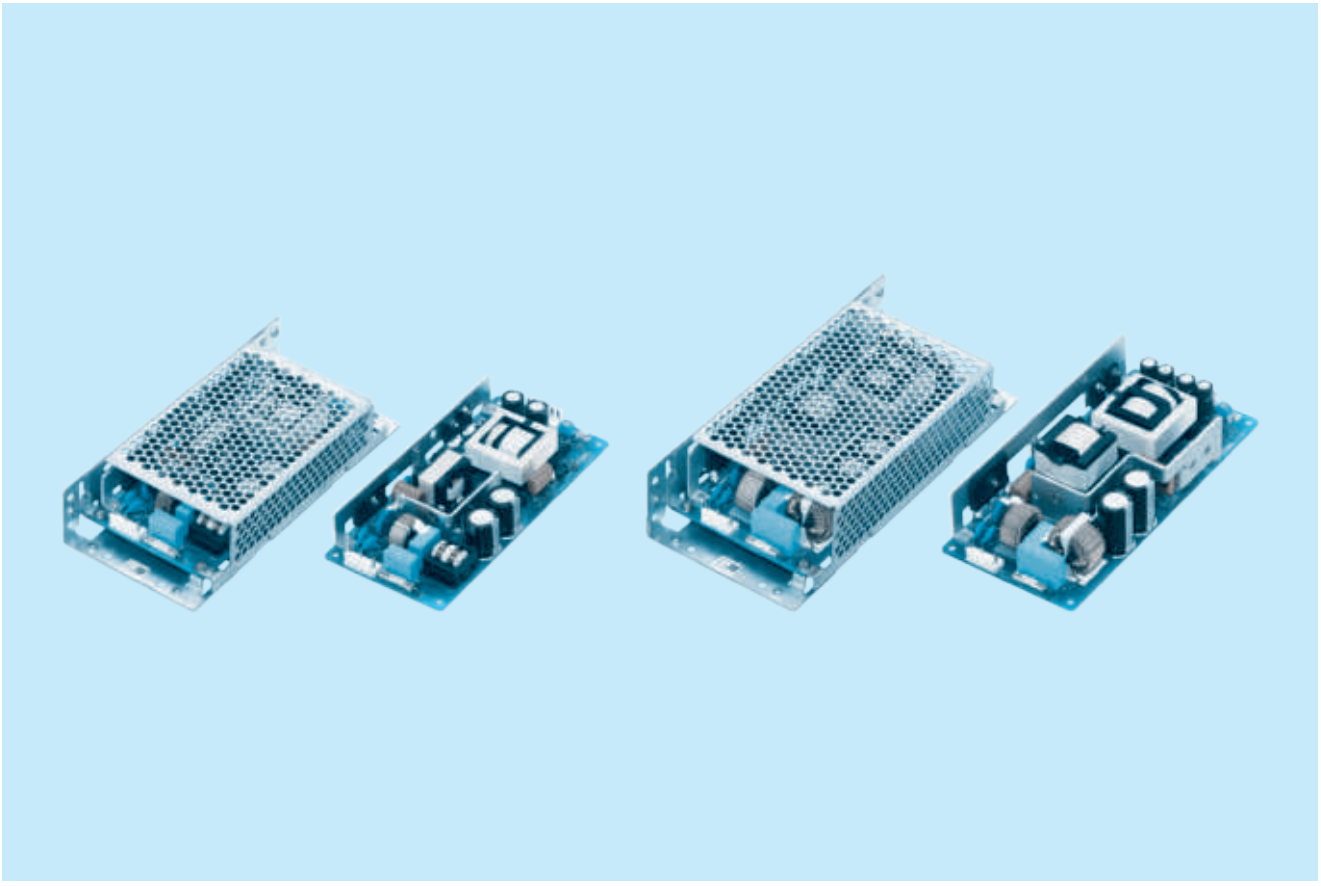
Power Factor Correction | World wide | Safety Approvals | EMI | Inrush current limiting | OCP | OVP | Cost Effective | Rugged PCB type

# LHP-series



## Feature

OVC III
High power & high peak power
High efficiency
Low profile
Active Power factor correction
Harmonic attenuator (Complies with IEC61000-3-2)
Universal input (85 - 264 VAC)
Built-in inrush current, over current, over voltage protection

## Safety 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
UL508 (Optional)

## 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

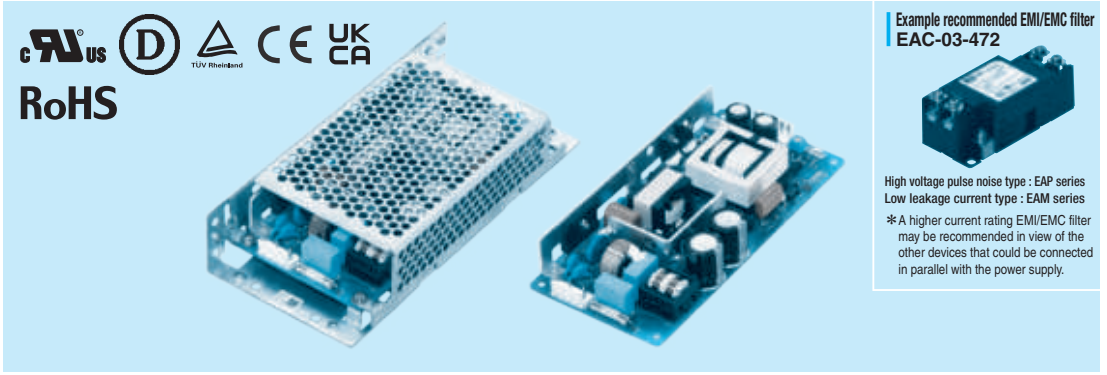
EN61000-4-2
EN61000-4-3
EN61000-4-4
EN61000-4-5
EN61000-4-6
EN61000-4-8
EN61000-4-11

COSEL AC-DC Power Supplies Open Frame

# LHP150F

## Ordering information

LH ① P ② 150 ③ F ④ -□□ ⑤ -□ ⑥



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.

①Series name
②Single output
③Output wattage
④Universal input
⑤Output voltage
⑥Optional ＊1
C : with Coating
G : Low leakage current
J4 : EP(TE Connectivity) connector type
R□ : with Remote ON/OFF
S : with Chassis
SN : with Chassis & cover
T : Terminal block type
T4 : Push-in Terminal Block Type
T5 : UL508
U1 : Can be attached the external capacitor unit

For option details, refer to instruction manual 7.1.

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.

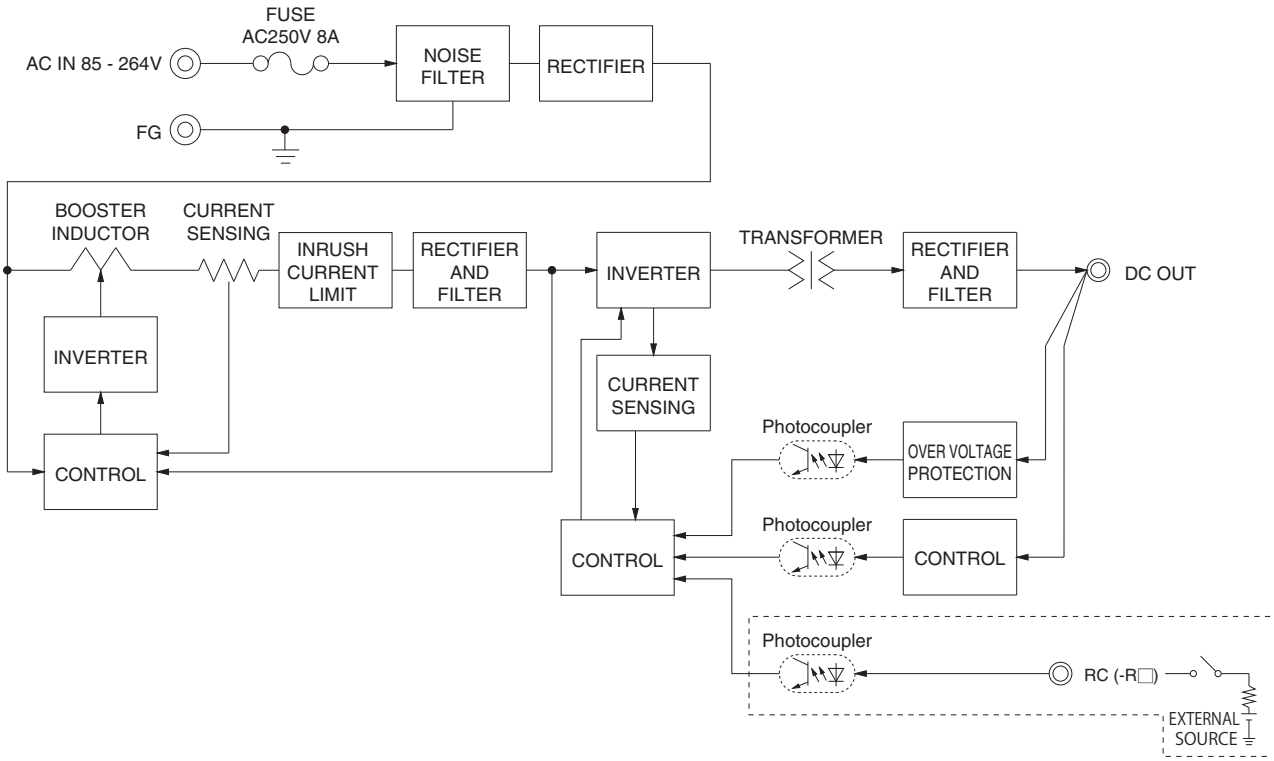
| MODEL | | LHP150F-24-Y | LHP150F-30-Y | LHP150F-36-Y | LHP150F-42-Y | LHP150F-48-Y |
|---|---|---|---|---|---|---|
| MAX OUTPUT WATTAGE[W] | ＊2 | 151.2 (302.4) | 150.0 (300.0) | 151.2 (302.4) | 151.2 (302.4) | 153.6 (307.2) |
| DC OUTPUT | ＊2 | 24V6.3A (12.6A) | 30V5.0A (10.0A) | 36V4.2A (8.4A) | 42V3.6A (7.2A) | 48V3.2A (6.4A) |

## SPECIFICATIONS

| | MODEL | | LHP150F-24-Y | LHP150F-30-Y | LHP150F-36-Y | LHP150F-42-Y | LHP150F-48-Y |
|---|---|---|---|---|---|---|---|
| INPUT | VOLTAGE[VAC] | | 85 - 264 1φ (Refer to "Derating" and Instruction Manual 1.1) ＊8 | | | | |
| | CURRENT[A] | ACIN 100V | 1.80typ | | | | |
| | | ACIN 230V | 0.80typ | | | | |
| | FREQUENCY[Hz] | | 50 / 60 (45 - 66) | | | | |
| | EFFICIENCY[%] | ACIN 100V | 90.0typ | 90.0typ | 90.5typ | 90.5typ | 91.0typ |
| | | ACIN 230V | 92.0typ | 92.0typ | 92.5typ | 92.5typ | 93.0typ |
| | POWER FACTOR (Io=100%) | ACIN 100V | 0.99typ | | | | |
| | | ACIN 230V | 0.93typ | | | | |
| | INRUSH CURRENT[A] ＊3 | ACIN 100V | 15typ (Io=100%) Ta=25℃at cold start | | | | |
| | | ACIN 230V | 35typ (Io=100%) Ta=25℃at cold start | | | | |
| | LEAKAGE CURRENT[mA] | | 0.40/0.75max (ACIN 100 / 240V, 60Hz, Io=100%, According to IEC62368-1, and DEN-AN) | | | | |
| OUTPUT | VOLTAGE[V] | | 24 | 30 | 36 | 42 | 48 |
| | CURRENT[A] | ＊2＊8 | 6.3 (Peak 12.6) | 5.0 (Peak 10.0) | 4.2 (Peak 8.4) | 3.6 (Peak 7.2) | 3.2 (Peak 6.4) |
| | LINE REGULATION[mV] | ＊4 | 96max | 120max | 144max | 168max | 192max |
| | LOAD REGULATION[mV] | ＊4 | 150max | 150max | 180max | 210max | 240max |
| | RIPPLE[mVp-p] ＊5 | 0 to +50℃ | 250max | 280max | 280max | 280max | 280max |
| | | -10 to 0℃ | 310max | 330max | 330max | 330max | 330max |
| | | Io=0 to 10% | 310max | 330max | 330max | 330max | 330max |
| | RIPPLE NOISE[mVp-p] ＊5 | 0 to +50℃ | 290max | 310max | 310max | 310max | 310max |
| | | -10 to 0℃ | 330max | 360max | 360max | 360max | 360max |
| | | Io=0 to 10% | 330max | 360max | 360max | 360max | 360max |
| | TEMPERATURE REGULATION[mV] | 0 to +50℃ | 240max | 300max | 360max | 420max | 480max |
| | | -10 to +50℃ | 290max | 370max | 450max | 530max | 600max |
| | DRIFT[mV] | ＊6 | 96max | 120max | 144max | 168max | 192max |
| | START-UP TIME[ms] | | 70typ (ACIN 100V, Io=100%) | | | | |
| | HOLD-UP TIME[ms] | | 20typ (ACIN 100V, Io=100%) | | | | |
| | OUTPUT VOLTAGE ADJUSTMENT RANGE[V] | | 22.80 to 26.40 | 28.50 to 33.00 | 34.20 to 39.60 | 39.90 to 46.20 | 45.60 to 52.80 |
| | OUTPUT VOLTAGE SETTING[V] | | 24.00 to 24.96 | 30.00 to 31.20 | 36.00 to 37.44 | 42.00 to 43.68 | 48.00 to 49.92 |
| PROTECTION CIRCUIT AND OTHERS | OVERCURRENT PROTECTION | | Works over 101% of rating and recovers automatically | | | | |
| | OVERVOLTAGE PROTECTION [V] | | 27.6 to 33.6 | 34.5 to 42.0 | 41.4 to 50.4 | 48.3 to 58.8 | 55.2 to 67.2 |
| | OPERATING INDICATION | | Not provided | | | | |
| | REMOTE SENSING | | Not provided | | | | |
| | REMOTE ON/OFF (-R□) | | Option (Refer to Instruction Manual 7.1) | | | | |
| ISOLATION | INPUT-OUTPUT・RC | ＊7 | AC3,000V 1minute Cutoff crrent = 10mA, DC500V 100MΩ min (At Room Temperature) | | | | |
| | INPUT-FG | | AC2,000V 1minute Cutoff crrent = 10mA, DC500V 100MΩ min (At Room Temperature) | | | | |
| | OUTPUT-FG | ＊7 | AC500V 1minute Cutoff crrent = 25mA, DC500V 100MΩ min (At Room Temperature) | | | | |
| | OUTPUT-RC | ＊7 | AC100V 1minute Cutoff crrent = 25mA, DC100V 100MΩ min (At Room Temperature) | | | | |
| ENVIRONMENT | OPERATING TEMP.,HUMID.AND ALTITUDE | ＊8 | -10 to +70℃, 20 - 90%RH (Non condensing), 5,000m (16,500 feet) max, (EN62477-1 (OVC Ⅲ ):2,000m (6,600 feet) max) | | | | |
| | STORAGE TEMP.,HUMID.AND ALTITUDE | | -20 to +75℃, 20 - 90%RH (Non condensing), 9,000m (30,000 feet) max | | | | |
| | 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 | | | | |
| SAFETY AND NOISE REGULATIONS | AGENCY APPROVALS | | UL62368-1, C-UL (equivalent to CAN / CSA-C22.2No.62368-1), EN62368-1, EN62477-1 (OVC Ⅲ ) Complies with DEN-AN | | | | |
| | CONDUCTED NOISE | | Complies with FCC-B, VCCI-B, CISPR32-B, EN55011-B, EN55032-B | | | | |
| | HARMONIC ATTENUATOR | ＊9 | Complies with IEC61000-3-2 (Class A) | | | | |
| OTHERS | CASE SIZE/WEIGHT | | 75X27X160mm [2.95×1.07×6.30 inches] (W×H×D) / 320g max (with chassis & cover : 570g max) | | | | |
| | COOLING METHOD | ＊8 | Convection / Forced air (Requires external fan) (Refer to "Derating") | | | | |

＊1 The listed optios may affect the published standard specifications. Please contact us for detailed product specifications and safety approvals.
＊2 Peak loading for 10sec. And Duty 40% max, refer to Instruction Manual 6. In detail. ( ) means peak current. There is a possibility that an internal device is damaged when the specification is exceeded.
＊3 The current of input surge to a built-in EMI/EMS Filter (0.2ms or less) is excluded.
＊4 In the case of dynamic fluctuations, the specifications may not be met.
＊5 Measured by 20MHz oscilloscope or Ripple-Noise meter (Equivalent to KEISOKU-GIKEN : RM104). Please refer to the instruction manual 1.7.
＊6 Drift is the change in DC output for an eight hour period after a half-hour warm-up at 25℃, with the input voltage held constant at the rated input/output.
＊7 Applicable when Remote ON/OFF (optional) is added.
＊8 Derating required.For use with DC input is Refer to Instruction Manual 1.1 and 7.1.
＊9 Please contact us about another class.
＊ To meet the specification, do not operate overload conditon.
＊ Parallel operation is not possible.
＊ Sound noise may be generated by power supply in case of pulse load.
＊ Burst operation may occur when the load factor is 10% or less.

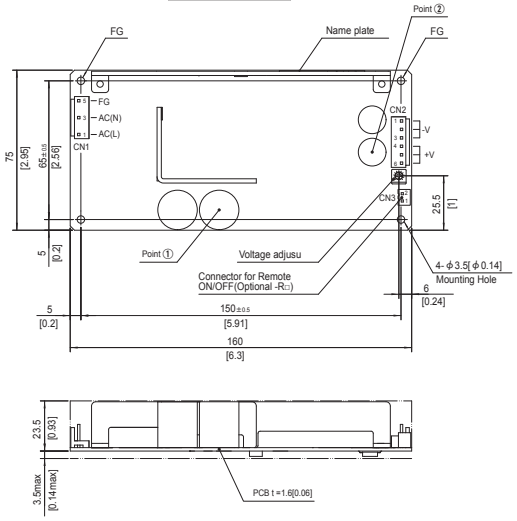
## Block diagram



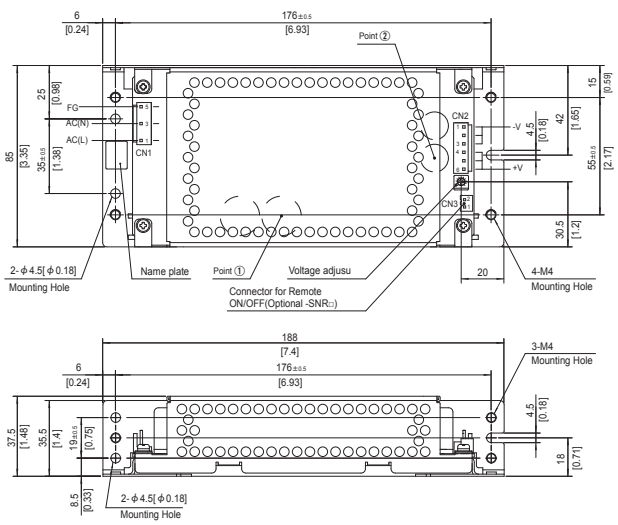

## External view

※ External size of option is different from standard type.

Standard type




Chassis and cover type




※ Use the spacer of 8mm [0.31] length or more for isolation.
And do not use press-fitting bush.
※ The back side of PCB of the power supply is assembled some SMDs.
Be careful not to bump against the attached area by vibration.
※ Point ①, Point ② are thermometry points. Please refer to Instruction Manual 3. and 7.1.

※ 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 : Hot-dip galvanizing steel board
※ Mounting torque (Mounting hole of chassis) : 1.5N·m max

< Mating connector and terminal >

| I/O Connector | | Mating connector | Terminal | | Mfr. |
|---|---|---|---|---|---|
| CN1 | B3P5-VH | VHR-5N | Chain | SVH-21T-P1.1 | J.S.T. |
| | | | Loose | BVH-21T-P1.1 | |
| CN2 | B6P-VH | VHR-6N | Chain | SVH-21T-P1.1 | |
| | | | Loose | BVH-21T-P1.1 | |

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

| Connector | | Mating connector | Terminal | | Mfr. |
|---|---|---|---|---|---|
| CN3 | B2B-XH-A | XHP-2 | Chain | SXH-001T-P0.6 | J.S.T. |
| | | | Loose | BXH-001T-P0.6 | |

< Pin assignments >

CN1

| Pin No. | Input |
|---|---|
| 1 | AC(L) |
| 2 | |
| 3 | AC(N) |
| 4 | |
| 5 | FG |

CN2

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

CN3 Option

| PIN No. | Contents |
|---|---|
| 1 | RC(+) |
| 2 | RC(-) |

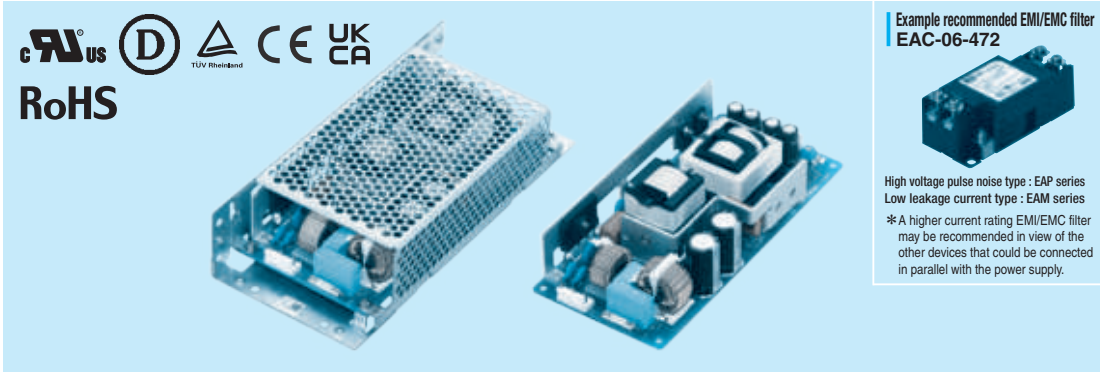
※ Pin No.2 and 4 is NC at CN1.
※ Keep drawing current per pin below 5A for CN2.

COSEL AC-DC Power Supplies Open Frame

# LHP300F

## Ordering information

LH ① P ② 300 ③ F ④ -□□ ⑤ -□ ⑥



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.

①Series name
②Single output
③Output wattage
④Universal input
⑤Output voltage
⑥Optional ＊1
C : with Coating
G : Low leakage current
J4 : EP(TE Connectivity) connector type
J5 : 8pin type (Output connector)
R□ : with Remote ON/OFF
S : with Chassis
SN : with Chassis & cover
T : Terminal block type
T4 : Push-in Terminal Block Type
T5 : UL508
U1 : Can be attached the external capacitor unit

For option details, refer to instruction manual 7.1.

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.

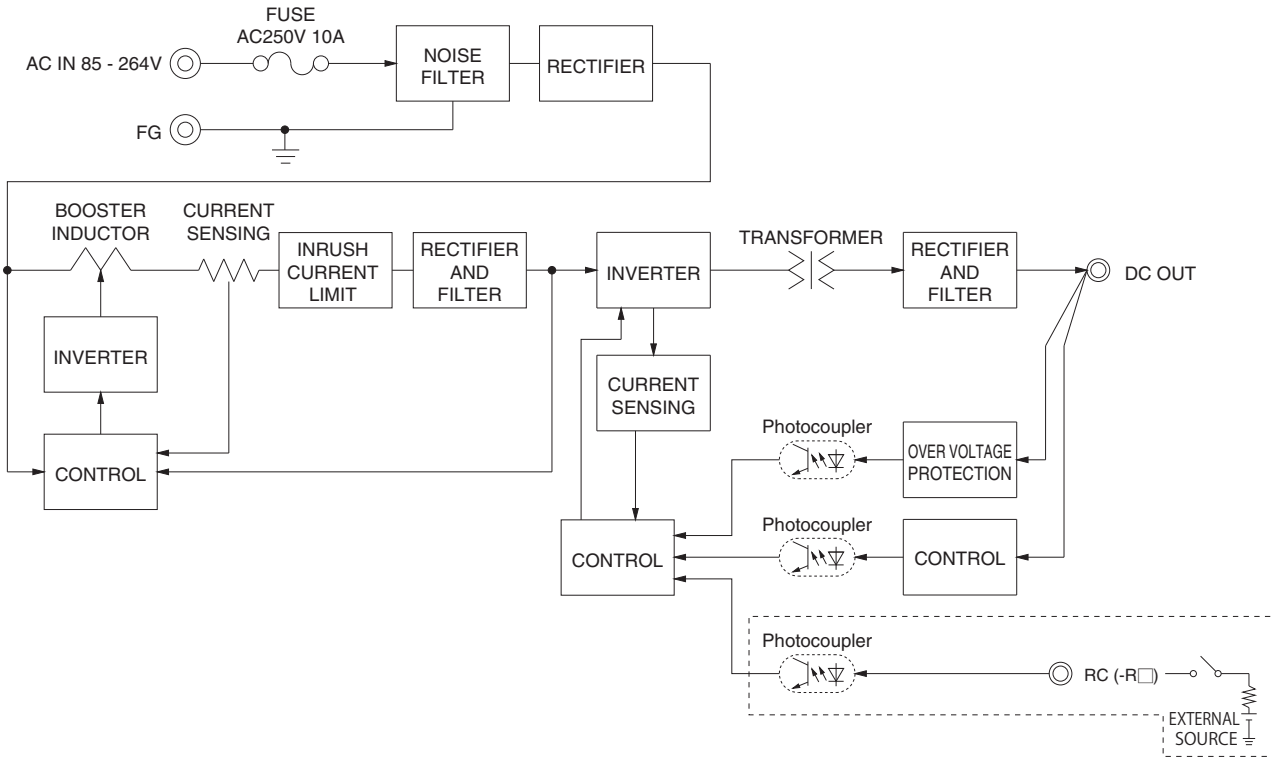
| MODEL | | LHP300F-24-Y | LHP300F-30-Y | LHP300F-36-Y | LHP300F-42-Y | LHP300F-48-Y |
|---|---|---|---|---|---|---|
| MAX OUTPUT WATTAGE[W] | ＊2 | 300.0 (600.0) | 300.0 (600.0) | 302.4 (604.8) | 302.4 (604.8) | 302.4 (604.8) |
| DC OUTPUT | ＊2 | 24V12.5A (25.0A) | 30V10.0A (20.0A) | 36V8.4A (16.8A) | 42V7.2A (14.4A) | 48V6.3A (12.6A) |

## SPECIFICATIONS

| | MODEL | | LHP300F-24-Y | LHP300F-30-Y | LHP300F-36-Y | LHP300F-42-Y | LHP300F-48-Y |
|---|---|---|---|---|---|---|---|
| INPUT | VOLTAGE[VAC] | | 85 - 264φ1f (Refer to “Derating” and Instruction Manual 1.1) ＊8 | | | | |
| | CURRENT[A] | ACIN 100V | 3.50typ | | | | |
| | | ACIN 230V | 1.60typ | | | | |
| | FREQUENCY[Hz] | | 50 / 60 (45 - 66) | | | | |
| | EFFICIENCY[%] | ACIN 100V | 91.5typ | 91.5typ | 91.5typ | 91.5typ | 92.0typ |
| | | ACIN 230V | 93.5typ | 93.5typ | 93.5typ | 93.5typ | 94.0typ |
| | POWER FACTOR (Io=100%) | ACIN 100V | 0.99typ | | | | |
| | | ACIN 230V | 0.93typ | | | | |
| | INRUSH CURRENT[A] ＊3 | ACIN 100V | 15typ (Io=100%) Ta=25℃at cold start | | | | |
| | | ACIN 230V | 35typ (Io=100%) Ta=25℃at cold start | | | | |
| | LEAKAGE CURRENT[mA] | | 0.40/0.75max (ACIN 100 / 240V, 60Hz, Io=100%, According to IEC62368-1, and DEN-AN) | | | | |
| OUTPUT | VOLTAGE[V] | | 24 | 30 | 36 | 42 | 48 |
| | CURRENT[A] | ＊2＊8 | 12.5 (peak 25.0) | 10.0 (peak 20.0) | 8.4 (peak 16.8) | 7.2 (peak 14.4) | 6.3 (peak 12.6) |
| | LINE REGULATION[mV] | ＊4 | 96max | 120max | 144max | 168max | 192max |
| | LOAD REGULATION[mV] | ＊4 | 150max | 195max | 240max | 240max | 240max |
| | RIPPLE[mVp-p] ＊5 | 0 to +50℃ | 300max | 300max | 300max | 300max | 300max |
| | | -10 to 0℃ | 380max | 420max | 420max | 420max | 420max |
| | | Io=0 to 10% | 380max | 420max | 420max | 420max | 420max |
| | RIPPLE NOISE[mVp-p] ＊5 | 0 to +50℃ | 390max | 390max | 390max | 390max | 390max |
| | | -10 to 0℃ | 500max | 500max | 500max | 500max | 500max |
| | | Io=0 to 10% | 500max | 500max | 500max | 500max | 500max |
| | TEMPERATURE REGULATION[mV] | 0 to +50℃ | 240max | 300max | 360max | 420max | 480max |
| | | -10 to +50℃ | 290max | 370max | 450max | 530max | 600max |
| | DRIFT[mV] | ＊6 | 96max | 120max | 144max | 168max | 192max |
| | START-UP TIME[ms] | | 70typ (ACIN 100V, Io=100%) | | | | |
| | HOLD-UP TIME[ms] | | 20typ (ACIN 100V, Io=100%) | | | | |
| | OUTPUT VOLTAGE ADJUSTMENT RANGE[V] | | 22.80 to 26.40 | 28.50 to 33.00 | 34.20 to 39.60 | 39.90 to 46.20 | 45.60 to 52.80 |
| | OUTPUT VOLTAGE SETTING[V] | | 24.00 to 24.96 | 30.00 to 31.20 | 36.00 to 37.44 | 42.00 to 43.68 | 48.00 to 49.92 |
| PROTECTION CIRCUIT AND OTHERS | OVERCURRENT PROTECTION | | Works over 101% of rating and recovers automatically | | | | |
| | OVERVOLTAGE PROTECTION [V] | | 27.6 to 33.6 | 34.5 to 42.0 | 41.4 to 50.4 | 48.3 to 58.8 | 55.2 to 67.2 |
| | OPERATING INDICATION | | Not provided | | | | |
| | REMOTE SENSING | | Not provided | | | | |
| | REMOTE ON/OFF (-R□) | | Option (Refer to Instruction Manual 7.1) | | | | |
| ISOLATION | INPUT-OUTPUT・RC | ＊7 | AC3,000V 1minute Cutoff crrent = 10mA, DC500V 100MΩ min (At Room Temperature) | | | | |
| | INPUT-FG | | AC2,000V 1minute Cutoff crrent = 10mA, DC500V 100MΩ min (At Room Temperature) | | | | |
| | OUTPUT-FG | ＊7 | AC500V 1minute Cutoff crrent = 25mA, DC500V 100MΩ min (At Room Temperature) | | | | |
| | OUTPUT-RC | ＊7 | AC100V 1minute Cutoff crrent = 25mA, DC100V 100MΩ min (At Room Temperature) | | | | |
| ENVIRONMENT | OPERATING TEMP.,HUMID.AND ALTITUDE | ＊8 | -10 to +70℃, 20 - 90%RH (Non condensing), 5,000m (16,500 feet) max, (EN62477-1 (OVC Ⅲ ):2,000m (6,600 feet) max) | | | | |
| | STORAGE TEMP.,HUMID.AND ALTITUDE | | -20 to +75℃, 20 - 90%RH (Non condensing), 9,000m (30,000 feet) max | | | | |
| | 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 | | | | |
| SAFETY AND NOISE REGULATIONS | AGENCY APPROVALS | | UL62368-1, C-UL (equivalent to CAN / CSA-C22.2No.62368-1), EN62368-1, EN62477-1 (OVC Ⅲ ) Complies with DEN-AN | | | | |
| | CONDUCTED NOISE | | Complies with FCC-B, VCCI-B, CISPR32-B, EN55011-B, EN55032-B | | | | |
| | HARMONIC ATTENUATOR | ＊9 | Complies with IEC61000-3-2 (Class A) | | | | |
| OTHERS | CASE SIZE/WEIGHT | | 84X37X180mm [3.31×1.46×7.09 inches] (W×H×D) / 580g max (with chassis & cover : 890g max) | | | | |
| | COOLING METHOD | ＊8 | Convection / Forced air (Requires external fan) (Refer to “Derating”) | | | | |

＊1 The listed optios may affect the published standard specifications. Please contact us for detailed product specifications and safety approvals.
＊2 Peak loading for 10sec. And Duty 40% max, refer to Instruction Manual 6. In detail. ( ) means peak current. There is a possibility that an internal device is damaged when the specification is exceeded.
＊3 The current of input surge to a built-in EMI/EMS Filter (0.2ms or less) is excluded.
＊4 In the case of dynamic fluctuations, the specifications may not be met.
＊5 Measured by 20MHz oscilloscope or Ripple-Noise meter (Equivalent to KEISOKU-GIKEN : RM104). Please refer to the instruction manual 1.7.
＊6 Drift is the change in DC output for an eight hour period after a half-hour warm-up at 25℃, with the input voltage held constant at the rated input/output.
＊7 Applicable when Remote ON/OFF (optional) is added.
＊8 Derating required.For use with DC input is Refer to Instruction Manual 1.1 and 7.1.
＊9 Please contact us about another class.
＊ To meet the specification, do not operate overload conditon.
＊ Parallel operation is not possible.
＊ Sound noise may be generated by power supply in case of pulse load.
＊ Burst operation may occur when the load factor is 10% or less.

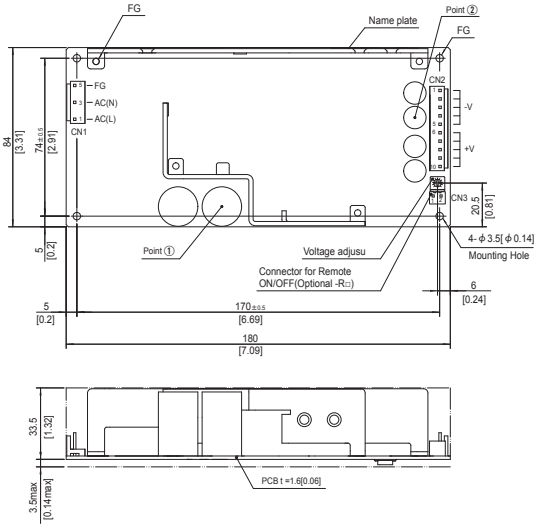
## Block diagram




## External view

※ External size of option is different from standard type.

Standard type




※ Use the spacer of 8mm [0.31] length or more for isolation.
And do not use press-fitting bush.
※ The back side of PCB of the power supply is assembled some SMDs.
Be careful not to bump against the attached area by vibration.
※ Point ①, Point ② are thermometry points. Please refer to Instruction Manual 3. and 7.1.

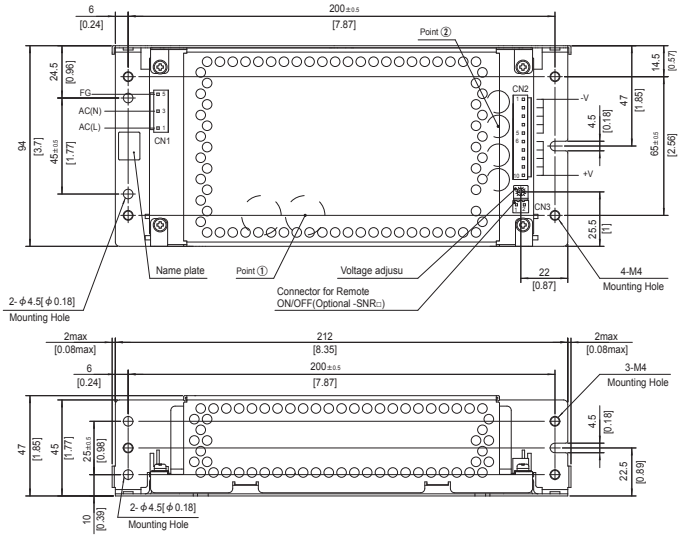
< Mating connector and terminal >

| I/O Connector | | Mating connector | Terminal | | Mfr. |
|---|---|---|---|---|---|
| CN1 | B3P5-VH | VHR-5N | Chain | SVH-21T-P1.1 | J.S.T. |
| | | | Loose | BVH-21T-P1.1 | |
| CN2 | B10P-VH | VHR-10N | Chain | SVH-21T-P1.1 | |
| | | | Loose | BVH-21T-P1.1 | |

※ Option:-J4:EP (TE Connectivity) connector type.
※ Option:-J5:Output connector as 8 pin type.

| Connector | | Mating connector | Terminal | | Mfr. |
|---|---|---|---|---|---|
| CN3 | B2B-XH-A | XHP-2 | Chain | SXH-001T-P0.6 | J.S.T. |
| | | | Loose | BXH-001T-P0.6 | |

Chassis and cover 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 : Hot-dip galvanizing steel board
※ Mounting torque (Mounting hole of chassis) : 1.5N·m max

< Pin assignments >

CN1

| Pin No. | Input |
|---|---|
| 1 | AC(L) |
| 2 | |
| 3 | AC(N) |
| 4 | |
| 5 | FG |

CN2

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

CN3 Option

| PIN No. | Contents |
|---|---|
| 1 | RC(+) |
| 2 | RC(-) |

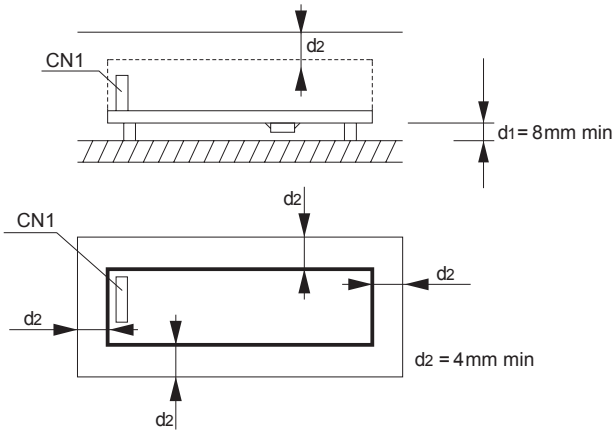
※ Pin No.2 and 4 is NC at CN1.
※ Keep drawing current per pin below 5A for CN2.

## Assembling and Installation Method

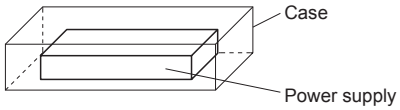
### Installation method

■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.

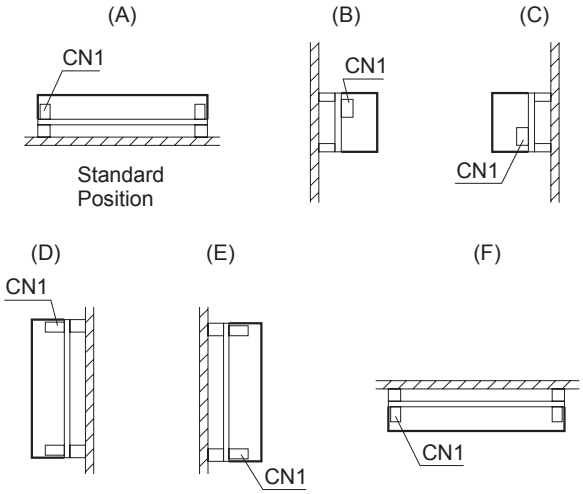



■When used in a sealed case there is the possibility of insufficient cooling of the power supply – see right figure.
Please check and confirm that temperature of point ① and point ② stay below the limits given in the Instruction Manual 3.




■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 ϕ3mm. The hatched area shows the allowance of metal parts for mounting.

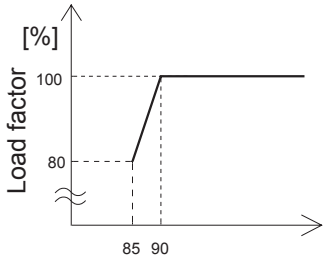



■If mounting metallic fittings on the board surface, ensure there is no contact with components.

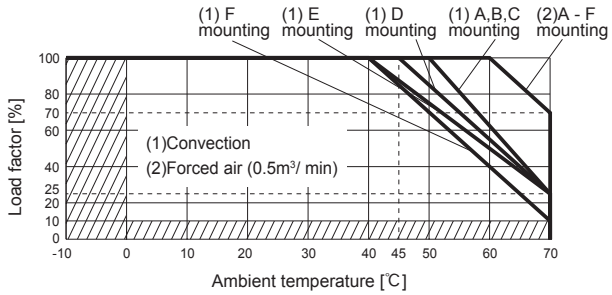
■This product uses SMD technology. Please avoid the PCB installation method which includes the twisting stress or the bending stress.

## Derating

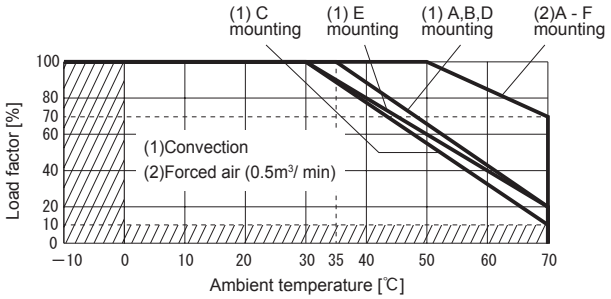
### ● Derating curve for input voltage



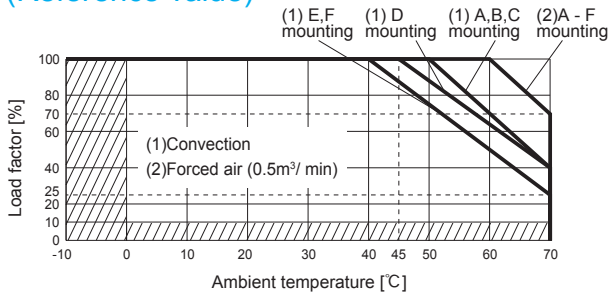

### ● LHP150F
Ambient temperature derating curve
(Reference value)



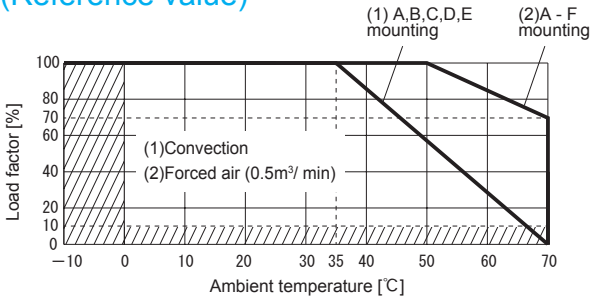

### ● LHP150F- □ -SNY
Ambient temperature derating curve
(Reference value)




### ● LHP300F
Ambient temperature derating curve
(Reference value)




### ● LHP300F- □ -SNY
Ambient temperature derating curve
(Reference value)




■In the hatched area, the specification of Ripple, Ripple Noise is different from other area.

## Instruction Manuals

◆ Please see catalog and instructionmanual before you use.

## Basic Characteristics Data

| Model | Circuit method | Switching frequency [kHz] ∗1 ∗2 | Input current [A] ∗3 | Inrush current protection | PCB/Pattern | | | Series / Parallel operation availability | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Material | Single sided | Double sided | Series operation | Parallel operation |
| LHP150F | Active filter | 20 to 160 | 1.8 | Thermistor | FR-4 | - | Yes | Yes | No |
| | LLC resonant converter | 70 to 400 | | | | | | | |
| LHP300F | Active filter | 20 to 160 | 3.5 | Thermistor | FR-4 | - | Yes | Yes | No |
| | LLC resonant converter | 40 to 210 | | | | | | | |

∗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.