=100%) Ta=	0.62typ 0.32typ 83.0typ 87.0typ 25°C at cold start 25°C at cold start	truction Manual 1.1) 85.0typ 88.5typ z, lo=100%, According t		87.0typ 90.0typ				
FREQUENCY[Hz] FREQUENCY[%] EFFICIENCY[%] NRUSH CURRENT[A] LEAKAGE CURRENT VOLTAGE[V] CURRENT[A] LINE REGULATION[T LOAD REGULATION RIPPLE[mVp-p]	ACIN 230V ACIN 100V ACIN 230V ACIN 230V ACIN 230V F[mA] *2 mV] *3 0 to +50°C	0.23typ 50 / 60 (45 - 440) 83.0typ 85.5typ 15typ (lo=100%) Ta= 35typ (lo=100%) Ta= 0.20 / 0.45max (ACII 3.3 6.0 20max	0.32typ 83.0typ 87.0typ 25°C at cold start 25°C at cold start 100V / 240V 60H 5	88.5typ z, lo=100%, According t	89.0typ o IEC62368-1 and DEN	90.0typ				
FREQUENCY[Hz] EFFICIENCY[%] NRUSH CURRENT[A] LEAKAGE CURRENT VOLTAGE[V] CURRENT[A] LINE REGULATION[I LOAD REGULATION[I RIPPLE[mVp-p]	ACIN 100V ACIN 230V ACIN 230V F[mA] *2 mV] *3 [mV] *3 0 to +50°C	50 / 60 (45 - 440) 83.0typ 85.5typ 15typ (lo=100%) Ta= 35typ (lo=100%) Ta= 0.20 / 0.45max (ACII 3.3 6.0 20max	83.0typ 87.0typ 25°C at cold start 25°C at cold start 100V / 240V 60H 5	88.5typ z, lo=100%, According t	89.0typ o IEC62368-1 and DEN	90.0typ				
EFFICIENCY[%] NRUSH CURRENT[A] LEAKAGE CURRENT VOLTAGE[V] CURRENT[A] LINE REGULATION[r LOAD REGULATION RIPPLE[mVp-p]	ACIN 230V ACIN 100V ACIN 230V [[mA] *2 mV] *3 [mV] *3 0 to +50°C	83.0typ 85.5typ 15typ (lo=100%) Ta= 35typ (lo=100%) Ta= 0.20 / 0.45max (ACII 3.3 6.0 20max	87.0typ 25°C at cold start 25°C at cold start N 100V / 240V 60H 5	88.5typ z, lo=100%, According t	89.0typ o IEC62368-1 and DEN	90.0typ				
EFFICIENCY[%] NRUSH CURRENT[A] LEAKAGE CURRENT VOLTAGE[V] CURRENT[A] LINE REGULATION[r LOAD REGULATION RIPPLE[mVp-p]	ACIN 230V ACIN 100V ACIN 230V [[mA] *2 mV] *3 [mV] *3 0 to +50°C	85.5typ 15typ (lo=100%) Ta= 35typ (lo=100%) Ta= 0.20 / 0.45max (ACI 3.3 6.0 20max	87.0typ 25°C at cold start 25°C at cold start N 100V / 240V 60H 5	88.5typ z, lo=100%, According t	89.0typ o IEC62368-1 and DEN	90.0typ				
NRUSH CURRENT[A] LEAKAGE CURRENT VOLTAGE[V] CURRENT[A] LINE REGULATION[r LOAD REGULATION RIPPLE[mVp-p]	ACIN 100V ACIN 230V [[mA] *2 mV] *3 [mV] *3 0 to +50°C	15typ (lo=100%) Ta= 35typ (lo=100%) Ta= 0.20 / 0.45max (ACII 3.3 6.0 20max	25°C at cold start 25°C at cold start N 100V / 240V 60H 5	z, lo=100%, According t	o IEC62368-1 and DEN					
NHUSH CURHENT[A] LEAKAGE CURRENT VOLTAGE[V] CURRENT[A] LINE REGULATION[r LOAD REGULATION RIPPLE[mVp-p]	ACIN 230V [[mA] *2 mV] *3 [mV] *3 0 to +50°C	35typ (lo=100%) Ta= 0.20 / 0.45max (ACI 3.3 6.0 20max	25℃ at cold start N 100V / 240V 60H 5			1-AN)				
LEAKAGE CURRENT VOLTAGE[V] CURRENT[A] LINE REGULATION[r LOAD REGULATION RIPPLE[mVp-p]	r[mA] *2 nV] *3 [mV] *3 0 to +50°C	35typ (lo=100%) Ta= 0.20 / 0.45max (ACI 3.3 6.0 20max	25℃ at cold start N 100V / 240V 60H 5	· · · · · · · · · · · · · · · · · · ·		I-AN)				
VOLTAGE[V] CURRENT[A] LINE REGULATION[r LOAD REGULATION RIPPLE[mVp-p]	*2 mV] *3 [mV] *3 0 to +50°C	3.3 6.0 20max	5	· · · · · · · · · · · · · · · · · · ·		I-AN)				
CURRENT[A] LINE REGULATION[r LOAD REGULATION RIPPLE[mVp-p]	nV] *3 [mV] *3 0 to +50℃	6.0 20max		12	4 5					
LINE REGULATION[r LOAD REGULATION RIPPLE[mVp-p]	nV] *3 [mV] *3 0 to +50℃	20max	6.0		15	24				
LOAD REGULATION	[mV] *3 0 to +50℃			2.5	2.0	1.3				
RIPPLE[mVp-p]	0 to +50℃	10max	20max	48max	60max	96max				
		HUIIIdX	40max	100max	120max	150max				
		80max	80max	120max	120max	120max				
	-10 to 0℃	140max	140max	160max	160max	160max				
	lo=0 to 15%	300max	300max	300max	300max	300max				
RIPPLE NOISE[mVp-p]	0 to +50℃	120max	120max	150max	150max	150max				
RIPPLE NOISE[mVp-p]	-10 to 0 ℃	160max	160max	180max	180max	180max				
	lo=0 to 15%	360max	360max	360max	360max	360max				
	0 to +50℃	50max	50max	120max	150max	240max				
	-10 to +50℃	60max	60max	150max	180max	290max				
DRIFT[mV] *5		20max	20max	48max	60max	96max				
START-UP TIME[ms]		40typ (ACIN 100V, Id	e=100%)	*						
HOLD-UP TIME[ms]		25typ (ACIN 100V, lo=100%) / 170typ (ACIN 230V, lo=100%)								
OUTPUT VOLTAGE ADJUSTMENT RANGE[V]		2.85 to 3.63	Fixed ("Y"option i	s available for adjusting	output voltage between	±10%)				
OUTPUT VOLTAGE SETTING[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				
		Works over 105% of	rating and recovers	automatically						
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				
OPERATING INDICA	TION	Not provided								
REMOTE SENSING		Not provided								
NPUT-OUTPUT		AC3,000V 1minute,	Cutoff current = 10m	nA, DC500V 100M Ω mir	n (At Room Temperature	e)				
NPUT-FG		AC2,000V 1minute,	Cutoff current = 10m	nA, DC500V 100M Ω min	n (At Room Temperature	e)				
OUTPUT-FG										
,		-10 to +70°C, 20 - 90%RH (Non condensing), 5,000m (16,500feet) max								
, , , , ,	ALTITUDE	-20 to +75°C, 20 - 90%RH (Non condensing), 9,000m (30,000feet) max								
VIBRATION		10 - 55Hz, 19.6m/s ²	(2G), 3minutes perio	od, 60minutes each alon	g X, Y and Z axis					
MPACT		196.1m/s ² (20G), 11ms, once each X, Y and Z axis								
		· · · ·	1		,	ith DEN-AN				
CONDUCTED NOISE										
	ATOR *6									
CASE SIZE/WEIGHT						ver : 210g max)				
COOLING METHOD	*2	Convection/Forced a	ir (Requires externa	I fan) (Refer to "Derating	J")					
product specifications. is required. Id conditions, the burst mod	le operatior	n will start. To check load r		 25°C, with the input vo *6 Please contact us abo not comply with the IEC 	Itage held constant at the rate ut another class. When two or C61000-3-2. Please contact u	r more units are operating it m us for details.				
	IPERATURE REGULATION[MV] RIFT[mV] TART-UP TIME[ms] DLD-UP TIME[ms] DLD-UP TIME[ms] TPUT VOLTAGE ADJUSTMENT JTPUT VOLTAGE SETT /ERCURRENT PROT /ERCURRENT PROT /ERVOLTAGE PROTE PERATING INDICA EMOTE SENSING PUT-OUTPUT PUT-FG UTPUT-FG UTPUT-FG UTPUT-FG UTPUT-FG DTPUT-FG DTPUT-FG DTPUT-FG DAGE TEMP,HUMID.AND BRATION BRATION BRATION DAGE TEMP,HUMID.AND BRATION DAGE TEMP,HUMID.AND BRATION DAGE TEMP,HUMID.AND DAGE TEMP,HUMID.AND DAGE TEMP,HUMID.AND DAGE TEMP,HUMID.AND DAGE TEMP,HUMID.AND DAGE TEMP,HUMID.AND DAGE TEMP,HUMID.AND DOLUTED NOISE ARMONIC ATTENU DOLING METHOD Dyduct specifications. required. conditions, the burst mod	A total constraints of the second seco	10 UPC Home Toolinax IPERATURE REGULATION(mV) 0 to +50°C 50 max IPERATURE REGULATION(mV) 10 to +50°C 60 max RIFT[mV] *5 20max TART-UP TIME[ms] 40 typ (ACIN 100V, Ic DLD-UP TIME[ms] 25 typ (ACIN 100V, Ic TPUT VOLTAGE ADJUSTMENT RANGE[V] 2.85 to 3.63 JTPUT VOLTAGE SETTING[V] 3.30 to 3.40 VERCURRENT PROTECTION Works over 105% of VERVOLTAGE PROTECTION 4.00 to 5.25 PERATING INDICATION Not provided EMOTE SENSING Not provided PUT-OUTPUT AC3,000V 1minute, 0 PUT-FG AC2,000V 1minute, 0 UTPUT-FG AC500V 1minute, 0 PRATING INDIAND ALTITUDE -20 to +75°C, 20 - 90 ORAGE TEMP,HUMID.AND ALTITUDE -20 to +75°C, 20 - 90 ORAGE TEMP,HUMID.AND ALTITUDE -20 to +75°C, 20 - 90 PACT 196.1m/s² (20G), 111 GENCY APPROVALS UL62368-1, C-UL (e) ONDUCTED NOISE Complies with FECC-1 ARMONIC ATTENUATOR *6 Complies with FECC-1 ASE SIZE/WEIGHT 50 × 27 × 87.5mm [1 OOLING	10 UNC 10 UNC 10 UNC 10 UNC IPERATURE REGULATION[mV] Iso to 15% 360max 360max IPERATURE REGULATION[mV] Ito +50°C 60max 60max INIT 10 to +50°C 60max 60max RIFT[mV] *5 20max 20max TART-UP TIME[ms] 40typ (ACIN 100V, Io=100%) 170typ (A DLD-UP TIME[ms] 25typ (ACIN 100V, Io=100%) / 170typ (A TPUT VOLTAGE SAUUSTMENT RANGE[V] 2.85 to 3.63 Fixed ("Y"option i JTPUT VOLTAGE SETTING[V] 3.30 to 3.40 4.90 to 5.30 VERCURRENT PROTECTION Works over 105% of rating and recovers VERVOLTAGE PROTECTION 4.00 to 5.25 5.75 to 7.00 PERATING INDICATION Not provided EMOTE SENSING Not provided PUT-OUTPUT AC3,000V 1minute, Cutoff current = 10m PUT-FG AC500V 1minute, Cutoff current = 25mA ERATING TEMP,HUMID.AND ALTITUDE -20 to +75°C, 20 - 90%RH (Non condens DRAGE TEMP,HUMID.AND ALTITUDE -20 to +75°C, 20 - 90%RH (Non condens DRAGE TEMP,HUMID.AND ALTITUDE -20 to +75°C, 20 - 90%RH (Non condens DRAGE TEMP,HUMID.AND ALTITUDE -20 t	10 UPC Horinax Horinax Horinax Horinax Horinax Iselb 15% 360max 360max 360max 360max IPERATURE REGULATION[mV] 10 t+50°C 50max 50max 120max INTET[mV] *5 20max 20max 48max TART-UP TIME[ms] 40typ (ACIN 100V, lo=100%) 170typ (ACIN 230V, lo=100%) DLD-UP TIME[ms] 25typ (ACIN 100V, lo=100%) / 170typ (ACIN 230V, lo=100%) TPUT VOLTAGE SETTING[V] 3.30 to 3.40 4.90 to 5.30 11.50 to 12.50 VERVOLTAGE PROTECTION Works over 105% of rating and recovers automatically ////////////////////////////////////	10001c3 10011c3 10011c3				

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 *4

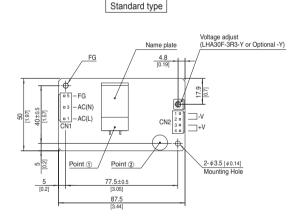
at 150mm from output terminal. Measured by 20MHz oscilloscope or Ripple-Noise meter (Equivalent to KEISOKU-GIKEN:RM104).

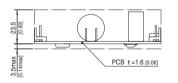
- Parallel operation is not possible.
- * Sound noise may be generated by power supply in case of pulse load.





% External size of option is different from standard type.



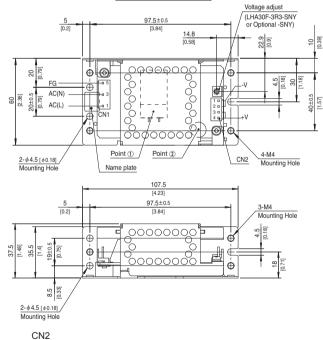


- $\ensuremath{\overset{\scriptstyle <}{_{\scriptstyle \sim}}}$ The back side of PCB of the power supply is assembled some SMDs.
- Be careful not to bump against the attached area by vibration. ※ Use the spacer of 8mm [0.31] length or more for isolation.
- And do not use press-fitting bush. % Point (1),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

I/O	Connector	Mating connector		Terminal
ONIA		Chain SV		SVH-21T-P1.1
CNT	CN1 B3P5-VH	VHR-5N	Loose	BVH-21T-P1.1
010			SVH-21T-P1.1	
CN2	B4P-VH	VHR-4N	-4N Chain SVH-21T-P1. Loose BVH-21T-P1.	
				(Mfr: J.S.T.)

% I/O Connector is Mfr.J.S.T.

* Option:-J4:EP (TE Connectivity) connector type.



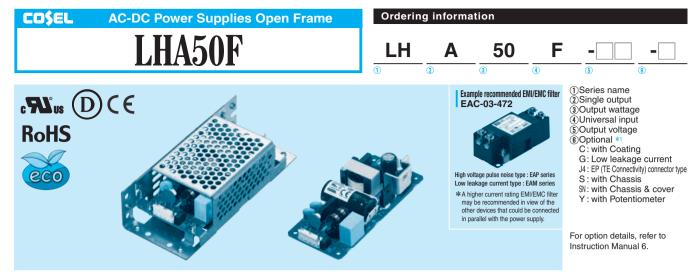
Chassis and cover type

CN1	CN1 CN2					
Pin No.	Input		Pin No.	Output		
1	AC(L)		1, 2	-V		
2			1, 2	- v		
3	AC(N)		3, 4	+V		
4			3,4	τv		
5	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]

5

- % 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

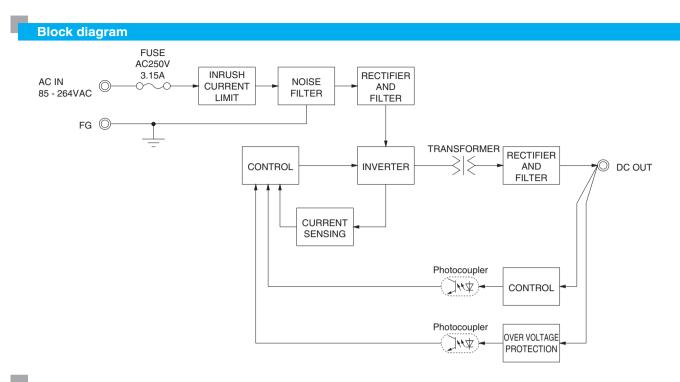


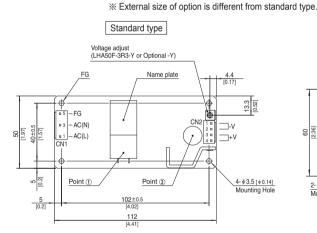
MODEL	LHA50F-3R3-Y	LHA50F-5	LHA50F-12	LHA50F-15	LHA50F-24	LHA50F-36	LHA50F-48
MAX OUTPUT WATTAGE[W] *2	26.4	40	51.6	52.5	50.4	50.4	52.8
DC OUTPUT *2	3.3V8A	5V8A	12V4.3A	15V3.5A	24V2.1A	36V1.4A	48V1.1A

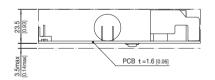
SPECIFICATIONS

	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)				
		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)						
IPUT		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	
		ACIN 100V) Ta=25°C at col			/	1		
	INRUSH CURRENT[A]	ACIN 230V	21 1) Ta=25°C at col						
	LEAKAGE CURREN			0.30 / 0.65max (ACIN 100V / 240V 60Hz, lo=100%, According to IEC62368-1 and DEN-AN)						
	VOLTAGE[V]		3.3	5	12	15	24	36	48	
	CURRENT[A]	*2		8.0	4.3	3.5	2.1	1.4	1.1	
	LINE REGULATION			20max	48max	60max	96max	144max	192max	
	LOAD REGULATION[mV] *3			40max	100max	120max	150max	240max	240max	
	LOVE HEADENHOU	0 to +50℃		80max	120max	120max	120max	150max	150max	
	RIPPLE[mVp-p]		140max	140max	160max	160max	160max	200max	200max	
	*4	lo=0 to 15%		300max	300max	300max	300max	300max	300max	
		0 to +50℃		120max	150max	150max	150max	250max	250max	
UTPUT	RIPPLE NOISE[mVp-p]	-10 to 0℃		120max	180max	180max	180max	300max	300max	
01901	*4									
		lo=0 to 15%		360max	360max	360max	360max	360max	360max	
	TEMPERATURE REGULATION[mV]	0 to +50°C		50max	120max	150max	240max	360max	480max	
	DDIET	-10 to +50℃		60max	150max	180max	290max	450max	600max	
	DRIFT[mV]	*5		20max	48max	60max	96max	144max	192max	
	START-UP TIME[ms]		40typ (ACIN 10	, ,	(10)					
0	HOLD-UP TIME[ms]			0V, lo=100%) / 1		, ,				
	OUTPUT VOLTAGE ADJUSTMENT		2.85 to 3.63		1	adjusting output	<u> </u>	,		
	OUTPUT VOLTAGE SETTING[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 50.0	
ROTECTION	OVERCURRENT PROTECTION			% of rating and	1					
IRCUIT 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	41.40 to 50.40	55.20 to 67.2	
THERS	OPERATING INDICA	TION	Not provided							
	REMOTE SENSING		Not provided							
	INPUT-OUTPUT		AC3,000V 1minute, Cutoff current = 10mA, DC500V 100M Ω min (At Room Temperature)							
OLATION	INPUT-FG		AC2,000V 1minute, Cutoff current = 10mA, DC500V 100M Ω min (At Room Temperature) AC500V 1minute, Cutoff current = 25mA, DC500V 100M Ω min (At Room Temperature)							
	OUTPUT-FG			,	,	,	I	rature)		
	OPERATING TEMP., HUMID.AND				0,	000m (16,500fee	,			
VIRONMENT	STORAGE TEMP., HUMID.AND	ALTITUDE			0,	000m (30,000fee	,			
L. L	VIBRATION		,		/	inutes each alon	g X, Y and Z axis	6		
	IMPACT), 11ms, once ea						
AFETY AND	AGENCY APPROVA							plies with DEN-A	N	
OISE	CONDUCTED NOISE					PR32-B, EN550		B		
EGULATIONS	HARMONIC ATTENU					t-in power factor	,			
THERS	CASE SIZE/WEIGHT					, .		s & cover : 280g i	max)	
meno	COOLING METHOD	*2	Convection/For	ced air (Requires	s external fan) (F	Refer to "Derating	")			
detailed *2 Derating *3 At low left	ed options may affect the pul product specifications. j is required. bad conditions, the burst m d to measure the characte	node opera	tion will start. To ch	eck load regulation,	25 *6 Pl you no	6°C, with the input vol ease contact us about	tage held constant a ut another class. Whe C61000-3-2. Please o	hour period after a h t the rated input/outp en two or more units contact us for details. verload condition.	ut. are operating it m	
*4 This is t at 150m (Equival	he value that measured on r m from output terminal. Mea ent to KEISOKU-GIKEN:RM nd rinnle noise spec is char	measuring b asured by 2 1104).	ooard with capacitor o 0MHz oscilloscope or	of 22 µ F and 0.1 µ F r Ripple-Noise meter	* Pa	arallel operation is no	t possible.	upply in case of pulse	e load.	







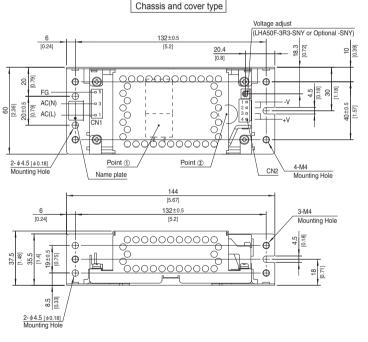


- % The back side of PCB of the power supply is assembled some SMDs.
- Be careful not to bump against the attached area by vibration. % Use the spacer of 8mm [0.31] length or more for isolation.
- And do not use press-fitting bush. * Point ①, Point ② are thermometry points. Please refer to Instruction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

I/O	Connector	ctor Mating connector				
014		VHR-5N	Chain	SVH-21T-P1.1		
CNT	B3P5-VH	3P5-VH VHR-5N Loose	Loose	BVH-21T-P1.1		
010	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.

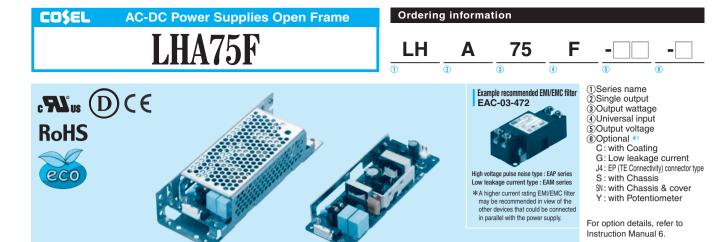


CN1		CN2				
Pin No.	Input		Pin No.	Output		
1	AC(L)		1, 2	-V		
2			1, 2	-v		
3	AC(N)		3, 4	+V		
4			3,4	τv		
5	FG					

- % 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



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

SPECIFICATIONS

	MODEL		LHA75F-3R3-Y	LHA75F-5	LHA75F-12	LHA75F-15	LHA75F-24	LHA75F-36	LHA75F-48
	VOLTAGE[VAC]	*2	85 - 264 1φ (R	efer to "Derating	and Instruction	Manual 1.1)			·
		ACIN 100V	0.6typ	0.8typ	0.9typ				
	CURRENT[A]	ACIN 230V	0.3typ	0.4typ	0.5typ				
	FREQUENCY[Hz]	1	50 / 60 (45 - 66)						
		ACIN 100V	74.0typ	79.0typ	84.5typ	85.5typ	86.0typ	87.5typ	87.5typ
IPUT	EFFICIENCY[%]	ACIN 230V	75.0typ	81.0typ	86.5typ	87.5typ	88.0typ	89.5typ	89.5typ
		ACIN 100V	0.96typ	0.97typ	1001010	10.000		100001	1001010
	POWER FACTOR (lo=100%)	ACIN 230V	0.70typ	0.80typ					
		ACIN 100V) Ta=25°C at col	d start				
	INRUSH CURRENT[A]	ACIN 230V	21.1) Ta=25°C at col					
	LEAKAGE CURREN					00%, According t	DIEC62368-1 ar	DEN-AN)	
	VOLTAGE[V]	1[111/2]	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		20max	20max	48max	60max	96max	144max	192max
	LOAD REGULATION		40max	40max	100max	120max	150max	240max	240max
	LOAD REGULATION	0 to +50°C *7	80max	80max	120max	120max	120max	150max	150max
OUTPUT	RIPPLE[mVp-p]	-10 to 0℃		140max	120max 160max	120max	160max	200max	200max
		lo=0 to 15%		300max	360max	500max		500max	200max
		0 to +50°C *7	120max	120max	150max		500max	250max	250max
	RIPPLE NOISE[mVp-p]					150max	150max		
		-10 to 0°C	160max	160max	180max	180max	180max	300max	300max
		lo=0 to 15%	360max	360max	400max	600max	600max	600max	600max
	TEMPERATURE REGULATION[mV]	0 to +50°C *7	50max	50max	120max	150max	240max	360max	480max
		-10 to +50℃*7	60max	60max	150max	180max	290max	450max	600max
	DRIFT[mV] *5		20max	20max	48max	60max	96max	144max	192max
	START-UP TIME[ms]		100typ (ACIN 100V, Io=100%) 20typ (ACIN 100V, Io=100%)						
	HOLD-UP TIME[ms]								
	OUTPUT VOLTAGE ADJUSTMENT		2.85 to 3.63	<u> </u>		djusting output vo	<u> </u>	,	1
	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	34.50 to 37.50	46.00 to 50.0
ROTECTION	OVERCURRENT PROT			% of rating and	1		1	1	1
IRCUIT 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	41.40 to 50.40	55.20 to 67.20
THERS	OPERATING INDICA	TION	Not provided						
	REMOTE SENSING		Not provided						
	INPUT-OUTPUT		,	,	,	500V 100M Ω mir		/	
SOLATION	INPUT-FG		,	,	,	500V 100M Ω mir	<u> </u>	/	
	OUTPUT-FG		AC500V 1minute, Cutoff current = 25mA, DC500V 100M Ω min (At Room Temperature)						
	OPERATING TEMP., HUMID. AND	ALTITUDE *2	-10 to +70℃, 20) - 90%RH (Non	condensing), 5,	000m (16,500fee	et) max		
VIRONMENT	STORAGE TEMP., HUMID.AND	ALTITUDE	-20 to +75°C, 20 - 90%RH (Non condensing), 9,000m (30,000feet) max						
	VIBRATION		10 - 55Hz, 19.6	m/s² (2G), 3minu	ites period, 60m	inutes each alon	g X, Y and Z axis	6	
	IMPACT		196.1m/s ² (20G), 11ms, once each X, Y and Z axis						
AFETY AND	AGENCY APPROVA	LS	UL62368-1, C-I	JL (equivalent to	CAN/CSA-C22	.2No.62368-1), E	N62368-1, Com	plies with DEN-A	N
DISE	CONDUCTED NOISE		Complies with F	CC-B, VCCI-B,	CISPR11-B, CIS	SPR32-B, EN550	11-B, EN55032-	В	
EGULATIONS	HARMONIC ATTENU	JATOR *6	Complies with I	EC61000-3-2 (C	lass A)				
TUEDO	CASE SIZE/WEIGHT	•	50×27×150m	m [1.97×1.07×5	5.91 inches] (W>	(H×D) / 190g m	ax (with chassis	& cover : 370g m	nax)
THERS	COOLING METHOD	*2				Refer to "Derating		0	
detailed	ed options may affect the pul product specifications. g is required.	blished stan	dard specifications. I	Please contact us for	* 5 D	ipple and ripple noise rift is the change in D ວິC , with the input vo	C output for an eight	hour period after a h	nalf-hour warm-up

*3 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 *4 at 150mm from output terminal. Measured by 20MHz oscilloscope or Ripple-Noise meter (Equivalent to KEISOKU-GIKEN:RM104).

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

Please contact us about another class.

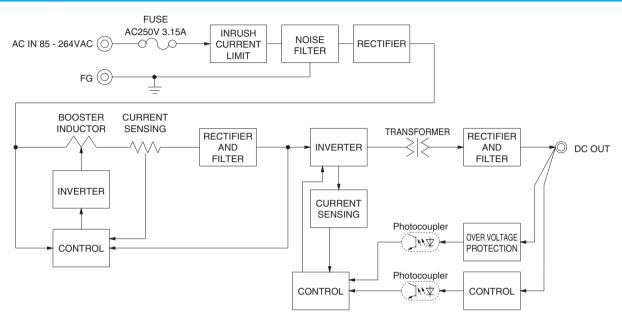
*6

*7

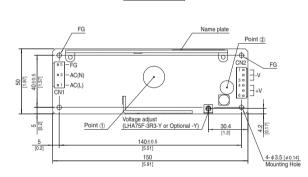
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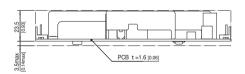




% External size of option is different from standard type.

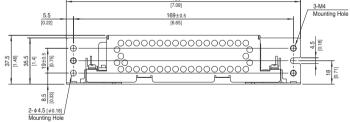


Standard type



169±0.5 5.5 founting Hole [6.65 Point (2) 106 20 θĻ FG 0000 AC(N) 20±0.5 AC(IN) 2- \$\phi 4.5 [\$\phi 0.18] Mounting Hole Name plate Point ① 45.4 9.2 Voltage adjust (LHA75F-3R3-SNY or Optional -SNY 180

Chassis and cover 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
014		VHR-5N	Chain	SVH-21T-P1.1
CINT	B3P5-VH	Loose	Loose	BVH-21T-P1.1
CNID	B6P-VH	VHR-6N	Chain	SVH-21T-P1.1
CNZ	B0P-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.	Output
1	AC(L)	1 to 3	-V
2		1103	- v
3	AC(N)	4 to 6	+V
4		4 10 0	ΨV
5	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]

60 2.36]

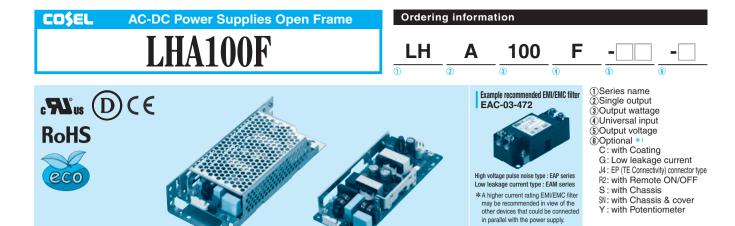
* Weight : 190g max (with chassis and cover : 370g max)

* PCB Material / thickness : FR-4 / 1.6mm [0.06]

* Optional chassis and cover material : Galvanizing steel board

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

10



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

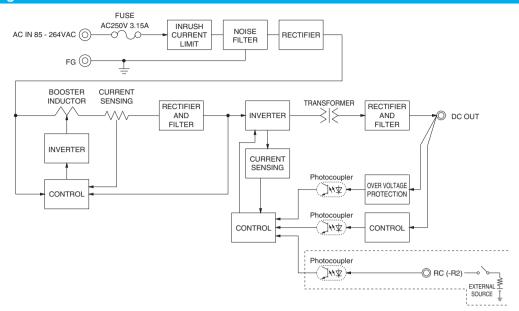
For option details, refer to

SPECIFICATIONS

	MODEL		LHA100F-5	LHA100F-12	LHA100F-15	LHA100F-24	LHA100F-36	LHA100F-48		
	VOLTAGE[VAC]	*2	85 - 264 1 φ (Refe	er to "Derating" and	d Instruction Manua	ul 1.1)				
		ACIN 100V	1.0typ	1.2typ						
	CURRENT[A]	ACIN 230V	0.5typ	0.6typ						
	FREQUENCY[Hz]		50 / 60 (45 - 66)							
		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		
		ACIN 100V	0.97typ	0.97typ	, ,,			, ,,		
	POWER FACTOR (lo=100%)	ACIN 230V	0.83typ	0.87typ						
		ACIN 100V		Fa=25℃ at cold sta	art					
	INRUSH CURRENT[A]	ACIN 230V	, ,, ,	typ (lo=100%) Ta=25 \degree at cold start						
	LEAKAGE CURREN					cording to IEC6236	68-1 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		20max	48max	60max	96max	144max	192max		
	LOAD REGULATION		40max	100max	120max	150max	240max	240max		
	LOAD HEGGEAHON	0 to +50°C *7	80max	120max	120max	120max	150max	150max		
	RIPPLE[mVp-p]	-10 to 0°C	140max	160max	160max	160max	200max	200max		
	*4	lo=0 to 15%		360max	500max	500max	500max	500max		
		0 to +50℃*7	120max	150max	150max	150max	250max	250max		
Ουτρυτ	RIPPLE NOISE[mVp-p] *4 TEMPERATURE REGULATION[mV]	-10 to 0℃	160max	180max	180max	180max	300max	300max		
		lo=0 to 15%		400max	600max	600max	600max	600max		
		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		
Н	START-UP TIME[ms]		100typ (ACIN 100V, Io=100%) 20typ (ACIN 100V, Io=100%)							
	HOLD-UP TIME[ms]		71 (, ,						
	OUTPUT VOLTAGE ADJUSTMENT RANGE[V]		· · ·	· · · ·	sting output voltage	/	04501 0750	40.00 - 50.0		
			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 50.0		
	OVERCURRENT PROT		Works over 105%							
			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 67.2		
IRCUIT AND		TION	Not provided							
THERS	REMOTE SENSING		Not provided							
	REMOTE CONTROL	<u> </u>		struction Manual	- /					
	INPUT-OUTPUT·RC	*8	,	,	,	$00M\Omega$ min (At Roor	/			
SOLATION	INPUT-FG					$00M\Omega$ min (At Roor				
	OUTPUT·RC-FG	*8	,		,	M Ω min (At Room	1 /			
	OUTPUT-RC	*8	, · · · · · · · · · · · · · · · · · · ·		,	I Ω min (At Room Te	emperature)			
	OPERATING TEMP., HUMID.AND	-	-10 to +70°C, 20 - 90%RH (Non condensing), 5,000m (16,500feet) max							
VIRONMENT	STORAGE TEMP., HUMID.AND	ALTITUDE	-20 to +75°C, 20 - 90%RH (Non condensing), 9,000m (30,000feet) max							
	VIBRATION		10 - 55Hz, 19.6m/s ² (2G), 3minutes period, 60minutes each along X, Y and Z axis							
	IMPACT			11ms, once each X						
AFETY AND	AGENCY APPROVAL		UL62368-1, C-UL (equivalent to CAN/CSA-C22.2No.62368-1), EN62368-1, Complies with DEN-AN							
OISE	CONDUCTED NOISE		Complies with FC	C-B, VCCI-B, CISF	PR11-B, CISPR32-I	B, EN55011-B, EN5	55032-B			
EGULATIONS	HARMONIC ATTENU	JATOR *6	Complies with EN	61000-3-2 (Class	A)					
THERS	CASE SIZE/WEIGHT		62×27×155mm	[2.44×1.07×6.10	inches] (W×H×D) / 250g max (with	chassis & cover : 45	i0g max)		
TILINO	COOLING METHOD	*2	Convection/Force	d air (Requires ext	ernal fan) (Refer to	"Derating")				
specification specification *2 Derating is *3 At low load load regulat average motion		iled product ration will star ne characteris	by 20 KEISC Ripple rt. To check operal stics at \$5 Drift is hour v	MHz oscilloscope or Ripple DKU-GIKEN:RM104). and ripple noise spec is o tion. the change in DC output	from output terminal. Measi -Noise meter (Equivalent tr change at Io=0 to 15% by bi for an eight hour period afte nput voltage held constant	0 *7 5V outpu *8 Applicab urst * To meet t * Parallel o er a half- * Sound no	ntact us about another class t product, the maximum t le when Remote ON/OFF he specification, do not oper peration is not possible. ise may be generated by po	emperature of 40°C. (optional) is added. ate overload condition.		

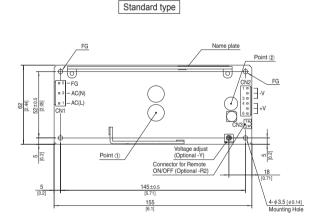
LHA100F | COSEL

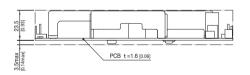


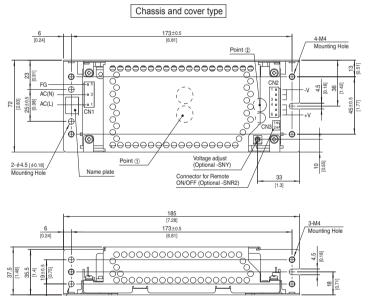


External view

* 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

inst								
I/O	Connector	Mating connector		Terminal				
014		VHR-5N	Chain	SVH-21T-P1.1				
CNT	B3P5-VH	VHR-5N	Loose	BVH-21T-P1.1				
CNIO	B6P-VH		Chain	SVH-21T-P1.1				
CINZ	B0P-VH	VHR-6N	Loose	BVH-21T-P1.1				

(Mfr: J.S.T.)

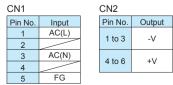
% I/O Connector is Mfr.J.S.T.

* Option:-J4:EP (TE Connectivity) connector type.

- % Dimensions in mm, []=inches
- % Tolerance : ±1 [±0.04]
- % Weight : 250g max (with chassis and cover : 450g max)

8.5 2- φ 4.5 [φ0.18] Mounting Hole

- % 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

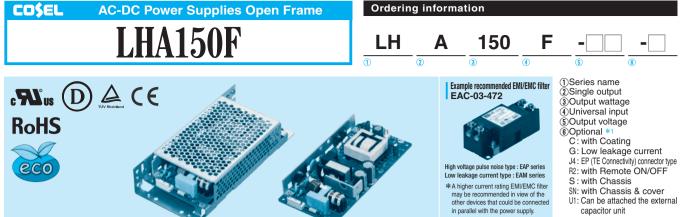


PIN No. Contents 1 RC(+) 2 RC(-) Model B2B-XH-A Mating Connector (Terminal) XHP-2 BXH-001T-P0.6 or SXH-001T-P0.6 % Keep drawing current per pin below 5A for CN2.

CN3 Option (Mfr:J.S.T.)

May 26, 2022

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



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	LHA150F-12	LHA150F-24	LHA150F-36	LHA150F-48
MAX OUTPUT WATTAGE[W]	2 150	151.2	151.2	153.6
DC OUTPUT	2 12V 12.5A	24V 6.3A	36V 4.2A	48V 3.2A

SPECIFICATIONS

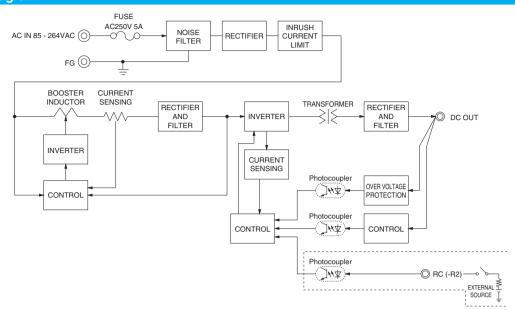
	MODEL		LHA150F-12	LHA150F-24	LHA150F-36	LHA150F-48			
	VOLTAGE[VAC]	*2	85 - 264 1 φ (Refer to "Dera	ating" and Instruction Manu	ial 1.1)				
		ACIN 100V		3					
	CURRENT[A]	ACIN 230V							
	FREQUENCY[Hz]		50 / 60 (45 - 66)						
		ACIN 100V	86.5typ	89.0typ	89.5typ	90.0typ			
NPUT	EFFICIENCY[%]	ACIN 230V		92.0typ	92.5typ	93.0typ			
		ACIN 100V		02.000	02.009				
	POWER FACTOR (lo=100%)	ACIN 230V	0.91typ						
		ACIN 100V	0.91typ 15typ (lo=100%) Ta=25°C at cold start						
	INRUSH CURRENT[A]		35typ (lo=100%) Ta=25°C at cold start						
	LEAKAGE CURREN		0.40 / 0.75max (ACIN 100V		coording to IEC62368-1 a	nd DEN-AN)			
	VOLTAGE[V]	וריייזי	12	24	36	48			
	CURRENT[A]	*2	12.5	6.3	4.2	3.2			
				96max	4.2 144max	192max			
						240max			
	LOAD REGULATION	[mV] *3 0 to +50°C *7		150max 120max	240max	150max			
	RIPPLE[mVp-p]		120max		150max				
_	*4	-10 to 0°C	160max	160max	200max	200max			
		lo=0 to 10%		160max	200max	200max			
	RIPPLE NOISE[mVp-p]	0 to +50℃*7	150max	150max	250max	250max			
DUTPUT	*4	-10 to 0°C	180max	180max	300max	300max			
		lo=0 to 10%		230max	300max	300max			
	TEMPERATURE REGULATION[mV]	0 to +50°C *7	120max	240max	360max	480max			
	-10 10 +30 C *7		150max	290max	450max	600max			
	DRIFT[mV]	*5	48max	96max	144max	192max			
F 0	START-UP TIME[ms]		700typ (ACIN 100V, Io=100%)						
	HOLD-UP TIME[ms]		20typ (ACIN 100V, lo=100%	/					
	OUTPUT VOLTAGE ADJUSTMENT RANGE[V]		Fixed ("Y"option is available for adjusting output voltage between +10%, -5%)						
	OUTPUT VOLTAGE SET		11.50 to 12.50	23.00 to 25.00	34.50 to 37.50	46.00 to 50.00			
	OVERCURRENT PROT		Works over 105% of rating and recovers automatically						
ROTECTION			13.80 to 16.80	27.60 to 33.60	41.40 to 50.40	55.20 to 67.20			
	OPERATING INDICA	TION	Not provided						
DTHERS	REMOTE SENSING		Not provided						
	REMOTE ON/OFF		Option (Refer to Instruction	Manual 6.1)					
	INPUT-OUTPUT·RC	*8	AC3,000V 1minute, Cutoff	current = 10mA, DC500V 1	$00M\Omega$ min (At Room Tem	perature)			
SOLATION	INPUT-FG		AC2,000V 1minute, Cutoff	current = 10mA, DC500V 1	$00M\Omega$ min (At Room Tem	perature)			
SOLAHON	OUTPUT·RC-FG	*8	AC500V 1 minute, Cutoff cu	rrent = 25mA, DC500V 100	$OM\Omega$ min (At Room Tempe	erature)			
	OUTPUT-RC	*8	AC100V 1minute, Cutoff cu	rrent = 25mA, DC100V 10	M Ω min (At Room Temper	ature)			
	OPERATING TEMP., HUMID.AND	ALTITUDE *2	-10 to +70°C, 20 - 90%RH (Non condensing), 3,000m (10,000feet) max (EN62477-1 (OVC III) : 2,000m (6,600feet) max)						
NVIRONMENT	STORAGE TEMP., HUMID. AND	ALTITUDE	-20 to +75°C, 20 - 90%RH (Non condensing), 9,000m (30,000feet) max						
	VIBRATION		10 - 55Hz, 19.6m/s ² (2G), 3minutes period, 60minutes each along X, Y and Z axis						
	IMPACT		196.1m/s ² (20G), 11ms, once each X, Y and Z axis						
SAFETY AND	AGENCY APPROVAI	S	UL62368-1, C-UL (equivalent	t to CAN/CSA-C22.2 No.6236	68-1), EN62368-1, EN62477	-1 (OVC III), Complies with DEN-AI			
IOISE	CONDUCTED NOISE		Complies with FCC-B, VCC	I-B, CISPR11-B, CISPR32	-B, EN55011-B, EN55032	-В			
REGULATIONS	HARMONIC ATTENU	ATOR *6							
OTHERS	CASE SIZE/WEIGHT		75×27×160mm [2.95×1.	07×6.30 inches] (W×H×I	D) / 320g max (with chass	is & cover : 570g max)			
JIHERS	COOLING METHOD	*2							
 specification specification 2 Derating is *3 At low load load regula 		iled product ation will star	KEISOKU-GIKEN:F Ripple and ripple no operation. t. To check *5 Drift is the change i	ope or Ripple-Noise meter (Equivalent RM104). oise spec is change at lo=0 to 10% by in DC output for an eight hour period at °C, with the input voltage held constant	burst * To meet the speci burst * Parallel operation * Sound noise may fter a half- load.	Remote ON/OFF (optional) is added. fication, do not operate overload condition. is not possible. be generated by power supply in case of pulse			

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May 26, 2022

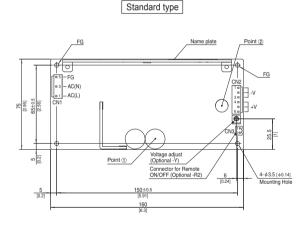
LHA150F | COSEL

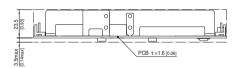


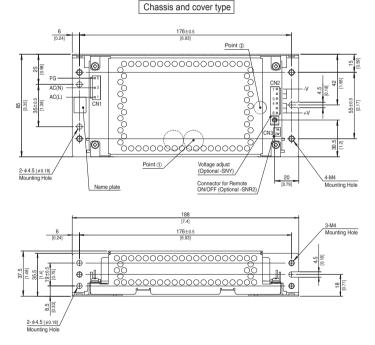


External view

* 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
014		33P5-VH VHR-5N Chain Loose	Chain	SVH-21T-P1.1
CINT	B3P2-VH		Loose	BVH-21T-P1.1
CNID		VHR-6N	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.

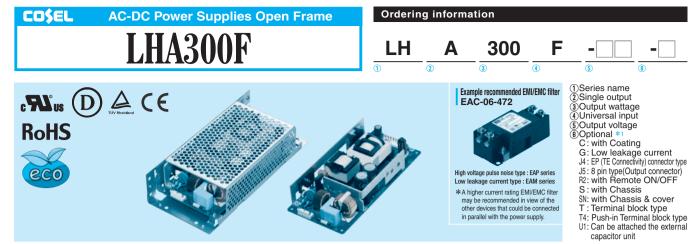
Dimensions in mm, []=inches
 Tolerance : ±1 [±0.04]

- % 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 CN2 Pin No. Pin No. Input Output 1 AC(L) 1 to 3 -V 2 AC(N) 3 4 to 6 +V 4 FG 5

CN3 Option (Mfr:J.S.T.)						
	PIN No.	Contents				
	1	RC(+)				
	2	RC(-)				
Model B2B-XH-A Mating Connector (Terminal) XHP-2						
(BXH-001T-P0.6)						

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



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

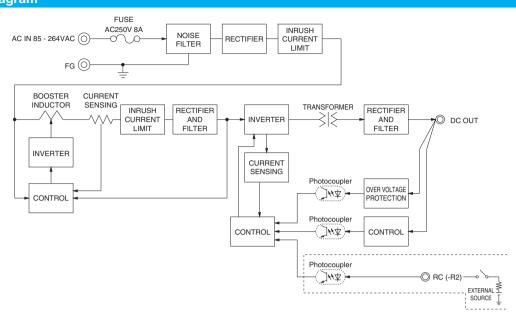
SPECIFICATIONS

	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)					
		ACIN 100V						
	CURRENT[A]	ACIN 230V	1.6typ					
	FREQUENCY[Hz]		50 / 60 (45 - 66)					
		ACIN 100V	90.0typ	91.5typ	92.0typ			
INPUT	EFFICIENCY[%]	ACIN 230V	92.0typ	93.5typ	94.0typ			
		ACIN 100V	0.99typ	1				
	POWER FACTOR (lo=100%)	ACIN 230V	0.93typ					
		ACIN 100V	20typ (Io=100%) Ta=25℃ at cold star	t				
			40typ (lo=100%) Ta=25°C at cold start					
	LEAKAGE CURREN	T[mA]	0.40 / 0.75max (ACIN 100V / 240V 60Hz, lo=100%, According to IEC62368-1 and DEN-AN)					
	VOLTAGE[V]		12	48				
	CURRENT[A]	*2	25.0	12.5	6.3			
	LINE REGULATION	mV] *3	48max	96max	192max			
	LOAD REGULATION		100max	150max	240max			
		0 to +50℃*7	120max	120max	150max			
	RIPPLE[mVp-p]	-10 to 0°C	160max	160max	200max			
	*4	lo=0 to 10%	160max	160max	200max			
		0 to +50°C *7	150max	150max	250max			
OUTPUT	RIPPLE NOISE[mVp-p]	-10 to 0°C	180max	180max	300max			
	*4	lo=0 to 10%		180max	300max			
		0 to +50°C *7	120max	240max	480max			
	TEMPERATURE REGULATION[mV]	-10 to +50°C *7	150max	290max	600max			
	DRIFT[mV]	*5	48max	96max	192max			
	START-UP TIME[ms]		700typ (ACIN 100V, Io=100%)	Johnax	Tozinax			
	HOLD-UP TIME[ms]		25typ (ACIN 100V, Io=100%)					
	OUTPUT VOLTAGE ADJUSTMENT RANGE[V]		11.40 to 13.20	22.80 to 26.40	45.60 to 52.80			
	OUTPUT VOLTAGE SETTING[V]		12.00 to 12.48 24.00 to 24.96		48.00 to 49.92			
	OVERCURRENT PROT		12.00 to 12.48 24.00 to 24.95 48.00 to 49.92 Works over 105% of rating and recovers automatically 100 to 24.95 100 to 24.95					
ROTECTION			13.80 to 16.80	55 20 to 67 20				
IRCUIT AND			13.80 to 16.80 27.60 to 33.60 55.20 to 67.20 Not provided 55.20 to 67.20 55.20 to 67.20					
THERS	REMOTE SENSING		Not provided					
	REMOTE ON/OFF		Option (Refer to Instruction Manual 6.1)					
	INPUT-OUTPUT-RC	*8			om Tomporaturo)			
	INPUT-FG		AC3,000V 1minute, Cutoff current = 10mA, DC500V 100M Ω min (At Room Temperature) AC2,000V 1minute, Cutoff current = 10mA, DC500V 100M Ω min (At Room Temperature)					
SOLATION								
	OUTPUT-RC-FG *8 OUTPUT-RC *8							
	OPERATING TEMP., HUMID.AND ALTITUDE *2							
	STORAGE TEMP., HUMID.AND		-20 to $+75^{\circ}$ C, 20 - 90%RH (Non condensing), 9,000m (30,000feet) max					
NVIRONMENT	VIBRATION	ALITIODE	10 - 55Hz, 19.6m/s ² (2G), 3minutes period, 60minutes each along X, Y and Z axis					
			$196.1m/s^2$ (20G), 11ms, once each X, Y and Z axis					
	IMPACT AGENCY APPROVALS		UL62368-1, C-UL (equivalent to CAN/CSA-C22.2 No.62368-1), EN62368-1, EN62477-1 (OVC III), Complies with DEN-AN					
AFETY AND	CONDUCTED NOISE	-	Complies with FCC-B, VCCI-B, CISP					
			Complies with IEC61000-3-2 (Class A		IN00002-D			
LOOLAHONO	HARMONIC ATTENUATOR *6 CASE SIZE/WEIGHT		84×37×180mm [3.31×1.46×7.09 inches] (W×H×D) / 580g max (with chassis & cover : 890g max)					
THERS	CASE SIZE/WEIGHT COOLING METHOD *2		Convection/Forced air (Requires external fan) (Refer to "Derating")					
 *1 The listed options may affect the published standard specifications. Please contact us for detailed product specifications. *2 Derating is required. *3 At low load conditions, the burst mode operation will star load regulation, you will need to measure the characteris 			by 20MHz oscilloscope or Ripple- KEISOKU-GIKEN:RM104). Ripple and ripple noise spec is ch operation. t. To check *5 Drift is the change in DC output fc tics at	Noise meter (Equivalent to *8 Applic *8 Applic ange at Io=0 to 10% by burst * Parall * Sounc or an eight hour period after a half- Ioad.	vable when Remote ON/OFF (optional) is added. Het the specification, do not operate overload condition. el operation is not possible. I noise may be generated by power supply in case of pulse			
*4 This is the	ode with instruments. value that measured on measuri nd 0.1 μ F at 150mm from output	ing board wit tterminal. Me	rated input/output. a capacitor *6 Please contact us about another of asured *7 12V output product, the maximum					

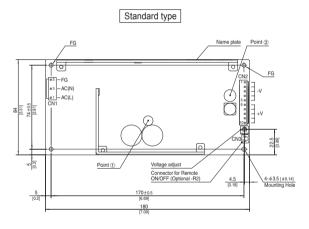
LHA-16

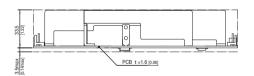


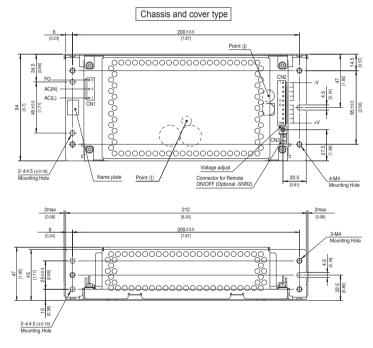




* External size of option is different from standard type.







- % 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		
014			Chain	SVH-21T-P1.1	
CN1	B3P5-VH	VHR-5N	Loose	BVH-21T-P1.1	
CN2			Chain	SVH-21T-P1.1	
	BIOD-AH	VHR-10N	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 CN2 Pin No. Pin No. Input Outpu 1 AC(L) 1 to 5 -V 2 AC(N) 3 6 to 10 +V 4 FG 5

		CN3 Opt	ion (Mfr:J.	S.T.)			
t		PIN No.	Contents				
		1	RC(+)				
		2	RC(-)				
Model B2B-XH-A Mating Connector (Terminal) XHP-2							
		BXH-0017	F-P0 6	\			

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

or SXH-001T-P0.6

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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.

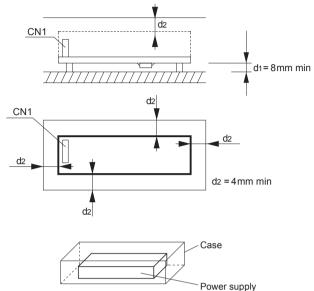
If d1 and/or d2 are less than the value mentioned in right figure, insert an insulating sheet with reinforced insulation between the power supply unit and metal chassis.

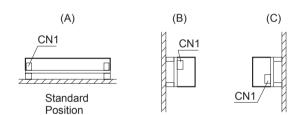
The following distance is not satisfactory for cooling condition. Please refer to "Derating" and Instruction Manual 3 for cooling method.

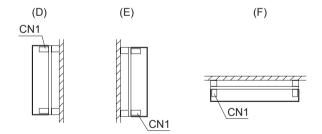
There is a possibility that it is not possible to cool enough when the power supply is used by the sealing up space as showing in right figure.

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.







Mounting screw

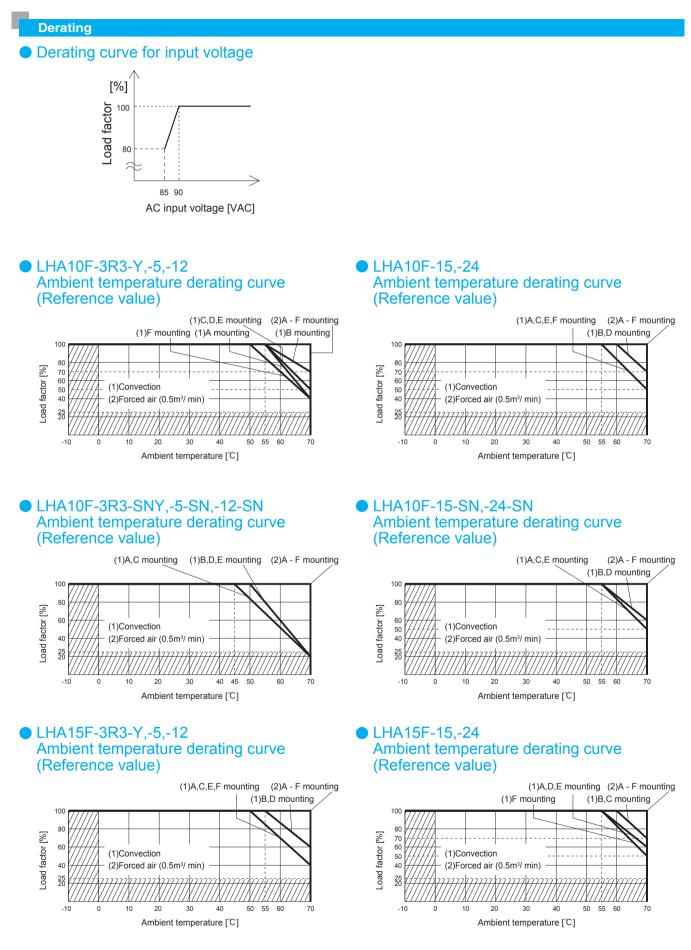
The mounting screw should be ϕ 3mm. The hatched area shows the allowance of metal parts for mounting.



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.

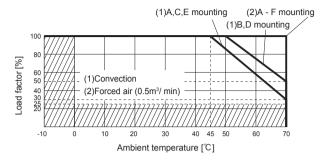
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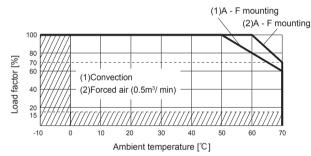
May 26, 2022

Derating

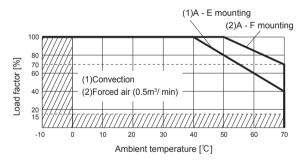
LHA15F-3R3-SNY,-5-SN,-12-SN Ambient temperature derating curve (Reference value)



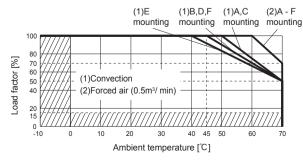
LHA30F-3R3-Y,-5,-12,-15,-24 Ambient temperature derating curve (Reference value)



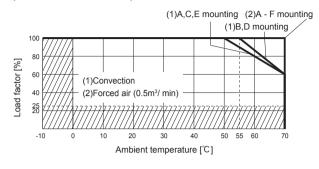
LHA30F-3R3-SNY,-5-SN,-12-SN,-15-SN,-24-SN Ambient temperature derating curve (Reference value)



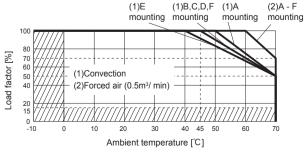
LHA50F-3R3-Y, -5, -24, -36, -48 Ambient temperature derating curve (Reference value)



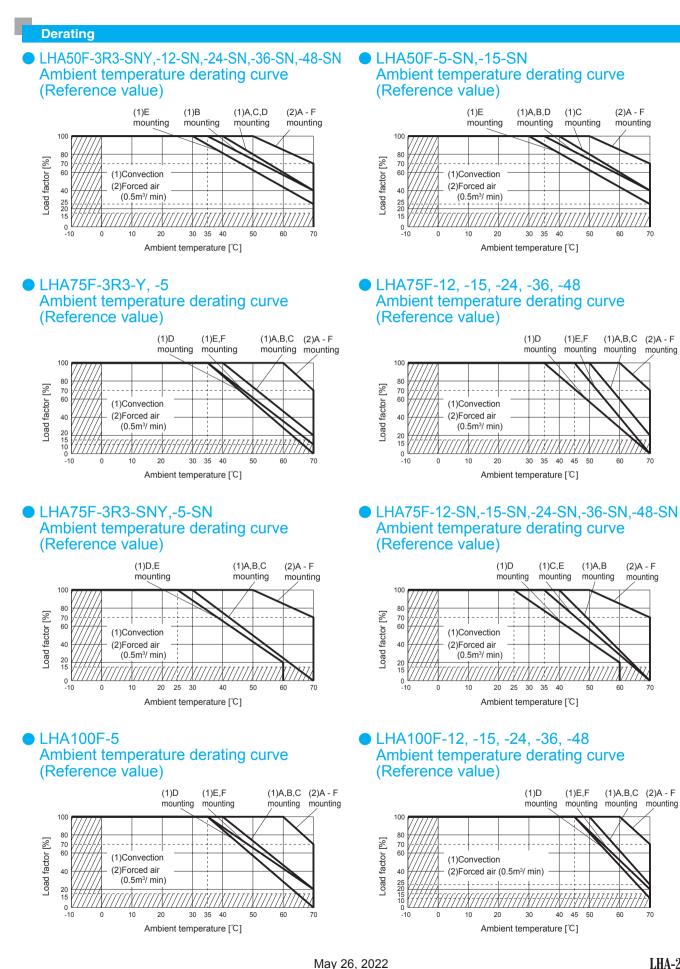
LHA15F-15-SN,-24-SN Ambient temperature derating curve (Reference value)



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



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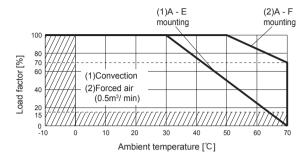


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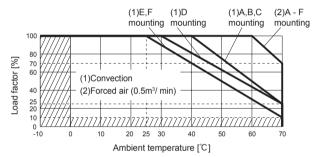
Derating

LHA100F-5-SN

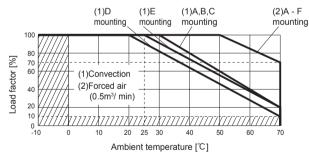
Ambient temperature derating curve (Reference value)



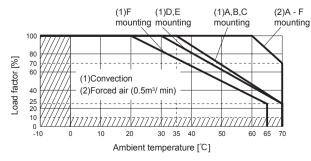
LHA150F-12 Ambient temperature derating curve (Reference value)



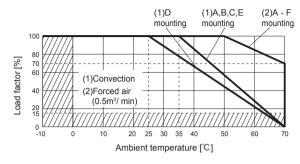
LHA150F-12-SN Ambient temperature derating curve (Reference value)



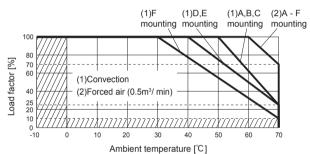
LHA300F-12-Y Ambient temperature derating curve (Reference value)



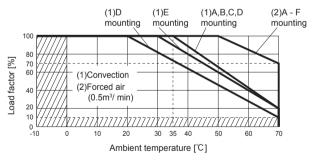
LHA100F-12-SN,-15-SN,-24-SN,-36-SN,-48-SN Ambient temperature derating curve (Reference value)



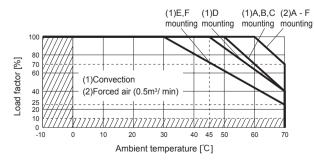
LHA150F-24, -36, -48 Ambient temperature derating curve (Reference value)



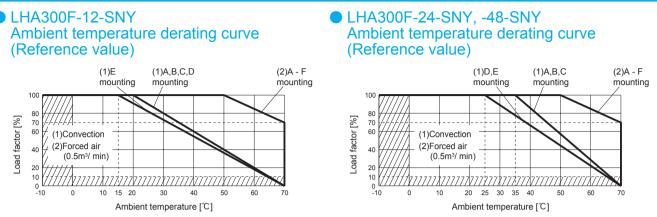
LHA150F-24-SN, -36-SN, -48-SN Ambient temperature derating curve (Reference value)



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







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 Before using our product

https://en.cosel.co.jp/product/powersupply/LHA/ https://en.cosel.co.jp/technical/caution/index.html

Basic Characteristics Data

		Quuitabia	la anti-	la muele.				Caria-/D-	rollol
Model	Circuit method	Switching frequency [kHz] *1 *2	Input current *3 [A]	Inrush current protection	PCB/Pattern		Series/Parallel operation availability		
					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	Thormistor	Thermistor FR-4	-	Yes	Yes	No
LHAISE	Flyback converter	50 to 140		Thermistor					
LHA100F	Active filter	15 to 300	1.2	Thermistor FR-4			Vee	Maria	N
	Flyback converter	35 to 130			-	Yes	Yes	No	
LHA150F	Active filter	15 to 300	1.0	The sum is to a			X		
	LLC resonant converter	90 to 280	1.8	Thermistor	FR-4	-	Yes	Yes	No
LHA300F	Active filter	15 to 300	0.5		FR-4	-	Vaa	Yes	No
	LLC resonant converter	65 to 200	3.5	Thermistor			Yes		

*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.

