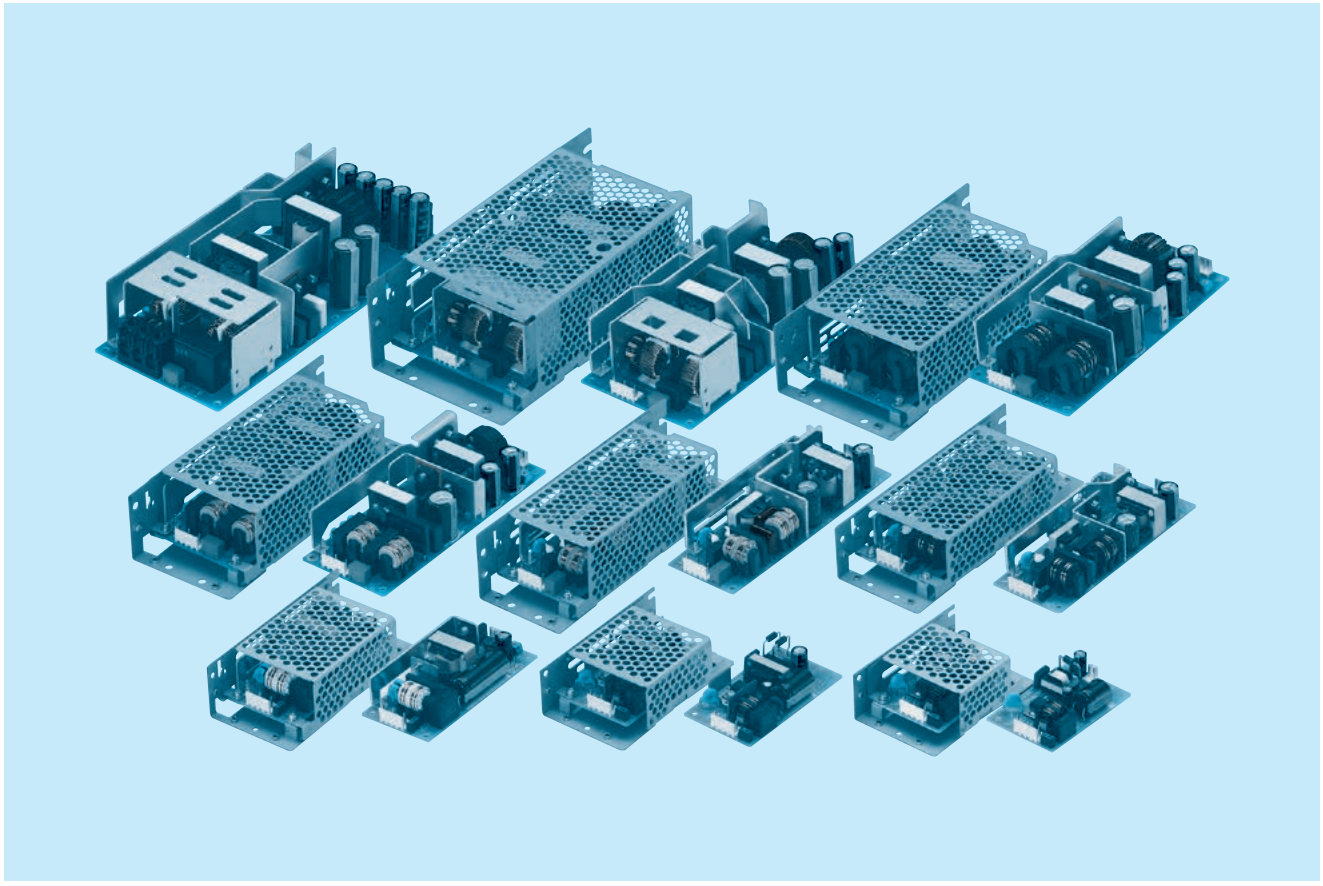
COSEL

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

# LFA-series



## Feature

Small and compact PCB construction
Built-in inrush current, overcurrent and overvoltage protection circuits
Harmonic attenuator (Complies with IEC61000-3-2)
Universal input (AC85-264V)
Power factor correction (LFA50F-300F)
Built-in reducing standby power circuit (LFA10F, 15F)

## Safety agency approvals

UL60950-1, C-UL(CSA60950-1), EN60950-1, EN62368-1, EN50178, EN60065
Complies with DEN-AN

## EMI

Complies with FCC-B, CISPR22-B, EN55011-B, EN55022-B, VCCI-B

## 5-year warranty (refer to Instruction Manual)

## CE marking

Low Voltage Directive
RoHS Directive

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

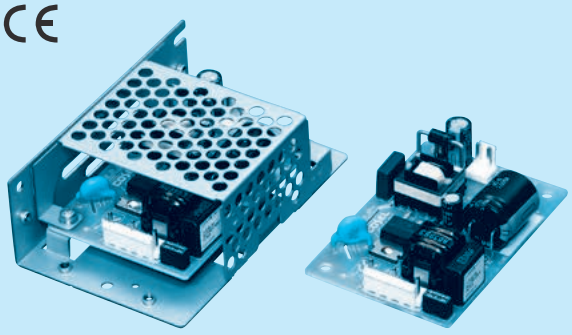
EN61000-4-2
EN61000-4-3
EN61000-4-4
EN61000-4-5
EN61000-4-6
EN61000-4-8
EN61000-4-11

COSEL AC-DC Power Supplies Open Frame/ Enclosed Type

# LFA10F

## Ordering information

| LF | A | 10 | F | -□ | -□ |
|---|---|---|---|---|---|
| ① | ② | ③ | ④ | ⑤ | ⑥ |



Example recommended EMI/EMC filter
NAC-04-472

High voltage pulse noise type : NAP series
Low leakage current type : NAM 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
C : with Coating
G : Low leakage current
J1 : VH(J.S.T.)connector type
S : with Chassis
SN: with Chassis & cover
Y : with Potentiometer

Specification is changed at option, refer to Instruction Manual.

This power supply is manufactured by SMD technology. The stress to P.C.B 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 | LFA10F-3R3-Y | LFA10F-5 | LFA10F-12 | LFA10F-15 | LFA10F-24 |
|---|---|---|---|---|---|
| MAX OUTPUT WATTAGE[W] | 6.6 | 10 | 10.8 | 10.5 | 12 |
| DC OUTPUT | 3.3V 2A | 5V 2A | 12V 0.9A | 15V 0.7A | 24V 0.5A |

## SPECIFICATIONS

| | MODEL | | LFA10F-3R3-Y | LFA10F-5 | LFA10F-12 | LFA10F-15 | LFA10F-24 |
|---|---|---|---|---|---|---|---|
| INPUT | VOLTAGE[V] | | AC85 - 264 1φ (Refer to “Derating”, Instruction Manual 1 and 3) ＊3 | | | | |
| | CURRENT[A] | ACIN 100V | 0.18typ (Io=100%) | 0.26typ (Io=100%) | | | |
| | | ACIN 200V | 0.11typ (Io=100%) | 0.16typ (Io=100%) | | | |
| | FREQUENCY[Hz] | | 50 / 60 (47 - 440) | | | | |
| | EFFICIENCY[%] | ACIN 100V | 68.0typ | 74.0typ | 76.5typ | 77.5typ | 79.5typ |
| | | ACIN 200V | 68.5typ | 76.0typ | 79.0typ | 80.0typ | 83.0typ |
| | INRUSH CURRENT[A] | ACIN 100V | 15typ (Io=100%) | | | | |
| | | ACIN 200V | 30typ (Io=100%) | | | | |
| | LEAKAGE CURRENT[mA] | | 0.15/0.30max (ACIN 100V / 240V 60Hz, Io=100%, According to IEC62368-1 and DEN-AN) | | | | |
| OUTPUT | VOLTAGE[V] | | 3.3 | 5 | 12 | 15 | 24 |
| | CURRENT[A] | | 2.0 | 2.0 | 0.9 | 0.7 | 0.5 |
| | LINE REGULATION[mV] ＊5 | | 20max | 20max | 48max | 60max | 96max |
| | LOAD REGULATION[mV] ＊5 | | 40max | 40max | 100max | 120max | 150max |
| | RIPPLE[mVp-p] ＊1 | 0 to +50℃ | 80max | 80max | 120max | 120max | 120max |
| | | -10 - 0℃ | 140max | 140max | 160max | 160max | 160max |
| | | Io=0 - 35% | 190max | 160max | 240max | 240max | 280max |
| | RIPPLE NOISE[mVp-p] ＊1 | 0 to +50℃ | 120max | 120max | 150max | 150max | 150max |
| | | -10 - 0℃ | 160max | 160max | 180max | 180max | 180max |
| | | Io=0 - 35% | 240max | 240max | 300max | 300max | 320max |
| | TEMPERATURE REGULATION[mV] | 0 to +50℃ | 50max | 50max | 120max | 150max | 240max |
| | | -10 to +50℃ | 60max | 60max | 150max | 180max | 290max |
| | DRIFT[mV] ＊2 | | 20max | 20max | 48max | 60max | 96max |
| | START-UP TIME[ms] | | 200typ (ACIN 100V, Io=100%) ＊Start-up time is 700ms typ for less than 1minute of applying input again from turning off the input voltage. | | | | |
| | HOLD-UP TIME[ms] | | 20typ (ACIN 100V, Io=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 |
| PROTECTION CIRCUIT AND OTHERS | OVERCURRENT PROTECTION | | Works over 105% of rating and recovers automatically | | | | |
| | OVERVOLTAGE PROTECTION | | 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 INDICATION | | Not provided | | | | |
| | REMOTE SENSING | | Not provided | | | | |
| | REMOTE ON/OFF | | Not provided | | | | |
| ISOLATION | INPUT-OUTPUT | | AC3,000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (At Room Temperature) | | | | |
| | INPUT-FG | | AC2,000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (At Room Temperature) | | | | |
| | OUTPUT-FG | | AC500V 1minute, Cutoff current = 25mA, DC500V 50MΩ min (At Room Temperature) | | | | |
| ENVIRONMENT | OPERATING TEMP.,HUMID.AND ALTITUDE | | -10 to +70℃, 20 - 90%RH (Non condensing) (Refer to “Derating”, Instruction Manual 3), 3,000m (10,000 feet) max ＊3 | | | | |
| | 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 | | UL60950-1, C-UL (CSA60950-1), EN60950-1, EN62368-1, EN60065, EN50178 Complies with DEN-AN | | | | |
| | CONDUCTED NOISE | | Complies with FCC-B, VCCI-B, CISPR-B, EN55011-B, EN55022-B | | | | |
| | HARMONIC ATTENUATOR | | Complies with IEC61000-3-2 (Class A) ＊6 (Not built-in to active filter) ＊4 | | | | |
| OTHERS | CASE SIZE/WEIGHT | | 50×22×73.5mm [1.97×0.87×2.89 inches] (W×H×D) / 55g max (with chassis & cover : 150g max) | | | | |
| | COOLING METHOD | | Convection (Refer to “Derating”, Instruction Manual 3) ＊3 | | | | |

＊1 This is the value that measured on measuring board with capacitor of 22μF at 150mm from output terminal. Measured by 20MHz oscilloscope or Ripple-Noise meter (Equivalent to KEISOKU-GIKEN: RM103). A circuit reducing standby power is built in this unit. Therefore, the internal switch element is intermittent operated, and the Ripple/Ripple Noise specification in load factor Io=0-35% is different. Please refer to the Instruction Manual 1.7.

＊2 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.

＊3 Derating is required.

＊4 When two or more units are operating it may not comply with the IEC61000-3-2. Please contact us for details.

＊5 Please contact us about dynamic load and input response.

＊6 Please contact us about another class.

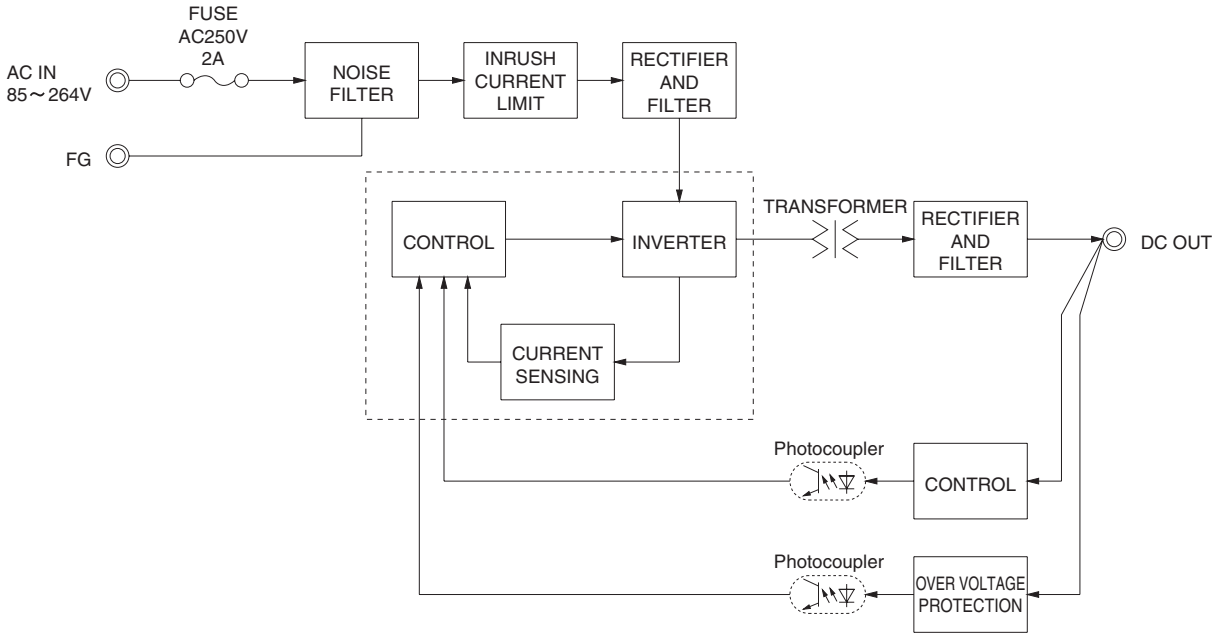
＊ To meet the specifications. Do not operate over-loaded condition.

＊ Parallel operation is not possible.

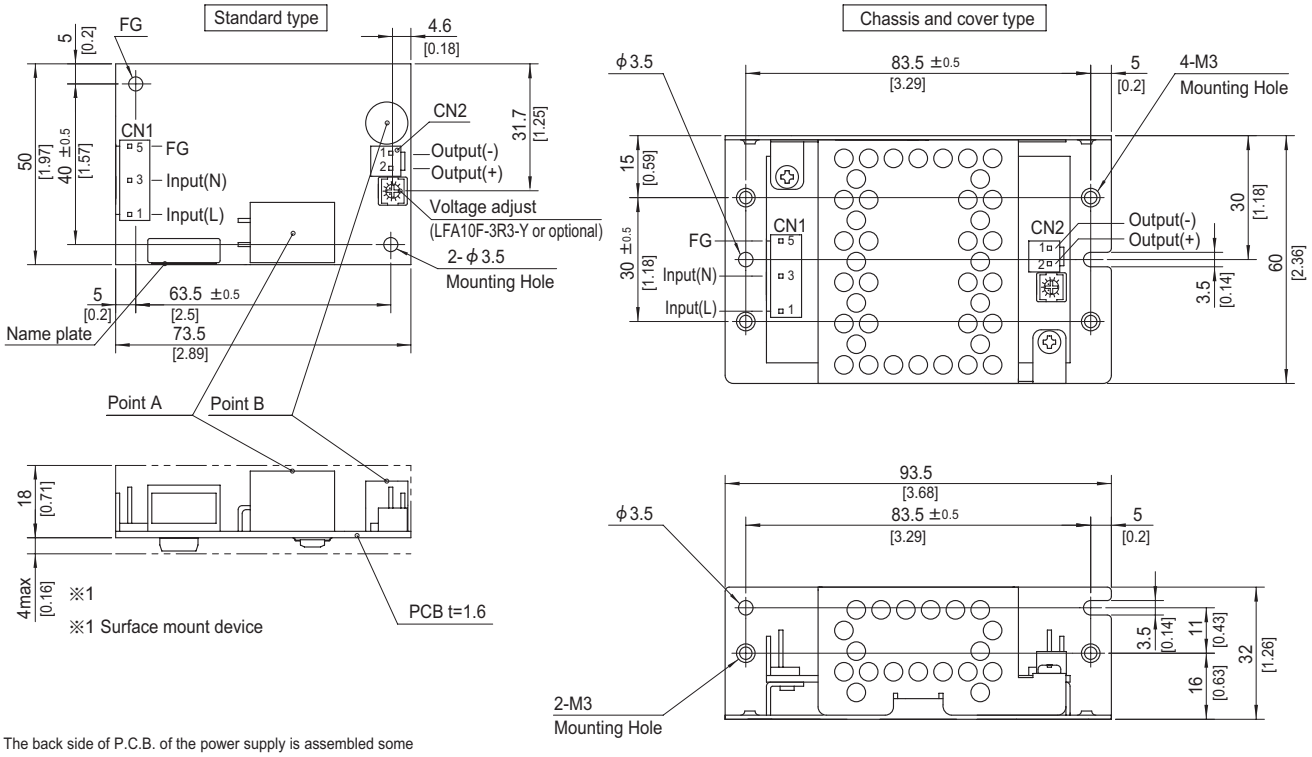
＊ Derating is required when operated with chassis and cover.

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

## Block diagram




## External view




※ The back side of P.C.B. of the power supply is assembled some SMDs.
Be attention not to bump against the attached area by vibration.
※ Use the spacer of 8mm length or more regarding insulation.
And do not use press-fitting bush.
※ Point A, Point B are thermometry points. Please refer to Instruction Manual 3.

| I/O Connector | | Mating connector | Terminal | |
|---|---|---|---|---|
| CN1 | 1-1123724-3 | 1-1123722-5 | Chain | 1123721-1 |
| | | | Loose | 1318912-1 |
| CN2 | 1-1123723-2 | 1-1123722-2 | Chain | 1123721-1 |
| | | | Loose | 1318912-1 |

(Mfr:Tyco Electronics)

※ I/O Connector is Mfr. Tyco Electronics
※ Option:-J1:(J.S.T) connector type. Refer to Instruction Manual 6.

<PIN CONNECTION>

CN1

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

CN2

| Pin No. | Output |
|---|---|
| 1 | -V |
| 2 | +V |

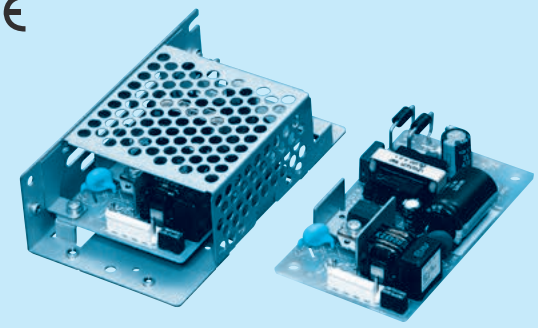
※ Tolerance : ±1 [±0.04]
※ Weight : 55g max (with chassis & cover : 150g max)
※ PCB material / thickness : CEM3 / 1.6mm
※ Optional chassis and cover material : Electric galvanizing steel board.
※ Dimensions in mm, [ ]=inches
※ Mounting torque (Mounting hole of chassis) : 0.6N・m (6.3kgf・cm) max

COSEL AC-DC Power Supplies Open Frame/ Enclosed Type

# LFA15F

## Ordering information

| LF | A | 15 | F | -□ | -□ |
|---|---|---|---|---|---|
| ① | ② | ③ | ④ | ⑤ | ⑥ |



Example recommended EMI/EMC filter
NAC-04-472

High voltage pulse noise type : NAP series
Low leakage current type : NAM 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
C : with Coating
G : Low leakage current
J1 : VH(J.S.T.)connector type
S : with Chassis
SN : with Chassis & cover
Y : with Potentiometer

Specification is changed at option, refer to Instruction Manual.

This power supply is manufactured by SMD technology. The stress to P.C.B 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 | LFA15F-3R3-Y | LFA15F-5 | LFA15F-12 | LFA15F-15 | LFA15F-24 |
|---|---|---|---|---|---|
| MAX OUTPUT WATTAGE[W] | 9.9 | 15 | 15.6 | 15 | 16.8 |
| DC OUTPUT | 3.3V 3A | 5V 3A | 12V 1.3A | 15V 1A | 24V 0.7A |

## SPECIFICATIONS

| | MODEL | | LFA15F-3R3-Y | LFA15F-5 | LFA15F-12 | LFA15F-15 | LFA15F-24 |
|---|---|---|---|---|---|---|---|
| INPUT | VOLTAGE[V] | | AC85 - 264 1φ (Refer to “Derating”, Instruction Manual 1 and 3) ＊3 | | | | |
| | CURRENT[A] | ACIN 100V | 0.24typ (Io=100%) | 0.35typ (Io=100%) | | | |
| | | ACIN 200V | 0.15typ (Io=100%) | 0.20typ (Io=100%) | | | |
| | FREQUENCY[Hz] | | 50 / 60 (47 - 440) | | | | |
| | EFFICIENCY[%] | ACIN 100V | 68.0typ | 73.0typ | 76.0typ | 77.0typ | 78.0typ |
| | | ACIN 200V | 69.0typ | 76.0typ | 78.5typ | 80.0typ | 81.5typ |
| | INRUSH CURRENT[A] | ACIN 100V | 15typ (Io=100%) (At cold start) (Ta=25℃) | | | | |
| | | ACIN 200V | 30typ (Io=100%) (At cold start) (Ta=25℃) | | | | |
| | LEAKAGE CURRENT[mA] | | 0.15/0.30max (ACIN 100V / 240V 60Hz, Io=100%, According to IEC62368-1 and DEN-AN) | | | | |
| OUTPUT | VOLTAGE[V] | | 3.3 | 5 | 12 | 15 | 24 |
| | CURRENT[A] | | 3.0 | 3.0 | 1.3 | 1.0 | 0.7 |
| | LINE REGULATION[mV] ＊5 | | 20max | 20max | 48max | 60max | 96max |
| | LOAD REGULATION[mV] ＊5 | | 40max | 40max | 100max | 120max | 150max |
| | RIPPLE[mVp-p] ＊1 | 0 to +50℃ | 80max | 80max | 120max | 120max | 120max |
| | | -10 - 0℃ | 140max | 140max | 160max | 160max | 160max |
| | | Io=0 - 35% | 190max | 160max | 240max | 240max | 280max |
| | RIPPLE NOISE[mVp-p] ＊1 | 0 to +50℃ | 120max | 120max | 150max | 150max | 150max |
| | | -10 - 0℃ | 160max | 160max | 180max | 180max | 180max |
| | | Io=0 - 35% | 240max | 240max | 300max | 300max | 320max |
| | TEMPERATURE REGULATION[mV] | 0 to +50℃ | 50max | 50max | 120max | 150max | 240max |
| | | -10 to +50℃ | 60max | 60max | 150max | 180max | 290max |
| | DRIFT[mV] ＊2 | | 20max | 20max | 48max | 60max | 96max |
| | START-UP TIME[ms] | | 200typ (ACIN 100V, Io=100%) ＊Start-up time is 700ms typ for less than 1minute of applying input again from turning off the input voltage. | | | | |
| | HOLD-UP TIME[ms] | | 20typ (ACIN 100V, Io=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 |
| PROTECTION CIRCUIT AND OTHERS | OVERCURRENT PROTECTION | | Works over 105% of rating and recovers automatically | | | | |
| | OVERVOLTAGE PROTECTION | | 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 INDICATION | | Not provided | | | | |
| | REMOTE SENSING | | Not provided | | | | |
| | REMOTE ON/OFF | | Not provided | | | | |
| ISOLATION | INPUT-OUTPUT | | AC3,000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (At Room Temperature) | | | | |
| | INPUT-FG | | AC2,000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (At Room Temperature) | | | | |
| | OUTPUT-FG | | AC500V 1minute, Cutoff current = 25mA, DC500V 50MΩ min (At Room Temperature) | | | | |
| ENVIRONMENT | OPERATING TEMP.,HUMID.AND ALTITUDE | | -10 to +70℃, 20 - 90%RH (Non condensing) (Refer to “Derating”, Instruction Manual 3), 3,000m (10,000 feet) max ＊3 | | | | |
| | 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 | | UL60950-1, C-UL (CSA60950-1), EN60950-1, EN62368-1, EN60065, EN50178 Complies with DEN-AN | | | | |
| | CONDUCTED NOISE | | Complies with FCC-B, VCCI-B, CISPR-B, EN55011-B, EN55022-B | | | | |
| | HARMONIC ATTENUATOR | | Complies with IEC61000-3-2 (Class A) ＊6 (Not built-in to active filter) ＊4 | | | | |
| OTHERS | CASE SIZE/WEIGHT | | 50×22×87.5mm [1.97×0.87×3.44 inches] (W×H×D) / 80g max (with chassis & cover : 190g max) | | | | |
| | COOLING METHOD | | Convection (Refer to “Derating”, Instruction Manual 3) ＊3 | | | | |

＊1 This is the value that measured on measuring board with capacitor of 22μF at 150mm from output terminal. Measured by 20MHz oscilloscope or Ripple-Noise meter (Equivalent to KEISOKU-GIKEN: RM103). A circuit reducing standby power is built in this unit. Therefore, the internal switch element is intermittent operated, and the Ripple/Ripple Noise specification in load factor Io=0-35% is different. Please refer to the Instruction Manual 1.7.

＊2 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.

＊3 Derating is required.

＊4 When two or more units are operating it may not comply with the IEC61000-3-2. Please contact us for details.

＊5 Please contact us about dynamic load and input response.

＊6 Please contact us about another class.

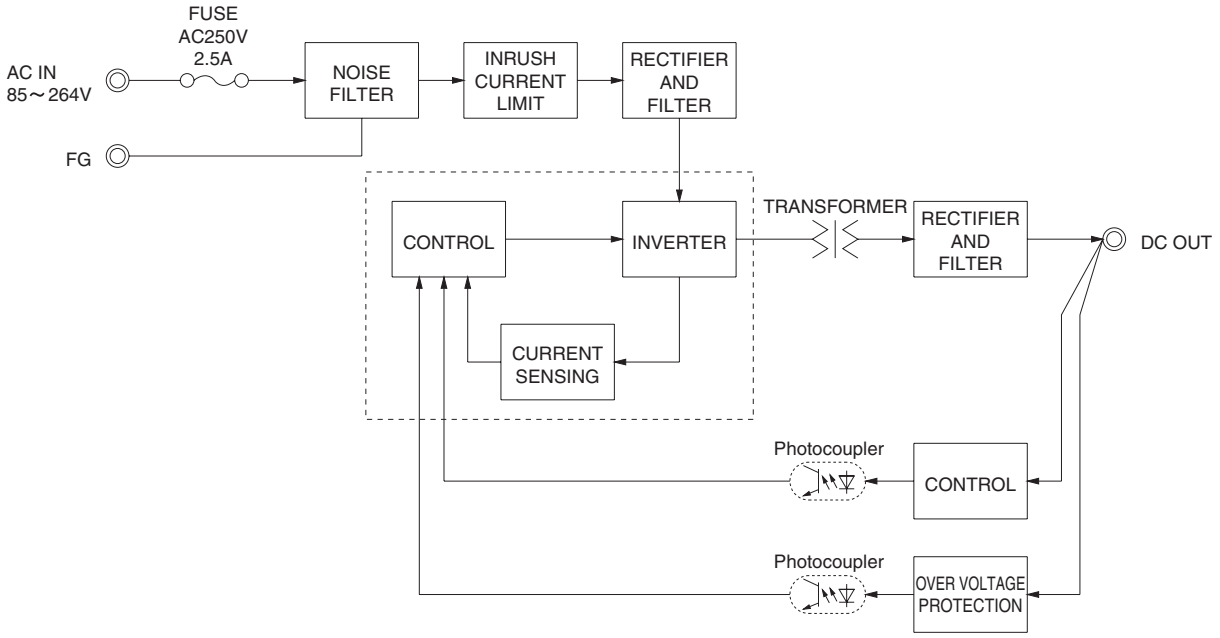
＊ To meet the specifications. Do not operate over-loaded condition.

＊ Parallel operation is not possible.

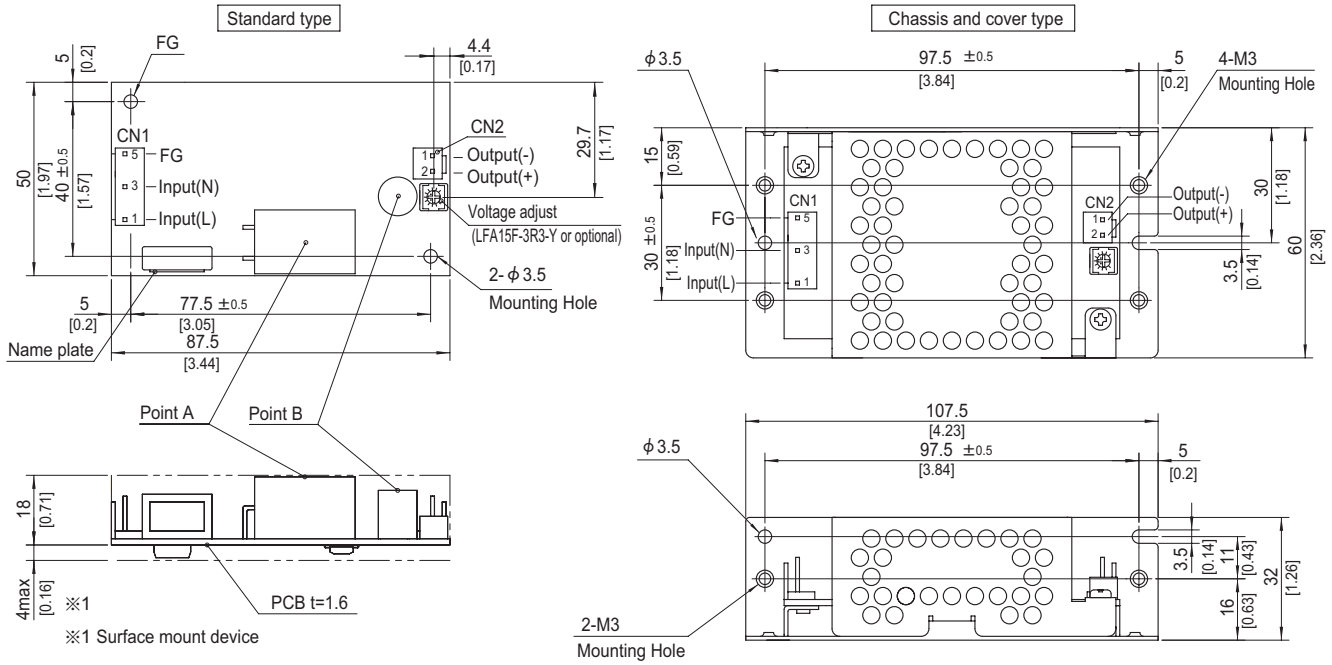
＊ Derating is required when operated with chassis and cover.

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

## Block diagram




## External view




※ The back side of P.C.B. of the power supply is assembled some SMDs.
Be attention not to bump against the attached area by vibration.
※ Use the spacer of 8mm length or more regarding insulation.
And do not use press-fitting bush.
※ Point A, Point B are thermometry points. Please refer to Instruction Manual 3.

| I/O Connector | | Mating connector | Terminal | |
|---|---|---|---|---|
| CN1 | 1-1123724-3 | 1-1123722-5 | Chain | 1123721-1 |
| | | | Loose | 1318912-1 |
| CN2 | 1-1123723-2 | 1-1123722-2 | Chain | 1123721-1 |
| | | | Loose | 1318912-1 |

(Mfr:Tyco Electronics)

※ I/O Connector is Mfr. Tyco Electronics
※ Option:-J1:(J.S.T) connector type. Refer to Instruction Manual 6.

<PIN CONNECTION>

CN1

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

CN2

| Pin No. | Output |
|---|---|
| 1 | -V |
| 2 | +V |

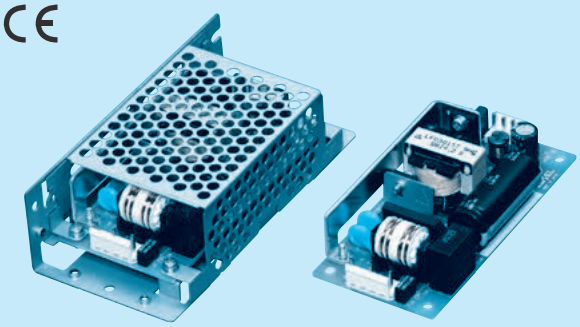
※ Tolerance : ±1 [±0.04]
※ Weight : 80g max (with chassis & cover : 190g max)
※ PCB material / thickness : CEM3 / 1.6mm
※ Optional chassis and cover material : Electric galvanizing steel board.
※ Dimensions in mm, [ ]=inches
※ Mounting torque (Mounting hole of chassis) : 0.6N・m (6.3kgf・cm) max

COSEL AC-DC Power Supplies Open Frame/ Enclosed Type

# LFA30F

## Ordering information

| LF | A | 30 | F | -□ | -□ |
|---|---|---|---|---|---|
| ① | ② | ③ | ④ | ⑤ | ⑥ |



Example recommended EMI/EMC filter
NAC-04-472

High voltage pulse noise type : NAP series
Low leakage current type : NAM 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
C : with Coating
G : Low leakage current
J1 : VH(J.S.T.)connector type
S : with Chassis
SN : with Chassis & cover
Y : with Potentiometer

Specification is changed at option, refer to Instruction Manual.

This power supply is manufactured by SMD technology. The stress to P.C.B 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.

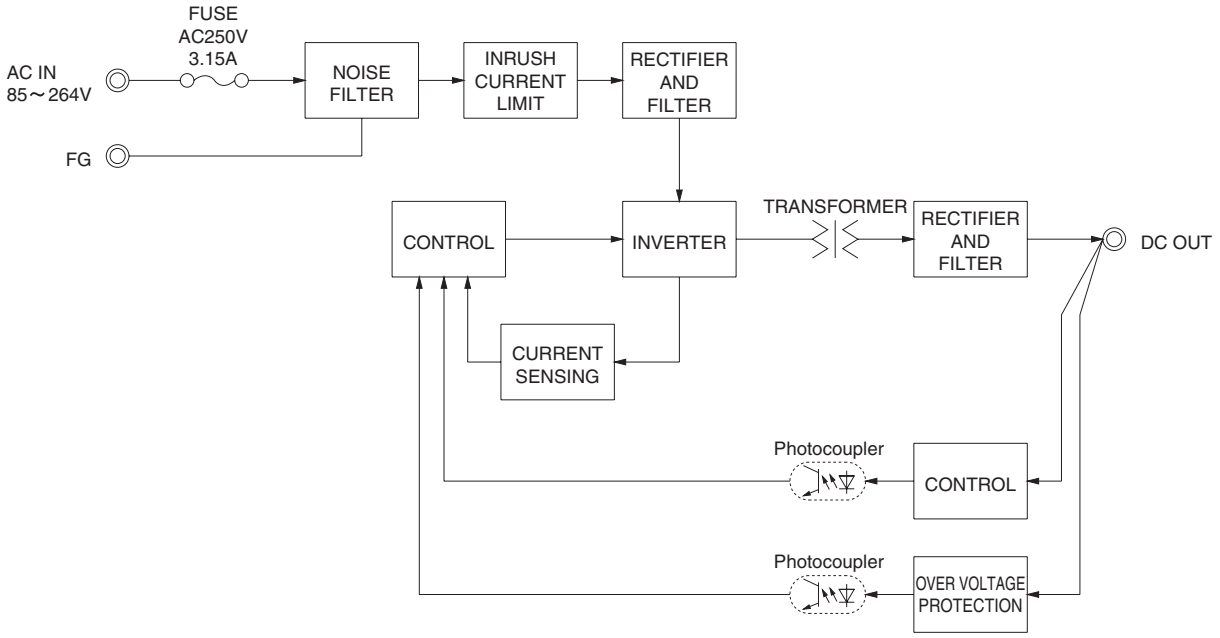
| MODEL | LFA30F-3R3-Y | LFA30F-5 | LFA30F-12 | LFA30F-15 | LFA30F-24 |
|---|---|---|---|---|---|
| MAX OUTPUT WATTAGE[W] | 19.8 | 30.0 | 30.0 | 30.0 | 31.2 |
| DC OUTPUT | 3.3V 6A | 5V 6A | 12V 2.5A | 15V 2A | 24V 1.3A |

## SPECIFICATIONS

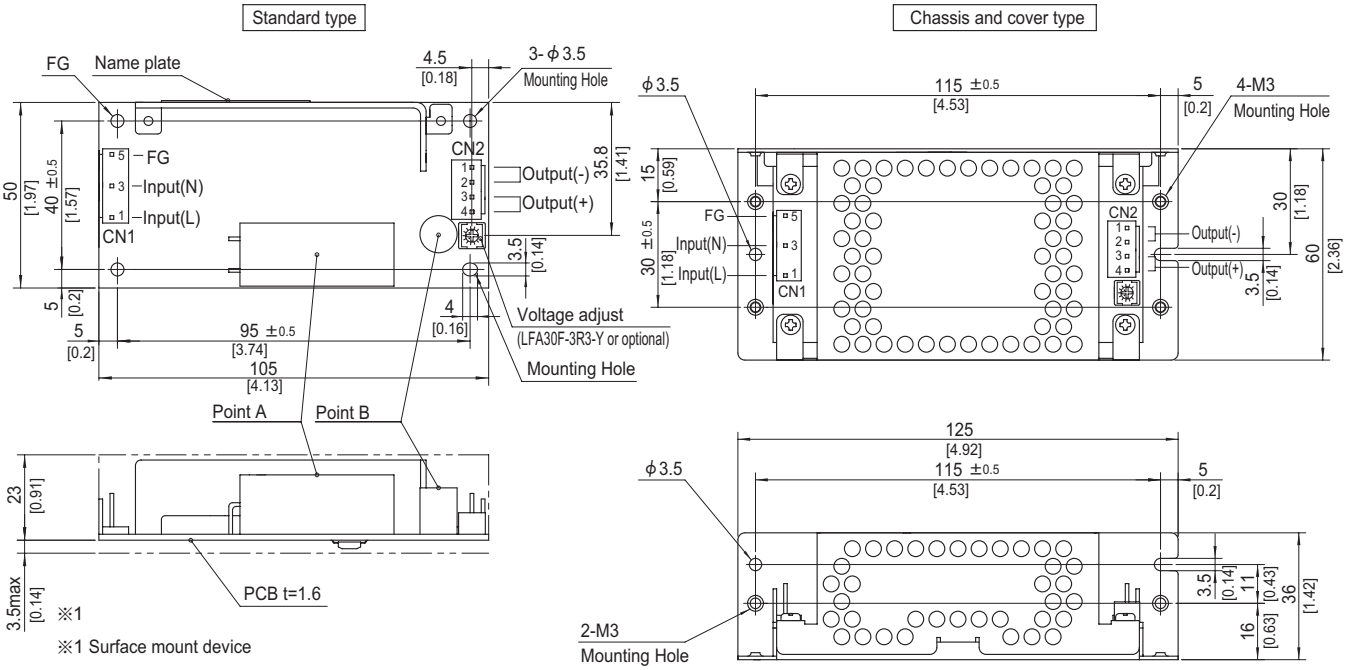
| | MODEL | | LFA30F-3R3-Y | LFA30F-5 | LFA30F-12 | LFA30F-15 | LFA30F-24 |
|---|---|---|---|---|---|---|---|
| INPUT | VOLTAGE[V] | | AC85 - 264 1φ (Refer to “Derating”, Instruction Manual 1 and 3) ＊3 | | | | |
| | CURRENT[A] | ACIN 100V | 0.50typ (Io=100%) | 0.65typ (Io=100%) | | | |
| | | ACIN 200V | 0.30typ (Io=100%) | 0.35typ (Io=100%) | | | |
| | FREQUENCY[Hz] | | 50 / 60 (47 - 440) | | | | |
| | EFFICIENCY[%] | ACIN 100V | 73typ | 76typ | 79typ | 81typ | 82typ |
| | | ACIN 200V | 75typ | 79typ | 81typ | 83typ | 84typ |
| | INRUSH CURRENT[A] | ACIN 100V | 15typ (Io=100%) (At cold start) (Ta=25℃) | | | | |
| | | ACIN 200V | 30typ (Io=100%) (At cold start) (Ta=25℃) | | | | |
| | LEAKAGE CURRENT[mA] | | 0.30 / 0.65max (ACIN 100V / 240V 60Hz, Io=100%, According to IEC62368-1 and DEN-AN) | | | | |
| OUTPUT | VOLTAGE[V] | | 3.3 | 5 | 12 | 15 | 24 |
| | CURRENT[A] | | 6.0 | 6.0 | 2.5 | 2.0 | 1.3 |
| | LINE REGULATION[mV] | ＊5 | 20max | 20max | 48max | 60max | 96max |
| | LOAD REGULATION[mV] | ＊5 | 40max | 40max | 100max | 120max | 150max |
| | RIPPLE[mVp-p] | 0 to +50℃ ＊1 | 80max | 80max | 120max | 120max | 120max |
| | | -10 - 0℃ ＊1 | 140max | 140max | 160max | 160max | 160max |
| | RIPPLE NOISE[mVp-p] | 0 to +50℃ ＊1 | 120max | 120max | 150max | 150max | 150max |
| | | -10 - 0℃ ＊1 | 160max | 160max | 180max | 180max | 180max |
| | TEMPERATURE REGULATION[mV] | 0 to +50℃ | 50max | 50max | 120max | 150max | 240max |
| | | -10 to +50℃ | 60max | 60max | 150max | 180max | 290max |
| | DRIFT[mV] | ＊2 | 20max | 20max | 48max | 60max | 96max |
| | START-UP TIME[ms] | | 150typ (ACIN 100V, Io=100%) | | | | |
| | HOLD-UP TIME[ms] | | 20typ (ACIN 100V, Io=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 |
| PROTECTION CIRCUIT AND OTHERS | OVERCURRENT PROTECTION | | Works over 105% of rating and recovers automatically | | | | |
| | OVERVOLTAGE PROTECTION | | 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 INDICATION | | Not provided | | | | |
| | REMOTE SENSING | | Not provided | | | | |
| | REMOTE ON/OFF | | Not provided | | | | |
| ISOLATION | INPUT-OUTPUT | | AC3,000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (At Room Temperature) | | | | |
| | INPUT-FG | | AC2,000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (At Room Temperature) | | | | |
| | OUTPUT-FG | | AC500V 1minute, Cutoff current = 25mA, DC500V 50MΩ min (At Room Temperature) | | | | |
| ENVIRONMENT | OPERATING TEMP.,HUMID.AND ALTITUDE | | -10 to +70℃, 20 - 90%RH (Non condensing) (Refer to “Derating”, Instruction Manual 3), 3,000m (10,000feet) max ＊3 | | | | |
| | STORAGE TEMP.,HUMID.AND ALTITUDE | | -20 to +75℃, 20 - 90%RH (Non condensing), 9,000m (30,000feet) 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 | | UL60950-1, C-UL (CSA60950-1), EN60950-1, EN62368-1, EN60065, EN50178 Complies with DEN-AN | | | | |
| | CONDUCTED NOISE | | Complies with FCC-B, VCCI-B, CISPR-B, EN55011-B, EN55022-B | | | | |
| | HARMONIC ATTENUATOR | | Complies with IEC61000-3-2 (Class A) ＊6 (Not built-in to active filter) ＊4 | | | | |
| OTHERS | CASE SIZE/WEIGHT | | 50×26.5×105mm [1.97×1.04×4.13 inches] (W×H×D) / 130g max (with chassis & cover : 260g max) | | | | |
| | COOLING METHOD | | Convection (Refer to “Derating”, Instruction Manual 3) ＊3 | | | | |

＊1 This is the value that measured on measuring board with capacitor of 22μF at 150mm from output terminal.
Measured by 20MHz oscilloscope or Ripple-Noise meter (Equivalent to KEISOKU-GIKEN: RM103).
＊2 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.
＊3 Derating is required.
＊4 When two or more units are operating it may not comply with the IEC61000-3-2. Please contact us for details.
＊5 Please contact us about dynamic load and input response.
＊6 Please contact us about another class.
＊ To meet the specifications. Do not operate over-loaded condition.
＊ Parallel operation is not possible.
＊ Derating is required when operated with chassis and cover.
＊ Sound noise may be generated by power supply in case of pulse load.

## Block diagram




## External view




※ 4 Mounting holes are existing.
※ The back side of P.C.B. of the power supply is assembled some SMDs.
Be attention not to bump against the attached area by vibration.
※ Use the spacer of 8mm length or more regarding insulation.
And do not use press-fitting bush.
※ Point A, Point B are thermometry points. Please refer to Instruction Manual 3.

| I/O Connector | | Mating connector | Terminal | |
|---|---|---|---|---|
| CN1 | 1-1123724-3 | 1-1123722-5 | Chain | 1123721-1 |
| | | | Loose | 1318912-1 |
| CN2 | 1-1123723-4 | 1-1123722-4 | Chain | 1123721-1 |
| | | | Loose | 1318912-1 |

(Mfr:Tyco Electronics)

※ I/O Connector is Mfr. Tyco Electronics
※ Option:-J1:(J.S.T) connector type. Refer to Instruction Manual 6.

<PIN CONNECTION>

CN1

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

CN2

| Pin No. | Output |
|---|---|
| 1, 2 | -V |
| 3, 4 | +V |

※ Keep drawing current per pin below 5A for CN2.

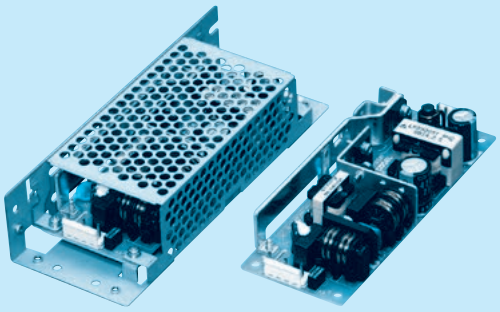
※ Tolerance : ±1 [±0.04]
※ Weight: 130g max (with chassis & cover : 260g max)
※ PCB material / thickness : CEM3 / 1.6mm
※ Optional chassis and cover material : Electric galvanizing steel board.
※ Dimensions in mm, [ ]=inches
※ Mounting torque (Mounting hole of chassis) : 0.6N・m (6.3kgf・cm) max

COSEL AC-DC Power Supplies Open Frame/ Enclosed Type

# LFA50F

## Ordering information

| LF | A | 50 | F | -□ | -□ |
|---|---|---|---|---|---|
| ① | ② | ③ | ④ | ⑤ | ⑥ |



Example recommended EMI/EMC filter
NAC-04-472

High voltage pulse noise type : NAP series
Low leakage current type : NAM 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
C : with Coating
G : Low leakage current
J1 : VH(J.S.T.)connector type
S : with Chassis
SN: with Chassis & cover
Y : with Potentiometer

Specification is changed at option, refer to Instruction Manual.

This power supply is manufactured by SMD technology. The stress to P.C.B 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.

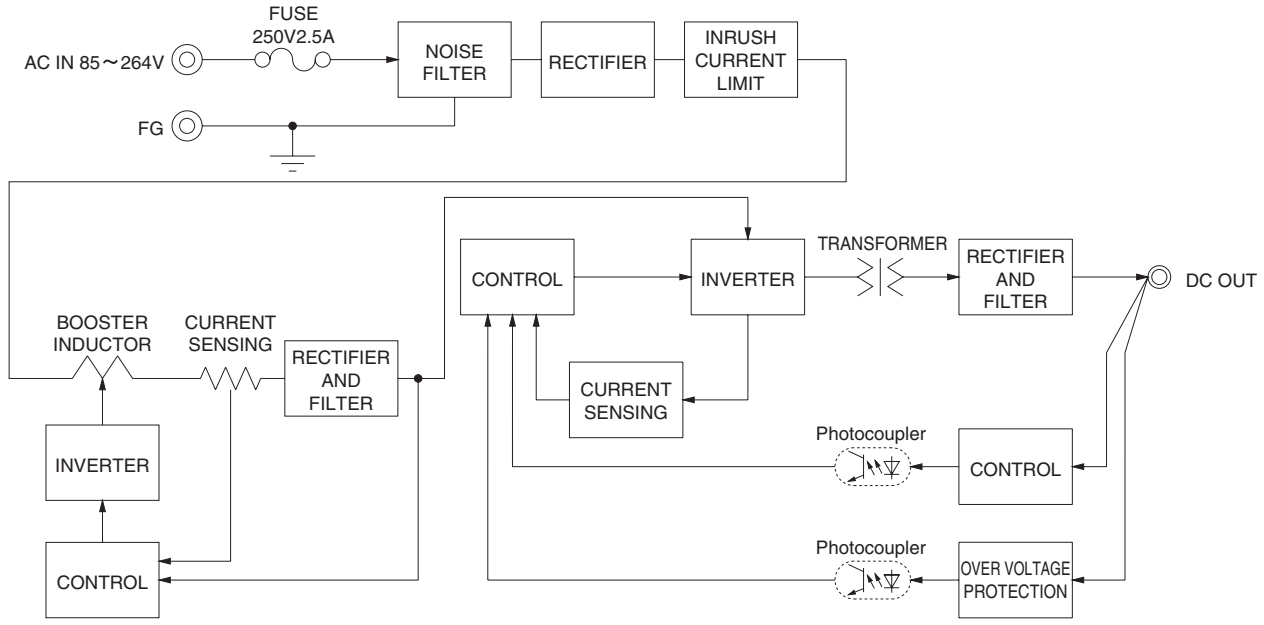
| MODEL | LFA50F-3R3-Y | LFA50F-5 | LFA50F-12 | LFA50F-15 | LFA50F-24 | LFA50F-36 | LFA50F-48 |
|---|---|---|---|---|---|---|---|
| MAX OUTPUT WATTAGE[W] | 33 | 50 | 51.6 | 52.5 | 50.4 | 50.4 | 52.8 |
| DC OUTPUT | 3.3V 10A | 5V 10A | 12V 4.3A | 15V 3.5A | 24V 2.1A | 36V 1.4A | 48V 1.1A |

## SPECIFICATIONS

| | MODEL | | LFA50F-3R3-Y | LFA50F-5 | LFA50F-12 | LFA50F-15 | LFA50F-24 | LFA50F-36 | LFA50F-48 |
|---|---|---|---|---|---|---|---|---|---|
| INPUT | VOLTAGE[V] | | AC85 - 264 1φ (Refer to "Derating", Instruction Manual 1 and 3) ＊3 | | | | | | |
| | CURRENT[A] | ACIN 100V | 0.47typ (Io=100%) | 0.67typ (Io=100%) | | | | | |
| | | ACIN 200V | 0.27typ (Io=100%) | 0.36typ (Io=100%) | | | | | |
| | FREQUENCY[Hz] | | 50 / 60 (47 - 63) | | | | | | |
| | EFFICIENCY[%] | ACIN 100V | 73.5typ | 77.5typ | 80.0typ | 80.5typ | 81.5typ | 82.0typ | 81.0typ |
| | | ACIN 200V | 74.0typ | 79.0typ | 81.5typ | 81.5typ | 83.0typ | 83.5typ | 82.5typ |
| | POWER FACTOR (Io=100%) | ACIN 100V | 0.96typ | 0.97typ | | | | | |
| | | ACIN 200V | 0.83typ | 0.90typ | | | | | |
| | INRUSH CURRENT[A] | ACIN 100V | 15typ (Io=100%) (At cold start) (Ta=25℃) | | | | | | |
| | | ACIN 200V | 30typ (Io=100%) (At cold start) (Ta=25℃) | | | | | | |
| | LEAKAGE CURRENT[mA] | | 0.40 / 0.75max (ACIN 100V / 240V 60Hz, Io=100%, According to IEC62368-1 and DEN-AN) | | | | | | |
| OUTPUT | VOLTAGE[V] | | 3.3 | 5 | 12 | 15 | 24 | 36 | 48 |
| | CURRENT[A] | | 10.0 | 10.0 | 4.3 | 3.5 | 2.1 | 1.4 | 1.1 |
| | LINE REGULATION[mV] | ＊4 | 20max | 20max | 48max | 60max | 96max | 144max | 192max |
| | LOAD REGULATION[mV] | ＊4 | 40max | 40max | 100max | 120max | 150max | 240max | 240max |
| | RIPPLE[mVp-p] | 0 to +50℃＊1 | 80max | 80max | 120max | 120max | 120max | 150max | 150max |
| | | -10 - 0℃ ＊1 | 140max | 140max | 160max | 160max | 160max | 200max | 200max |
| | RIPPLE NOISE[mVp-p] | 0 to +50℃＊1 | 120max | 120max | 150max | 150max | 150max | 250max | 250max |
| | | -10 - 0℃ ＊1 | 160max | 160max | 180max | 180max | 180max | 300max | 300max |
| | TEMPERATURE REGULATION[mV] | 0 to +50℃ | 50max | 50max | 120max | 150max | 240max | 360max | 480max |
| | | -10 to +50℃ | 60max | 60max | 150max | 180max | 290max | 450max | 600max |
| | DRIFT[mV] | ＊2 | 20max | 20max | 48max | 60max | 96max | 144max | 192max |
| | START-UP TIME[ms] | | 350typ (ACIN 100V, Io=100%) | | | | | | |
| | HOLD-UP TIME[ms] | | 20typ (ACIN 100V, Io=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 | 34.50 to 37.50 | 46.00 to 50.00 |
| PROTECTION CIRCUIT AND OTHERS | OVERCURRENT PROTECTION | | Works over 105% of rating and recovers automatically | | | | | | |
| | OVERVOLTAGE PROTECTION | | 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 |
| | OPERATING INDICATION | | Not provided | | | | | | |
| | REMOTE SENSING | | Not provided | | | | | | |
| | REMOTE ON/OFF | | Not provided | | | | | | |
| ISOLATION | INPUT-OUTPUT | | AC3,000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (At Room Temperature) | | | | | | |
| | INPUT-FG | | AC2,000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (At Room Temperature) | | | | | | |
| | OUTPUT-FG | | AC500V 1minute, Cutoff current = 25mA, DC500V 50MΩ min (At Room Temperature) | | | | | | |
| ENVIRONMENT | OPERATING TEMP.,HUMID.AND ALTITUDE | | -10 to +70℃, 20 - 90%RH (Non condensing) (Refer to "Derating", Instruction Manual 3), 3,000m (10,000feet) max ＊3 | | | | | | |
| | STORAGE TEMP.,HUMID.AND ALTITUDE | | -20 to +75℃, 20 - 90%RH (Non condensing), 9,000m (30,000feet) 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 | | UL60950-1, C-UL (CSA60950-1), EN60950-1, EN62368-1, EN60065, EN50178 Complies with DEN-AN | | | | | | |
| | CONDUCTED NOISE | | Complies with FCC-B, VCCI-B, CISPR-B, EN55011-B, EN55022-B | | | | | | |
| | HARMONIC ATTENUATOR | | Complies with IEC61000-3-2 (Class A) ＊5 | | | | | | |
| OTHERS | CASE SIZE/WEIGHT | | 50×26.5×132mm [1.97×1.04×5.20 inches] (W×H×D) / 165g max (with chassis & cover : 325g max) | | | | | | |
| | COOLING METHOD | | Convection (Refer to "Derating", Instruction Manual 3) ＊3 | | | | | | |

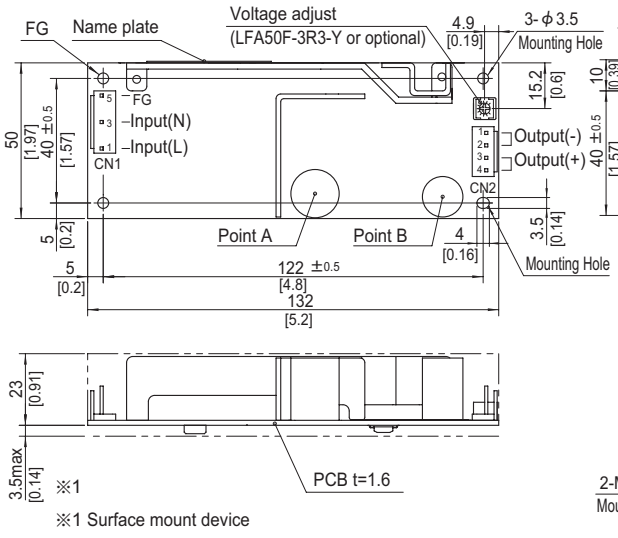
＊1 This is the value that measured on measuring board with capacitor of 22μF at 150mm from output terminal.
Measured by 20MHz oscilloscope or Ripple-Noise meter (Equivalent to KEISOKU-GIKEN: RM103).
＊2 Drift is the change in DC output for an eight hour period after a half-hour warm-up at 25℃, with the input voltage held constant at the rated input/output.
＊3 Derating is required.
＊4 Please contact us about dynamic load and input response.
＊5 Please contact us about another class.
＊ To meet the specifications. Do not operate over-loaded condition.
＊ Parallel operation is not possible.
＊ Derating is required when operated with chassis and cover.
＊ Sound noise may be generated by power supply in case of pulse load.

## Block diagram



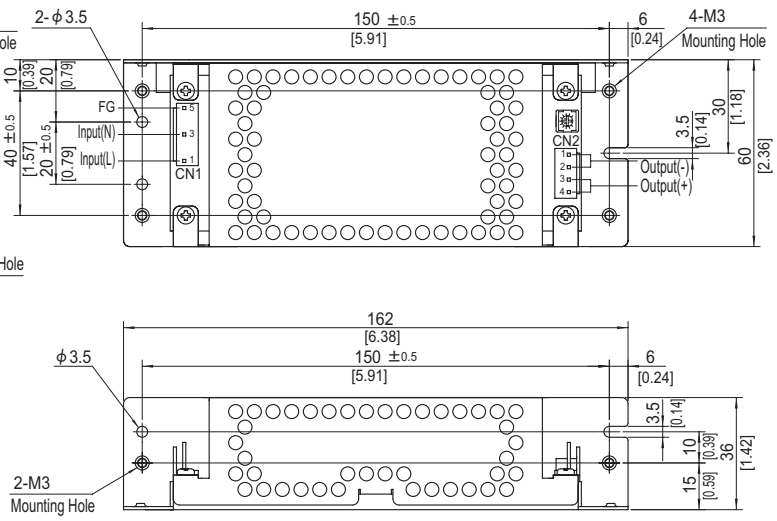

## External view

Standard type




※1 Surface mount device

Chassis and cover type




※ 4 Mounting holes are existing.
※ The back side of P.C.B. of the power supply is assembled some SMDs.
Be attention not to bump against the attached area by vibration.
※ Use the spacer of 8mm length or more regarding insulation.
And do not use press-fitting bush.
※ Point A, Point B are thermometry points. Please refer to Instruction Manual 3.

| I/O Connector | | Mating connector | Terminal | |
|---|---|---|---|---|
| CN1 | 1-1123724-3 | 1-1123722-5 | Chain | 1123721-1 |
| | | | Loose | 1318912-1 |
| CN2 | 1-1123723-4 | 1-1123722-4 | Chain | 1123721-1 |
| | | | Loose | 1318912-1 |

(Mfr:Tyco Electronics)

※ I/O Connector is Mfr. Tyco Electronics
※ Option:-J1:(J.S.T) connector type. Refer to Instruction Manual 6.

<PIN CONNECTION>

CN1

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

CN2

| Pin No. | Output |
|---|---|
| 1, 2 | -V |
| 3, 4 | +V |

※ Keep drawing current per pin below 5A for CN2.

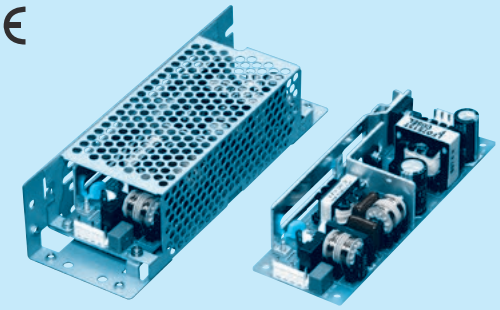
※ Tolerance : ±1 [±0.04]
※ Weight : 165g max (with chassis & cover : 325g max)
※ PCB material / thickness : CEM3 / 1.6mm
※ Optional chassis and cover material : Electric galvanizing steel board.
※ Dimensions in mm, [ ]=inches
※ Mounting torque (Mounting hole of chassis) : 0.6N・m (6.3kgf・cm) max

COSEL AC-DC Power Supplies Open Frame/ Enclosed Type

# LFA75F

## Ordering information

| LF | A | 75 | F | -□ | -□ |
|---|---|---|---|---|---|
| ① | ② | ③ | ④ | ⑤ | ⑥ |



Example recommended EMI/EMC filter
NAC-04-472

High voltage pulse noise type : NAP series
Low leakage current type : NAM 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
C : with Coating
G : Low leakage current
J1 : VH(J.S.T.)connector type
S : with Chassis
SN: with Chassis & cover
Y : with Potentiometer

Specification is changed at option, refer to Instruction Manual.

This power supply is manufactured by SMD technology. The stress to P.C.B 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.

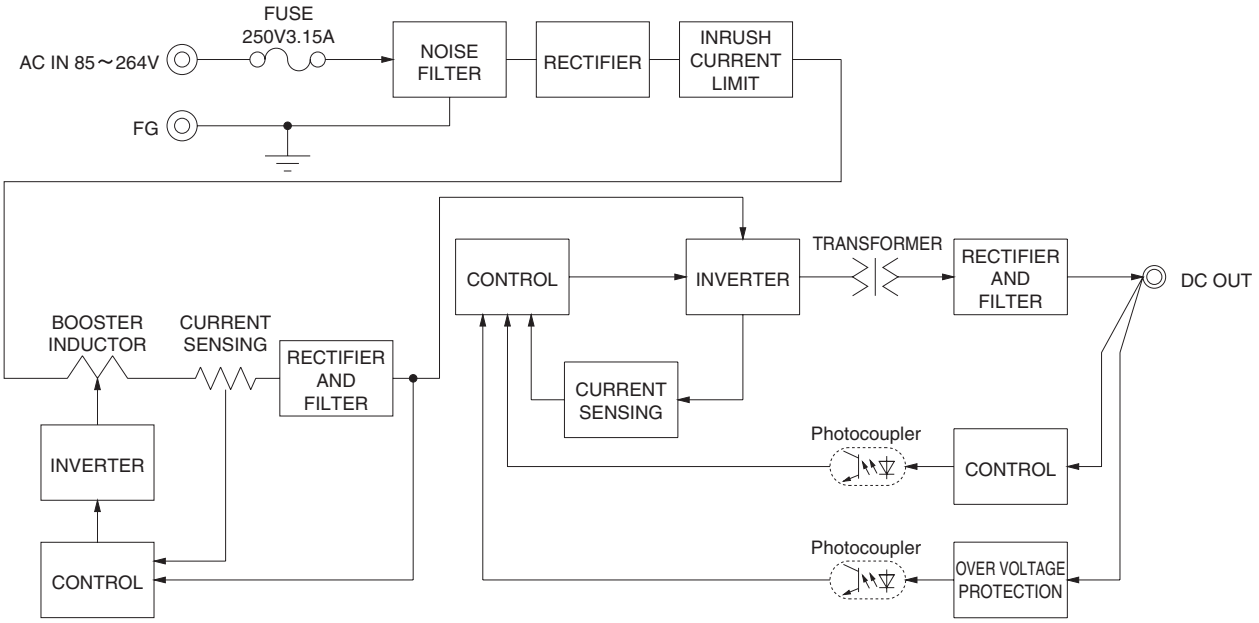
| MODEL | LFA75F-3R3-Y | LFA75F-5 | LFA75F-12 | LFA75F-15 | LFA75F-24 | LFA75F-36 | LFA75F-48 |
|---|---|---|---|---|---|---|---|
| MAX OUTPUT WATTAGE[W] | 49.5 | 75 | 75.6 | 75 | 76.8 | 75.6 | 76.8 |
| DC OUTPUT | 3.3V 15A | 5V 15A | 12V 6.3A | 15V 5A | 24V 3.2A | 36V 2.1A | 48V 1.6A |

## SPECIFICATIONS

| | MODEL | | LFA75F-3R3-Y | LFA75F-5 | LFA75F-12 | LFA75F-15 | LFA75F-24 | LFA75F-36 | LFA75F-48 |
|---|---|---|---|---|---|---|---|---|---|
| INPUT | VOLTAGE[V] | | AC85 - 264 1φ (Refer to "Derating", Instruction Manual 1 and 3) ＊3 | | | | | | |
| | CURRENT[A] | ACIN 100V | 0.70typ (Io=100%) | 1.00typ (Io=100%) | | | | | |
| | | ACIN 200V | 0.40typ (Io=100%) | 0.50typ (Io=100%) | | | | | |
| | FREQUENCY[Hz] | | 50 / 60 (47 - 63) | | | | | | |
| | EFFICIENCY[%] | ACIN 100V | 73.5typ | 78.0typ | 81.5typ | 81.5typ | 82.5typ | 82.5typ | 82.5typ |
| | | ACIN 200V | 75.0typ | 80.0typ | 83.0typ | 83.0typ | 84.5typ | 84.5typ | 84.5typ |
| | POWER FACTOR (Io=100%) | ACIN 100V | 0.96typ | 0.97typ | | | | | |
| | | ACIN 200V | 0.83typ | 0.90typ | | | | | |
| | INRUSH CURRENT[A] | ACIN 100V | 15typ (Io=100%) (At cold start) (Ta=25℃) | | | | | | |
| | | ACIN 200V | 30typ (Io=100%) (At cold start) (Ta=25℃) | | | | | | |
| | LEAKAGE CURRENT[mA] | | 0.40 / 0.75max (ACIN 100V / 240V 60Hz, Io=100%, According to IEC62368-1 and DEN-AN) | | | | | | |
| OUTPUT | VOLTAGE[V] | | 3.3 | 5 | 12 | 15 | 24 | 36 | 48 |
| | CURRENT[A] | | 15.0 | 15.0 | 6.3 | 5.0 | 3.2 | 2.1 | 1.6 |
| | LINE REGULATION[mV] | ＊4 | 20max | 20max | 48max | 60max | 96max | 144max | 192max |
| | LOAD REGULATION[mV] | ＊4 | 40max | 40max | 100max | 120max | 150max | 240max | 240max |
| | RIPPLE[mVp-p] | 0 to +50℃ ＊1 | 80max | 80max | 120max | 120max | 120max | 150max | 150max |
| | | -10 - 0℃ ＊1 | 140max | 140max | 160max | 160max | 160max | 200max | 200max |
| | RIPPLE NOISE[mVp-p] | 0 to +50℃ ＊1 | 120max | 120max | 150max | 150max | 150max | 250max | 250max |
| | | -10 - 0℃ ＊1 | 160max | 160max | 180max | 180max | 180max | 300max | 300max |
| | TEMPERATURE REGULATION[mV] | 0 to +50℃ | 50max | 50max | 120max | 150max | 240max | 360max | 480max |
| | | -10 to +50℃ | 60max | 60max | 150max | 180max | 290max | 450max | 600max |
| | DRIFT[mV] | ＊2 | 20max | 20max | 48max | 60max | 96max | 144max | 192max |
| | START-UP TIME[ms] | | 350typ (ACIN 100V, Io=100%) | | | | | | |
| | HOLD-UP TIME[ms] | | 20typ (ACIN 100V, Io=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 | 34.50 to 37.50 | 46.00 to 50.00 |
| PROTECTION CIRCUIT AND OTHERS | OVERCURRENT PROTECTION | | Works over 105% of rating and recovers automatically | | | | | | |
| | OVERVOLTAGE PROTECTION | | 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 |
| | OPERATING INDICATION | | Not provided | | | | | | |
| | REMOTE SENSING | | Not provided | | | | | | |
| | REMOTE ON/OFF | | Not provided | | | | | | |
| ISOLATION | INPUT-OUTPUT | | AC3,000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (At Room Temperature) | | | | | | |
| | INPUT-FG | | AC2,000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (At Room Temperature) | | | | | | |
| | OUTPUT-FG | | AC500V 1minute, Cutoff current = 25mA, DC500V 50MΩ min (At Room Temperature) | | | | | | |
| ENVIRONMENT | OPERATING TEMP.,HUMID.AND ALTITUDE | | -10 to +70℃, 20 - 90%RH (Non condensing) (Refer to "Derating", Instruction Manual 3), 3,000m (10,000feet) max ＊3 | | | | | | |
| | STORAGE TEMP.,HUMID.AND ALTITUDE | | -20 to +75℃, 20 - 90%RH (Non condensing), 9,000m (30,000feet) 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 | | UL60950-1, C-UL (CSA60950-1), EN60950-1, EN62368-1, EN60065, EN50178 Complies with DEN-AN | | | | | | |
| | CONDUCTED NOISE | | Complies with FCC-B, VCCI-B, CISPR-B, EN55011-B, EN55022-B | | | | | | |
| | HARMONIC ATTENUATOR | | Complies with IEC61000-3-2 (Class A) ＊5 | | | | | | |
| OTHERS | CASE SIZE/WEIGHT | | 50×33.5×150mm [1.97×1.32×5.91 inches] (W×H×D) / 230g max (with chassis & cover : 440g max) | | | | | | |
| | COOLING METHOD | | Convection (Refer to "Derating", Instruction Manual 3) ＊3 | | | | | | |

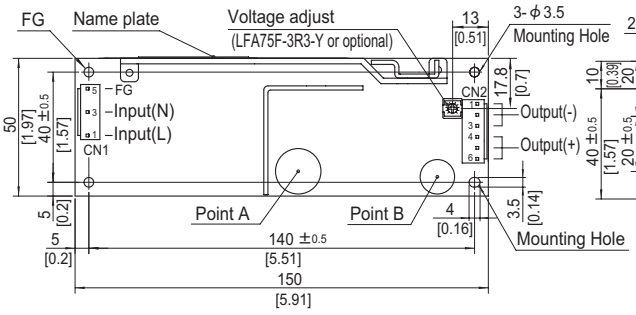
＊1 This is the value that measured on measuring board with capacitor of 22μF at 150mm from output terminal.
Measured by 20MHz oscilloscope or Ripple-Noise meter (Equivalent to KEISOKU-GIKEN: RM103).
＊2 Drift is the change in DC output for an eight hour period after a half-hour warm-up at 25℃, with the input voltage held constant at the rated input/output.
＊3 Derating is required.
＊4 Please contact us about dynamic load and input response.
＊5 Please contact us about another class.
＊ To meet the specifications. Do not operate over-loaded condition.
＊ Parallel operation is not possible.
＊ Derating is required when operated with chassis and cover.
＊ Sound noise may be generated by power supply in case of pulse load.

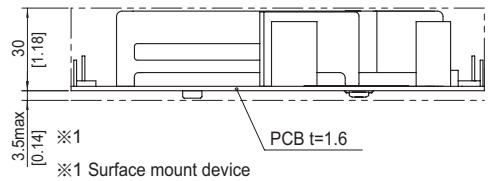
## Block diagram




## External view

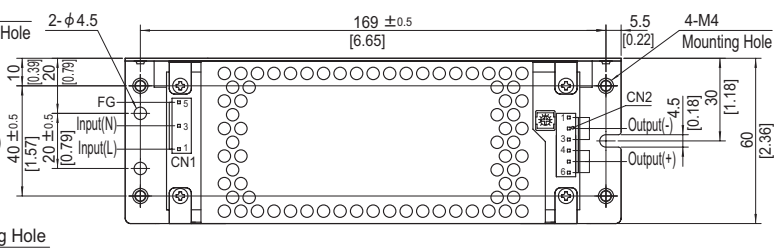
Standard type

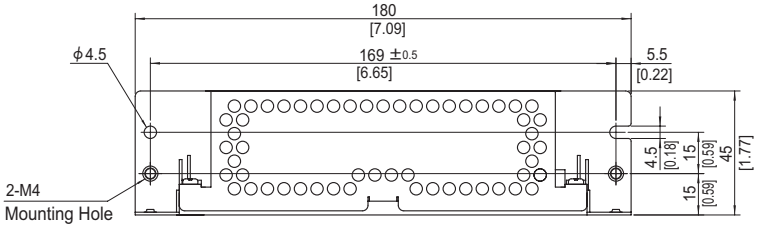



※1 Surface mount device

Chassis and cover type




※ 4 Mounting holes are existing.
※ The back side of P.C.B. of the power supply is assembled some SMDs.
Be attention not to bump against the attached area by vibration.
※ Use the spacer of 8mm length or more regarding insulation.
And do not use press-fitting bush.
※ Point A, Point B are thermometry points. Please refer to Instruction Manual 3.

| I/O Connector | | Mating connector | Terminal | |
|---|---|---|---|---|
| CN1 | 1-1123724-3 | 1-1123722-5 | Chain | 1123721-1 |
| | | | Loose | 1318912-1 |
| CN2 | 1-1123723-6 | 1-1123722-6 | Chain | 1123721-1 |
| | | | Loose | 1318912-1 |

(Mfr:Tyco Electronics)

※ I/O Connector is Mfr. Tyco Electronics
※ Option:-J1:(J.S.T) connector type. Refer to Instruction Manual 6.

<PIN CONNECTION>

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 |

※ Keep drawing current per pin below 5A for CN2.

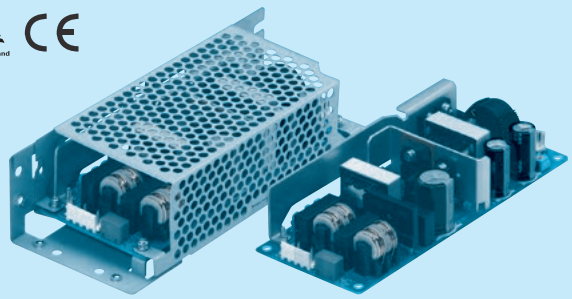
※ Tolerance : ±1 [±0.04]
※ Weight : 230g max (with chassis & cover : 440g max)
※ PCB material / thickness : CEM3 / 1.6mm
※ Optional chassis and cover material : Electric galvanizing steel board.
※ Dimensions in mm, [ ]=inches
※ Mounting torque (Mounting hole of chassis) :1.5N・m (16kgf・cm) max

COSEL AC-DC Power Supplies Open Frame/ Enclosed Type

# LFA100F

## Ordering information

LF ① A ② 100 ③ F ④ -□ ⑤ -□ ⑧



Example recommended EMI/EMC filter
NAC-04-472

High voltage pulse noise type : NAP series
Low leakage current type : NAM 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
H : with the function to be acceptable to output peak current (only 24V)
J1 : VH(J.S.T.)connector type
R : with Remote ON/OFF
R2 : with Remote ON/OFF
S : with Chassis
SN : with Chassis & cover
Y : with Potentiometer
Please refer to Instruction manual 6.

This power supply is manufactured by SMD technology. The stress to P.C.B 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.

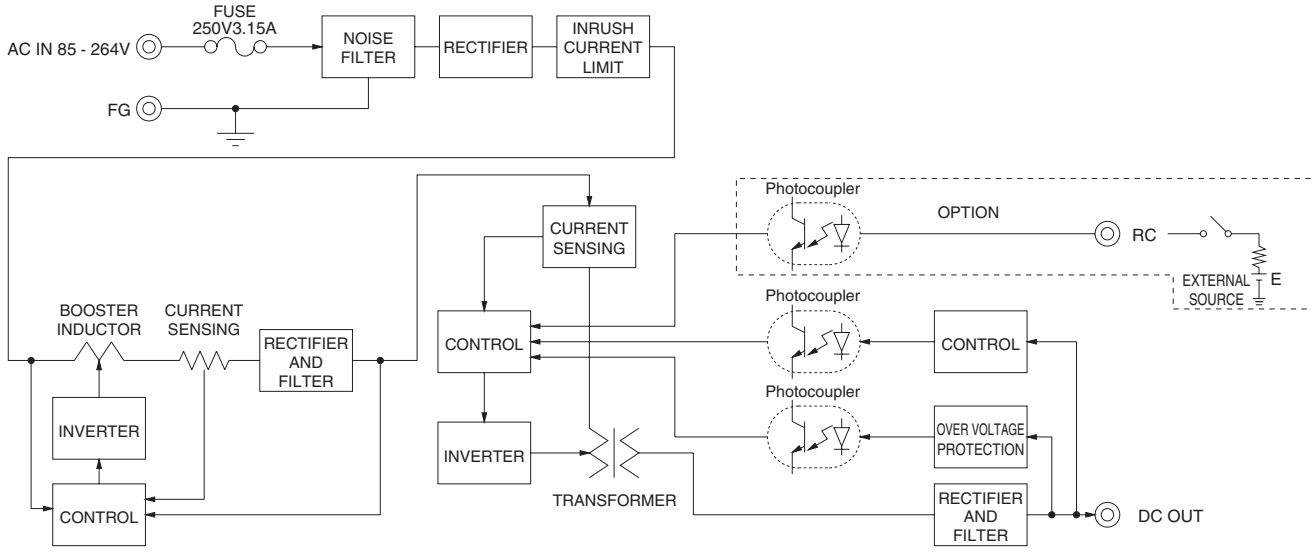
| MODEL | LFA100F-3R3-Y | LFA100F-5-Y | LFA100F-12 | LFA100F-15 | LFA100F-24 | LFA100F-24-H | LFA100F-36 | LFA100F-48 |
|---|---|---|---|---|---|---|---|---|
| MAX OUTPUT WATTAGE[W] ＊5 | 66 | 100 | 102 | 100.5 | 103.2 | 103.2 (129.6) | 100.8 | 100.8 |
| DC OUTPUT ＊5 | 3.3V 20A | 5V 20A | 12V 8.5A | 15V 6.7A | 24V 4.3A | 24V 4.3 (5.4)A | 36V 2.8A | 48V 2.1A |

## SPECIFICATIONS

| | MODEL | | LFA100F-3R3-Y | LFA100F-5-Y | LFA100F-12 | LFA100F-15 | LFA100F-24 | LFA100F-24-H | LFA100F-36 | LFA100F-48 |
|---|---|---|---|---|---|---|---|---|---|---|
| INPUT | VOLTAGE[V] | | AC85 - 264 1φ (Refer to “Derating”, Instruction Manual 1 and 3) ＊4 | | | | | | | |
| | CURRENT[A] | ACIN 100V | 0.9typ (Io=100%) | 1.3typ (Io=100%) | | | | | | |
| | | ACIN 200V | 0.5typ (Io=100%) | 0.7typ (Io=100%) | | | | | | |
| | FREQUENCY[Hz] | | 50 / 60 (47 - 63) | | | | | | | |
| | EFFICIENCY[%] | ACIN 100V | 77.0typ | 82.0typ | 82.0typ | 83.0typ | 84.0typ | 84.0typ | 84.0typ | 84.5typ |
| | | ACIN 200V | 79.0typ | 84.0typ | 84.5typ | 85.5typ | 87.0typ | 87.0typ | 87.0typ | 87.0typ |
| | POWER FACTOR (Io=100%) | ACIN 100V | 0.98typ | 0.99typ | | | | | | |
| | | ACIN 200V | 0.92typ | 0.95typ | | | | | | |
| | INRUSH CURRENT[A] | ACIN 100V | 15typ (Io=100%) (At cold start) (Ta=25℃) | | | | | | | |
| | | ACIN 200V | 30typ (Io=100%) (At cold start) (Ta=25℃) | | | | | | | |
| | LEAKAGE CURRENT[mA] | | 0.40 / 0.75max (ACIN 100V / 240V 60Hz, Io=100%, According to IEC62368-1 and DEN-AN) | | | | | | | |
| OUTPUT | VOLTAGE[V] | | 3.3 | 5 | 12 | 15 | 24 | 24 | 36 | 48 |
| | CURRENT[A] ＊5 | | 20 | 20 | 8.5 | 6.7 | 4.3 | 4.3 (Peak 5.4) | 2.8 | 2.1 |
| | LINE REGULATION[mV] ＊7 | | 20max | 20max | 48max | 60max | 96max | 96max | 144max | 192max |
| | LOAD REGULATION[mV] ＊7 | | 40max | 40max | 100max | 120max | 150max | 150max | 240max | 240max |
| | RIPPLE[mVp-p] | 0 to +50℃ ＊2 | 80max | 80max | 120max | 120max | 120max | 240max | 150max | 150max |
| | | -10 - 0℃ ＊2 | 140max | 140max | 160max | 160max | 160max | 320max | 200max | 200max |
| | RIPPLE NOISE[mVp-p] | 0 to +50℃ ＊2 | 120max | 120max | 150max | 150max | 150max | 300max | 250max | 250max |
| | | -10 - 0℃ ＊2 | 160max | 160max | 180max | 180max | 180max | 360max | 300max | 300max |
| | TEMPERATURE REGULATION[mV] | 0 to +50℃ | 50max | 50max | 120max | 150max | 240max | 240max | 360max | 480max |
| | | -10 to +50℃ | 60max | 60max | 150max | 180max | 290max | 290max | 450max | 600max |
| | DRIFT[mV] ＊3 | | 20max | 20max | 48max | 60max | 96max | 96max | 144max | 192max |
| | START-UP TIME[ms] | | 350typ (ACIN 100V, Io=100%) | | | | | | | |
| | HOLD-UP TIME[ms] | | 20typ (ACIN 100V, Io=100%) | | | | | | | |
| | OUTPUT VOLTAGE ADJUSTMENT RANGE[V] | | 2.85 to 3.63 | 4.50 to 5.50 | Fixed (“Y”option is available for adjusting output voltage) | | | | | |
| | OUTPUT VOLTAGE SETTING[V] | | 3.30 to 3.40 | 5.00 to 5.15 | 11.50 to 12.50 | 14.40 to 15.60 | 23.00 to 25.00 | 23.00 to 25.00 | 34.50 to 37.50 | 46.00 to 50.00 |
| PROTECTION CIRCUIT AND OTHERS | OVERCURRENT PROTECTION | | Works over 105% of rating (works over 101% of peak current at option -H) and recovers automatically | | | | | | | |
| | OVERVOLTAGE PROTECTION | | 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 | 27.60 to 33.60 | 41.40 to 50.40 | 55.20 to 67.20 |
| | OPERATING INDICATION | | Not provided | | | | | | | |
| | REMOTE SENSING | | Not provided | | | | | | | |
| | REMOTE ON/OFF | | Option (Refer to Instruction Manual) | | | | | | | |
| ISOLATION | INPUT-OUTPUT-RC ＊6 | | AC3,000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (At Room Temperature) | | | | | | | |
| | INPUT-FG | | AC2,000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (At Room Temperature) | | | | | | | |
| | OUTPUT-RC-FG ＊6 | | AC500V 1minute, Cutoff current = 25mA, DC500V 50MΩ min (At Room Temperature) | | | | | | | |
| | OUTPUT-RC ＊6 | | AC100V 1minute, Cutoff current = 25mA, DC100V 10MΩ min (At Room Temperature) | | | | | | | |
| ENVIRONMENT | OPERATING TEMP.,HUMID.AND ALTITUDE ＊4 | | -10 to +70℃, 20 - 90%RH (Non condensing) (Refer to “Derating”, Instruction Manual 3), 3,000m (10,000feet) max | | | | | | | |
| | STORAGE TEMP.,HUMID.AND ALTITUDE | | -20 to +75℃, 20 - 90%RH (Non condensing), 9,000m (30,000feet) 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 | | UL60950-1, C-UL (CSA60950-1), EN60950-1, EN62368-1, EN60065, EN50178 Complies with DEN-AN | | | | | | | |
| | CONDUCTED NOISE | | Complies with FCC-B, VCCI-B, CISPR-B, EN55011-B, EN55022-B | | | | | | | |
| | HARMONIC ATTENUATOR | | Complies with IEC61000-3-2 (Class A) ＊8 | | | | | | | |
| OTHERS | CASE SIZE/WEIGHT | | 62×33.5×155mm [2.44×1.32×6.10 inches] (W×H×D) / 280g max (with chassis & cover : 480g max) | | | | | | | |
| | COOLING METHOD | | Convection (Refer to “Derating”, Instruction Manual 3) ＊4 | | | | | | | |

＊1 Specification is changed at option, refer to Instruction Manual.
＊2 This is the value that measured on measuring board with capacitor of 22μF at 150mm from output terminal. Measured by 20MHz oscilloscope or Ripple-Noise meter (Equivalent to KEISOKU-GIKEN: RM103).
＊3 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.
＊4 Derating is required.
＊5 ( ) means peak current. There is a possibility that an internal device is damaged when the specification is exceeded. Please contact us about the detail.
＊6 Applicable when Remote ON/OFF (optional) is added.
＊7 Please contact us about dynamic load and input response.
＊8 Please contact us about another class.
＊ To meet the specifications. Do not operate over-loaded condition.
＊ Parallel operation is not possible.
＊ Derating is required when operated with chassis and cover.
＊ Sound noise may be generated by power supply in case of pulse load.

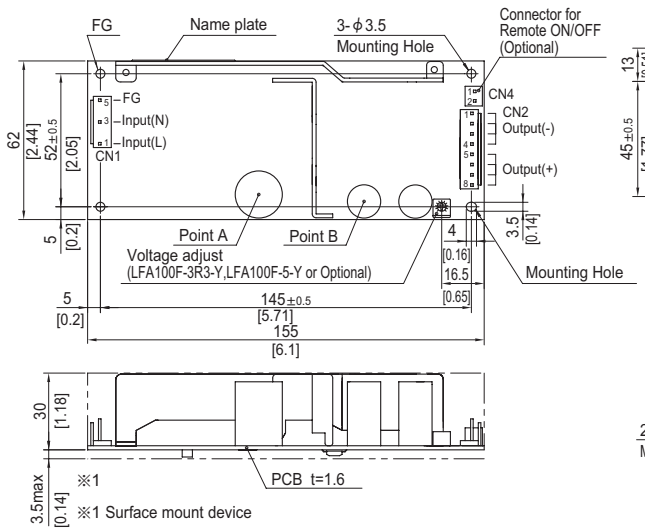
## Block diagram




## External view

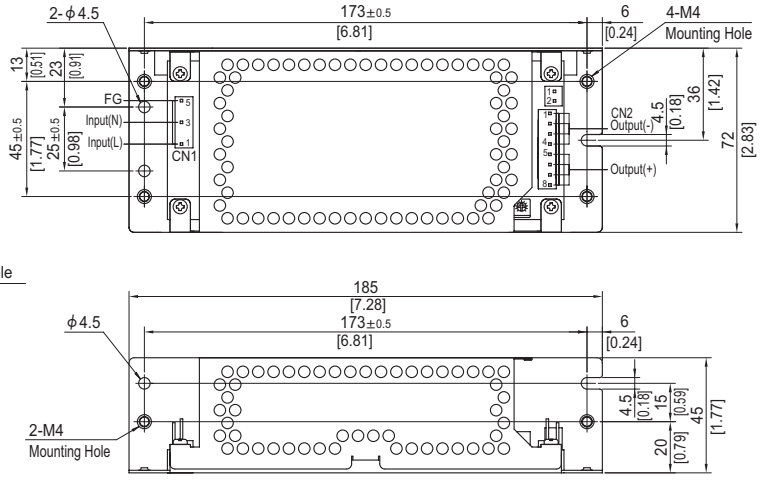
※ External size of option is different from standard model.

Standard type




※1 Surface mount device

Chassis and cover type




※ 4 Mounting holes are existing.
※ The back side of P.C.B. of the power supply is assembled some SMDs.
Be attention not to bump against the attached area by vibration.
※ Use the spacer of 8mm length or more regarding insulation.
And do not use press-fitting bush.
※ Point A, Point B are thermometry points. Please refer to Instruction Manual 3.

| I/O Connector | | Mating connector | Terminal | |
|---|---|---|---|---|
| CN1 | 1-1123724-3 | 1-1123722-5 | Chain | 1123721-1 |
| | | | Loose | 1318912-1 |
| CN2 | 1-1123723-8 | 1-1123722-8 | Chain | 1123721-1 |
| | | | Loose | 1318912-1 |

(Mfr:Tyco Electronics)

※ I/O Connector is Mfr. Tyco Electronics
※ Option:-J1:VH(J.S.T) connector type.

<PIN CONNECTION>

CN1

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

CN2

| Pin No. | Output |
|---|---|
| 1 to 4 | -V |
| 5 to 8 | +V |

※ Keep drawing current per pin below 5A for CN2.

※ Tolerance : ±1 [±0.04]
※ Weight : 280g max (with chassis & cover : 480g max)
※ PCB material : CEM3
※ Optional chassis and cover material : Electric galvanizing steel board.
※ Dimensions in mm, [ ]=inches
※ Mounting torque (Mounting hole of chassis) :1.5N・m (16kgf・cm) max

Connector type

CN4 Option (Mfr:J.S.T)

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

Barrier strip type

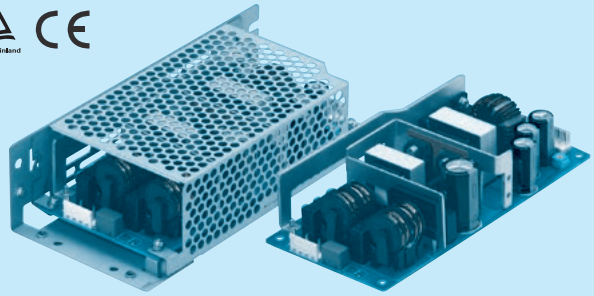
Model B2B-XH-A
Mating Connector (Terminal)
XHP-2
(BXH-001T-P0.6 or SXH-001T-P0.6)

COSEL AC-DC Power Supplies Open Frame/ Enclosed Type

# LFA150F

## Ordering information

| LF | A | 150 | F | -□ | -□ |
|---|---|---|---|---|---|
| ① | ② | ③ | ④ | ⑤ | ⑧ |



Example recommended EMI/EMC filter
NAC-04-472

High voltage pulse noise type : NAP series
Low leakage current type : NAM 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
H : with the function to be acceptable to output peak current (only 24V)
J1 : VH(J.S.T.)connector type
R : with Remote ON/OFF
R2 : with Remote ON/OFF
S : with Chassis
SN : with Chassis & cover
Y : with Potentiometer
Please refer to Instruction manual 6.

This power supply is manufactured by SMD technology. The stress to P.C.B 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.

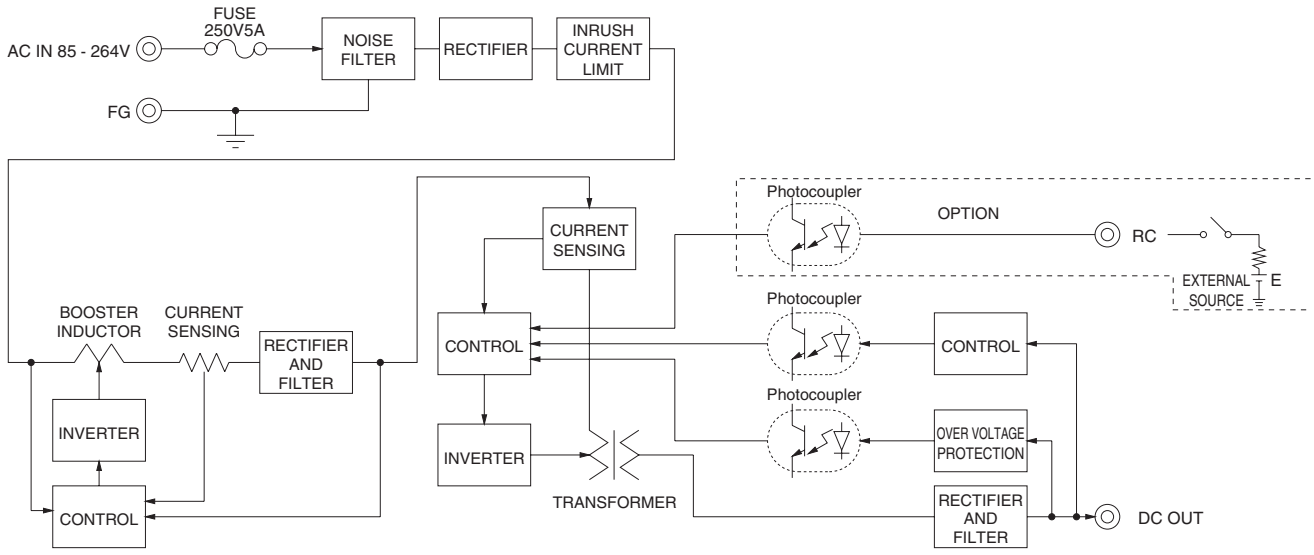
| MODEL | LFA150F-3R3-Y | LFA150F-5-Y | LFA150F-12 | LFA150F-15 | LFA150F-24 | LFA150F-24-H | LFA150F-36 | LFA150F-48 |
|---|---|---|---|---|---|---|---|---|
| MAX OUTPUT WATTAGE[W] ＊5 | 99 | 150 | 150 | 150 | 151.2 | 151.2 (189.6) | 151.2 | 153.6 |
| DC OUTPUT ＊5 | 3.3V 30A | 5V 30A | 12V 12.5A | 15V 10A | 24V 6.3A | 24V 6.3 (7.9)A | 36V 4.2A | 48V 3.2A |

## SPECIFICATIONS

| | MODEL | | LFA150F-3R3-Y | LFA150F-5-Y | LFA150F-12 | LFA150F-15 | LFA150F-24 | LFA150F-24-H | LFA150F-36 | LFA150F-48 |
|---|---|---|---|---|---|---|---|---|---|---|
| INPUT | VOLTAGE[V] | | AC85 - 264 1φ (Refer to "Derating", Instruction Manual 1 and 3) ＊4 | | | | | | | |
| | CURRENT[A] | ACIN 100V | 1.4typ (Io=100%) | 2.0typ (Io=100%) | | | | | | |
| | | ACIN 200V | 0.7typ (Io=100%) | 1.0typ (Io=100%) | | | | | | |
| | FREQUENCY[Hz] | | 50 / 60 (47 - 63) | | | | | | | |
| | EFFICIENCY[%] | ACIN 100V | 80.0typ | 82.5typ | 82.5typ | 84.0typ | 85.0typ | 85.0typ | 85.0typ | 85.5typ |
| | | ACIN 200V | 82.0typ | 85.5typ | 85.0typ | 86.5typ | 87.5typ | 87.5typ | 87.5typ | 88.0typ |
| | POWER FACTOR (Io=100%) | ACIN 100V | 0.98typ | 0.99typ | | | | | | |
| | | ACIN 200V | 0.92typ | 0.95typ | | | | | | |
| | INRUSH CURRENT[A] | ACIN 100V | 15typ (Io=100%) (At cold start) (Ta=25℃) | | | | | | | |
| | | ACIN 200V | 30typ (Io=100%) (At cold start) (Ta=25℃) | | | | | | | |
| | LEAKAGE CURRENT[mA] | | 0.40 / 0.75max (ACIN 100V / 240V 60Hz, Io=100%, According to IEC62368-1 and DEN-AN) | | | | | | | |
| OUTPUT | VOLTAGE[V] | | 3.3 | 5 | 12 | 15 | 24 | 24 | 36 | 48 |
| | CURRENT[A] ＊5 | | 30 | 30 | 12.5 | 10 | 6.3 | 6.3 (Peak 7.9) | 4.2 | 3.2 |
| | LINE REGULATION[mV] ＊7 | | 20max | 20max | 48max | 60max | 96max | 96max | 144max | 192max |
| | LOAD REGULATION[mV] ＊7 | | 40max | 40max | 100max | 120max | 150max | 150max | 240max | 240max |
| | RIPPLE[mVp-p] | 0 to +40℃ ＊2 | 80max | 80max | 120max | 120max | 120max | 240max | 150max | 150max |
| | | -10 - 0℃ ＊2 | 140max | 140max | 160max | 160max | 160max | 320max | 200max | 200max |
| | RIPPLE NOISE[mVp-p] | 0 to +40℃ ＊2 | 120max | 120max | 150max | 150max | 150max | 300max | 250max | 250max |
| | | -10 - 0℃ ＊2 | 160max | 160max | 180max | 180max | 180max | 360max | 300max | 300max |
| | TEMPERATURE REGULATION[mV] | 0 to +40℃ | 50max | 50max | 120max | 150max | 240max | 240max | 360max | 480max |
| | | -10 to +40℃ | 60max | 60max | 150max | 180max | 290max | 290max | 450max | 600max |
| | DRIFT[mV] ＊3 | | 20max | 20max | 48max | 60max | 96max | 96max | 144max | 192max |
| | START-UP TIME[ms] | | 350typ (ACIN 100V, Io=100%) | | | | | | | |
| | HOLD-UP TIME[ms] | | 20typ (ACIN 100V, Io=100%) | | | | | | | |
| | OUTPUT VOLTAGE ADJUSTMENT RANGE[V] | | 2.85 to 3.63 | 4.50 to 5.50 | Fixed ("Y"option is available for adjusting output voltage) | | | | | |
| | OUTPUT VOLTAGE SETTING[V] | | 3.30 to 3.40 | 5.00 to 5.15 | 11.50 to 12.50 | 14.40 to 15.60 | 23.00 to 25.00 | 23.00 to 25.00 | 34.50 to 37.50 | 46.00 to 50.00 |
| PROTECTION CIRCUIT AND OTHERS | OVERCURRENT PROTECTION | | Works over 105% of rating (works over 101% of peak current at option -H) and recovers automatically | | | | | | | |
| | OVERVOLTAGE PROTECTION | | 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 | 27.60 to 33.60 | 41.40 to 50.40 | 55.20 to 67.20 |
| | OPERATING INDICATION | | Not provided | | | | | | | |
| | REMOTE SENSING | | Not provided | | | | | | | |
| | REMOTE ON/OFF | | Option (Refer to Instruction Manual) | | | | | | | |
| ISOLATION | INPUT-OUTPUT-RC ＊6 | | AC3,000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (At Room Temperature) | | | | | | | |
| | INPUT-FG | | AC2,000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (At Room Temperature) | | | | | | | |
| | OUTPUT-RC-FG ＊6 | | AC500V 1minute, Cutoff current = 25mA, DC500V 50MΩ min (At Room Temperature) | | | | | | | |
| | OUTPUT-RC ＊6 | | AC100V 1minute, Cutoff current = 25mA, DC100V 10MΩ min (At Room Temperature) | | | | | | | |
| ENVIRONMENT | OPERATING TEMP.,HUMID.AND ALTITUDE ＊4 | | -10 to +70℃, 20 - 90%RH (Non condensing) (Refer to "Derating", Instruction Manual 3), 3,000m (10,000feet) max | | | | | | | |
| | STORAGE TEMP.,HUMID.AND ALTITUDE | | -20 to +75℃, 20 - 90%RH (Non condensing), 9,000m (30,000feet) 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 | | UL60950-1, C-UL (CSA60950-1), EN60950-1, EN62368-1, EN60065, EN50178 Complies with DEN-AN | | | | | | | |
| | CONDUCTED NOISE | | Complies with FCC-B, VCCI-B, CISPR-B, EN55011-B, EN55022-B | | | | | | | |
| | HARMONIC ATTENUATOR | | Complies with IEC61000-3-2 (Class A) ＊8 | | | | | | | |
| OTHERS | CASE SIZE/WEIGHT | | 75×37.0×160mm [2.95×1.46×6.30 inches] (W×H×D) / 390g max (with chassis & cover : 650g max) | | | | | | | |
| | COOLING METHOD | | Convection (Refer to "Derating", Instruction Manual 3) ＊4 | | | | | | | |

＊1 Specification is changeed at option, refer to Instruction Manual.
＊2 This is the value that measured on measuring board with capacitor of 22μF at 150mm from output terminal. Measured by 20MHz oscilloscope or Ripple-Noise meter (Equivalent to KEISOKU-GIKEN: RM103).
＊3 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.
＊4 Derating is required.
＊5 ( ) means peak current. There is a possibility that an internal device is damaged when the specification is exceeded. Please contact us about the detail.
＊6 Applicable when remote control (optional) is added.
＊7 Please contact us about dynamic load and input response.
＊8 Please contact us about another class.
＊ To meet the specifications. Do not operate over-loaded condition.
＊ Parallel operation is not possible.
＊ Derating is required when operated with chassis and cover.
＊ Sound noise may be generated by power supply in case of pulse load.

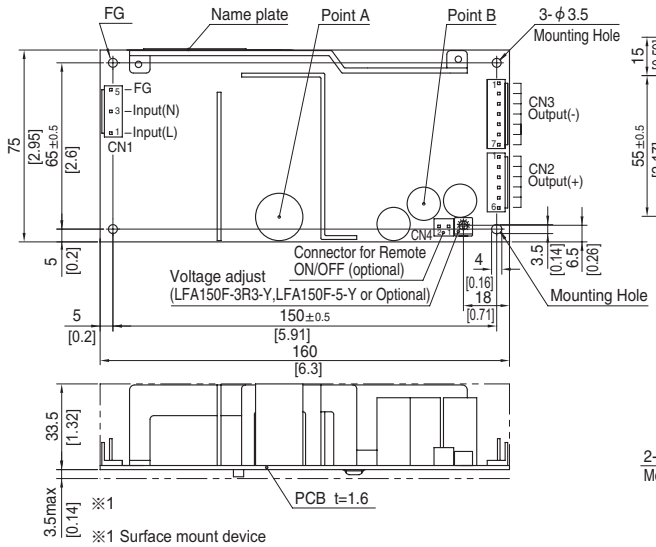
## Block diagram




## External view

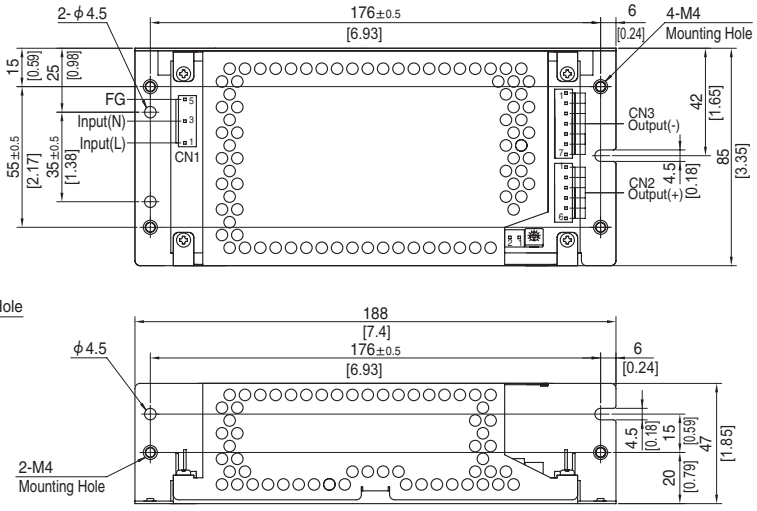
※ External size of option is different from standard model.

Standard type




※1 Surface mount device

Chassis and cover type




※ 4 Mounting holes are existing.
※ The back side of P.C.B. of the power supply is assembled some SMDs.
Be attention not to bump against the attached area by vibration.
※ Use the spacer of 8mm length or more regarding insulation.
And do not use press-fitting bush.
※ Point A, Point B are thermometry points. Please refer to Instruction Manual 3.

| I/O Connector | | Mating connector | Terminal | |
|---|---|---|---|---|
| CN1 | 1-1123724-3 | 1-1123722-5 | Chain | 1123721-1 |
| | | | Loose | 1318912-1 |
| CN2 | 1-1123723-6 | 1-1123722-6 | Chain | 1123721-1 |
| | | | Loose | 1318912-1 |
| CN3 | 1-1123723-7 | 1-1123722-7 | Chain | 1123721-1 |
| | | | Loose | 1318912-1 |

(Mfr:Tyco Electronics)

※ I/O Connector is Mfr. Tyco Electronics
※ Option:-J1:VH(J.S.T) connector type.

<PIN CONNECTION>

CN1

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

CN2

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

CN3

| Pin No. | Output |
|---|---|
| 1 to 7 | -V |

※ Keep drawing current per pin below 5A for CN2,CN3.

※ Tolerance : ±1 [±0.04]
※ Weight : 390g max (with chassis & cover : 650g max)
※ PCB material : CEM3
※ Optional chassis and cover material : Electric galvanizing steel board.
※ Dimensions in mm, [ ]=inches
※ Mounting torque (Mounting hole of chassis) :1.5N・m (16kgf・cm) max

Connector type

CN4 Option (Mfr:J.S.T)

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

Barrier strip type

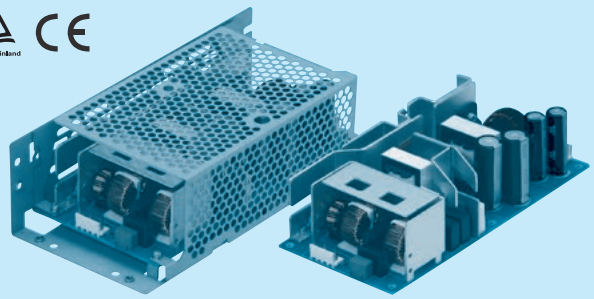
Model B2B-XH-A
Mating Connector (Terminal)
XHP-2
(BXH-001T-P0.6
or SXH-001T-P0.6)

COSEL AC-DC Power Supplies Open Frame/ Enclosed Type

# LFA240F

## Ordering information

| LF | A | 240 | F | -□ | -□ |
|---|---|---|---|---|---|
| ① | ② | ③ | ④ | ⑤ | ⑧ |



Example recommended EMI/EMC filter
NAC-06-472

High voltage pulse noise type : NAP series
Low leakage current type : NAM 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
H : with the function to be acceptable to output peak current (only 24V)
J1 : VH(J.S.T.)connector type
R : with Remote ON/OFF
R2 : with Remote ON/OFF
S : with Chassis
SN : with Chassis & cover
T : Vertical terminal block
Y : with Potentiometer

Please refer to Instruction manual 6.

This power supply is manufactured by SMD technology. The stress to P.C.B 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.

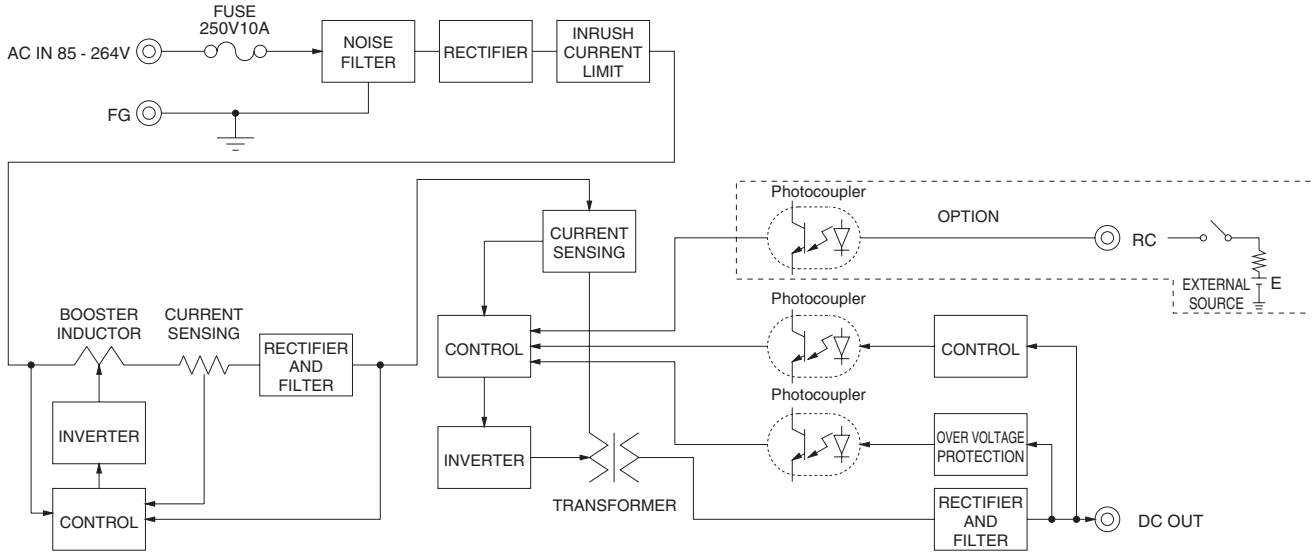
| MODEL | LFA240F-24 | LFA240F-24-H | LFA240F-36 | LFA240F-48 |
|---|---|---|---|---|
| MAX OUTPUT WATTAGE[W] ＊5 | 240 | 240 (300) | 241.2 | 240 |
| DC OUTPUT ＊5 | 24V 10A | 24V 10 (12.5)A | 36V 6.7A | 48V 5A |

## SPECIFICATIONS

| | MODEL | | LFA240F-24 | LFA240F-24-H | LFA240F-36 | LFA240F-48 |
|---|---|---|---|---|---|---|
| INPUT | VOLTAGE[V] | | AC85 - 264 1φ (Refer to "Derating", Instruction Manual 1 and 3) ＊4 | | | |
| | CURRENT[A] | ACIN 100V | 3.3typ (Io=100%) | | | |
| | | ACIN 200V | 1.7typ (Io=100%) | | | |
| | FREQUENCY[Hz] | | 50 / 60 (47 - 63) | | | |
| | EFFICIENCY[%] | ACIN 100V | 84.5typ | 84.5typ | 84.5typ | 84.5typ |
| | | ACIN 200V | 87.5typ | 87.5typ | 87.5typ | 87.5typ |
| | POWER FACTOR (Io=100%) | ACIN 100V | 0.99typ | | | |
| | | ACIN 200V | 0.95typ | | | |
| | INRUSH CURRENT[A] | ACIN 100V | 15 / 30typ (Io=100%) (Primary inrush current /Secondary inrush current) (More than 3 sec. to re-start) | | | |
| | | ACIN 200V | 30 / 30typ (Io=100%) (Primary inrush current /Secondary inrush current) (More than 3 sec. to re-start) | | | |
| | LEAKAGE CURRENT[mA] | | 0.40 / 0.75max (ACIN 100V / 240V 60Hz, Io=100%, According to IEC62368-1 and DEN-AN) | | | |
| OUTPUT | VOLTAGE[V] | | 24 | 24 | 36 | 48 |
| | CURRENT[A] ＊5 | | 10 | 10 (Peak12.5) | 6.7 | 5 |
| | LINE REGULATION[mV] ＊7 | | 96max | 96max | 144max | 192max |
| | LOAD REGULATION[mV] ＊7 | | 150max | 150max | 240max | 240max |
| | RIPPLE[mVp-p] | 0 to +40℃ ＊2 | 120max | 240max | 150max | 150max |
| | | -10 - 0℃ ＊2 | 160max | 320max | 200max | 200max |
| | RIPPLE NOISE[mVp-p] | 0 to +40℃ ＊2 | 150max | 300max | 250max | 250max |
| | | -10 - 0℃ ＊2 | 180max | 360max | 300max | 300max |
| | TEMPERATURE REGULATION[mV] | 0 to +40℃ | 240max | 240max | 360max | 480max |
| | | -10 to +40℃ | 290max | 290max | 450max | 600max |
| | DRIFT[mV] ＊3 | | 96max | 96max | 144max | 192max |
| | START-UP TIME[ms] | | 350typ (ACIN 100V, Io=100%) | | | |
| | HOLD-UP TIME[ms] | | 20typ (ACIN 100V, Io=100%) | | | |
| | OUTPUT VOLTAGE ADJUSTMENT RANGE[V] | | Fixed ("Y"option is available for adjusting output voltage) | | | |
| | OUTPUT VOLTAGE SETTING[V] | | 23.00 to 25.00 | 23.00 to 25.00 | 34.50 to 37.50 | 46.00 to 50.00 |
| PROTECTION CIRCUIT AND OTHERS | OVERCURRENT PROTECTION | | Works over 105% of rating (works over 101% of peak current at option -H) and recovers automatically | | | |
| | OVERVOLTAGE PROTECTION | | 27.60 to 33.60 | 27.60 to 33.60 | 41.40 to 50.40 | 55.20 to 67.20 |
| | OPERATING INDICATION | | Not provided | | | |
| | REMOTE SENSING | | Not provided | | | |
| | REMOTE ON/OFF | | Option (Refer to Instruction Manual) | | | |
| ISOLATION | INPUT-OUTPUT-RC ＊6 | | AC3,000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (At Room Temperature) | | | |
| | INPUT-FG | | AC2,000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (At Room Temperature) | | | |
| | OUTPUT-RC-FG ＊6 | | AC500V 1minute, Cutoff current = 25mA, DC500V 50MΩ min (At Room Temperature) | | | |
| | OUTPUT-RC ＊6 | | AC100V 1minute, Cutoff current = 25mA, DC100V 10MΩ min (At Room Temperature) | | | |
| ENVIRONMENT | OPERATING TEMP.,HUMID.AND ALTITUDE ＊4 | | -10 to +70℃, 20 - 90%RH (Non condensing) (Refer to "Derating", Instruction Manual 3), 3,000m (10,000feet) max | | | |
| | STORAGE TEMP.,HUMID.AND ALTITUDE | | -20 to +75℃, 20 - 90%RH (Non condensing), 9,000m (30,000feet) 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 | | UL60950-1, C-UL (CSA60950-1), EN60950-1, EN62368-1, EN60065, EN50178 Complies with DEN-AN | | | |
| | CONDUCTED NOISE | | Complies with FCC-B, VCCI-B, CISPR-B, EN55011-B, EN55022-B | | | |
| | HARMONIC ATTENUATOR | | Complies with IEC61000-3-2 (Class A) ＊8 | | | |
| OTHERS | CASE SIZE/WEIGHT | | 84×46.5×180mm [3.31×1.83×7.09 inches] (W×H×D) / 550g max (with chassis & cover : 880g max) | | | |
| | COOLING METHOD | | Convection (Refer to "Derating", Instruction Manual 3) ＊4 | | | |

＊1 Specification is changeed at option, refer to Instruction Manual.
＊2 This is the value that measured on measuring board with capacitor of 22μF at 150mm from output terminal. Measured by 20MHz oscilloscope or Ripple-Noise meter (Equivalent to KEISOKU-GIKEN: RM103).
＊3 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.
＊4 Derating is required.
＊5 ( ) means peak current. There is a possibility that an internal device is damaged when the specification is exceeded. Please contact us about the detail.
＊6 Applicable when remote control (optional) is added.
＊7 Please contact us about dynamic load and input response.
＊8 Please contact us about another class.
＊ To meet the specifications. Do not operate over-loaded condition.
＊ Parallel operation is not possible.
＊ Derating is required when operated with chassis and cover.
＊ Sound noise may be generated by power supply in case of pulse load.

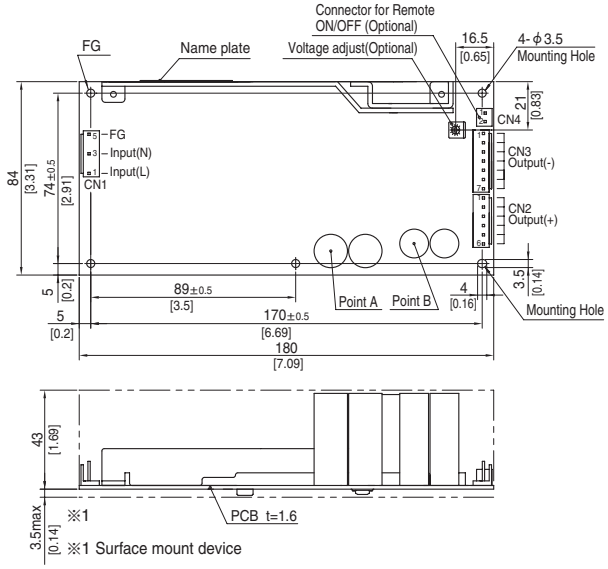
## Block diagram




## External view

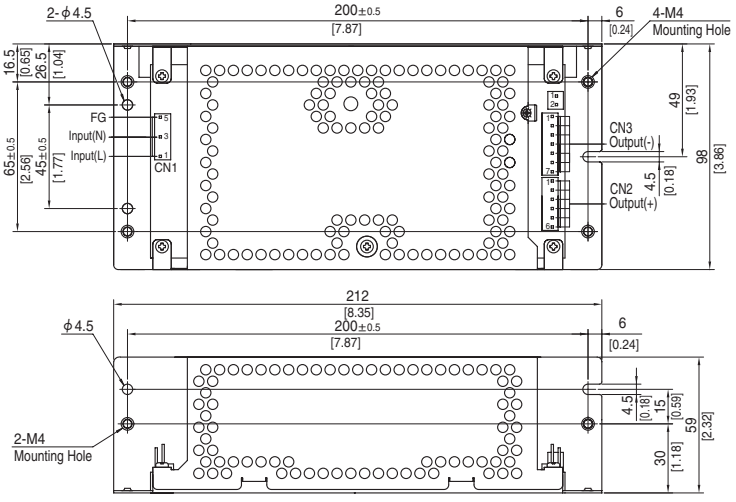
※ External size of option is different from standard model.

Standard type




※1 Surface mount device

Chassis and cover type




※ 5 Mounting holes are existing.
※ The back side of P.C.B. of the power supply is assembled some SMDs.
Be attention not to bump against the attached area by vibration.
※ Use the spacer of 8mm length or more regarding insulation.
And do not use press-fitting bush.
※ Point A, Point B are thermometry points. Please refer to Instruction Manual 3.

| I/O Connector | | Mating connector | Terminal | |
|---|---|---|---|---|
| CN1 | 1-1123724-3 | 1-1123722-5 | Chain | 1123721-1 |
| | | | Loose | 1318912-1 |
| CN2 | 1-1123723-6 | 1-1123722-6 | Chain | 1123721-1 |
| | | | Loose | 1318912-1 |
| CN3 | 1-1123723-7 | 1-1123722-7 | Chain | 1123721-1 |
| | | | Loose | 1318912-1 |

(Mfr:Tyco Electronics)

※ I/O Connector is Mfr. Tyco Electronics
※ Option:-J1:VH(J.S.T) connector type.

<PIN CONNECTION>

CN1

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

CN2

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

CN3

| Pin No. | Output |
|---|---|
| 1 to 7 | -V |

※ Keep drawing current per pin below 5A for CN2,CN3.

※ Tolerance : ±1 [±0.04]
※ Weight : 550g max (with chassis & cover : 880g max)
※ PCB material : CEM3
※ Optional chassis and cover material : Electric galvanizing steel board.
※ Dimensions in mm, [ ]=inches
※ Mounting torque (Mounting hole of chassis) :1.5N・m (16kgf・cm) max

Connector type

CN4 Option (Mfr:J.S.T)

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

Barrier strip type

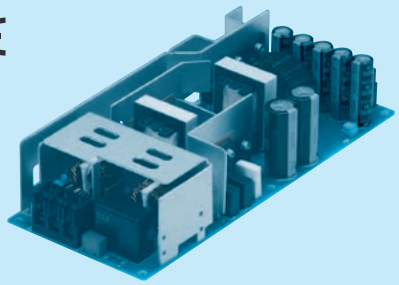
Model B2B-XH-A
Mating Connector (Terminal)
XHP-2
(BXH-001T-P0.6
or SXH-001T-P0.6)

COSEL AC-DC Power Supplies Open Frame/ Enclosed Type

# LFA300F

## Ordering information

LF ① A ② 300 ③ F ④ -□ ⑤ -□ ⑥



Example recommended EMI/EMC filter
NAC-06-472

High voltage pulse noise type : NAP series
Low leakage current type : NAM 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
H : with the function to be acceptable to output peak current (Only 24V, 30V, 36V and 48V)
J : EP (Tyco Electronics) connector type (Except 3.3V and 5V)
J1 : VH (J.S.T.) connector type (Except 3.3V and 5V)
R : with Remote ON/OFF
R2 : with Remote ON/OFF
S : with Chassis
SNF : with Chassis & cover & fan (Only 5V, 12V and 24V)
T1 : Holizontal terminal block

Please refer to Instruction manual 6.

This power supply is manufactured by SMD technology. The stress to P.C.B 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.

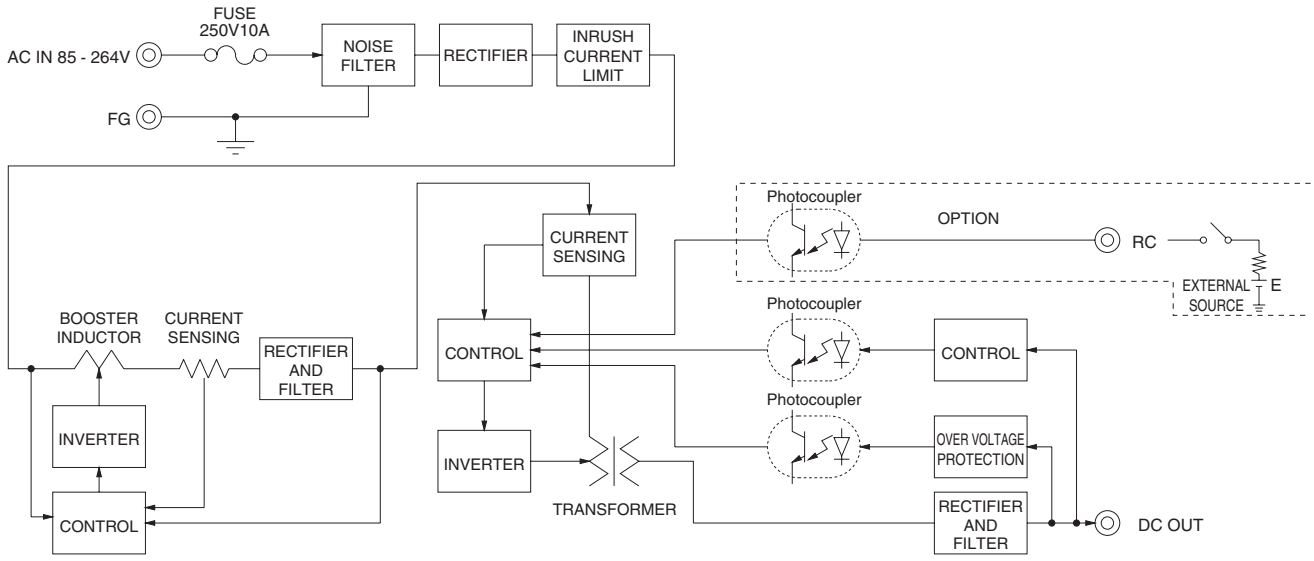
| MODEL | | LFA300F-3R3-TY | LFA300F-5-TY | LFA300F-12-TY | LFA300F-15-TY | LFA300F-24-TY | LFA300F-24-HTY | LFA300F-30-TY | LFA300F-36-TY | LFA300F-48-TY |
|---|---|---|---|---|---|---|---|---|---|---|
| MAX OUTPUT WATTAGE[W] ＊5 | | 198 | 300 | 324 | 330 | 336 | 336 (456) | 330 | 338.4 | 336 |
| DC OUTPUT ＊5 | Convection | 3.3V 40A | 5V 40A | 12V 17A | 15V 14A | 24V 12.5A | 24V 12.5 (19)A | 30V 10A | 36V 8.4A | 48V 6.3A |
| | Forced air | 3.3V 60A | 5V 60A | 12V 27A | 15V 22A | 24V 14A | 24V 14 (19)A | 30V 11A | 36V 9.4A | 48V 7A |

## SPECIFICATIONS

| | MODEL | | LFA300F-3R3-TY | LFA300F-5-TY | LFA300F-12-TY | LFA300F-15-TY | LFA300F-24-TY | LFA300F-24-HTY | LFA300F-30-TY | LFA300F-36-TY | LFA300F-48-TY |
|---|---|---|---|---|---|---|---|---|---|---|---|
| INPUT | VOLTAGE[V] | | AC85 - 264 1φ (Refer to "Derating", Instruction Manual 1 and 3) ＊4 | | | | | | | | |
| | CURRENT[A] | ACIN 100V | 2.7typ (Io=100%) | 4.1typ (Io=100%) | | | | | | | |
| | | ACIN 200V | 1.4typ (Io=100%) | 2.0typ (Io=100%) | | | | | | | |
| | FREQUENCY[Hz] | | 50 / 60 (47 - 63) | | | | | | | | |
| | EFFICIENCY[%] | ACIN 100V | 75.0typ | 79.0typ | 80.0typ | 81.5typ | 85.0typ | 85.0typ | 85.5typ | 85.5typ | 85.5typ |
| | | ACIN 200V | 77.0typ | 82.5typ | 83.0typ | 84.5typ | 88.0typ | 88.0typ | 88.0typ | 88.0typ | 88.0typ |
| | POWER FACTOR (Io=100%) | ACIN 100V | 0.98typ | 0.99typ | | | | | | | |
| | | ACIN 200V | 0.92typ | 0.95typ | | | | | | | |
| | INRUSH CURRENT[A] | ACIN 100V | 15 / 30typ (Io=100%) (Primary inrush current /Secondary inrush current) (More than 3 sec. to re-start) | | | | | | | | |
| | | ACIN 200V | 30 / 30typ (Io=100%) (Primary inrush current /Secondary inrush current) (More than 3 sec. to re-start) | | | | | | | | |
| | LEAKAGE CURRENT[mA] | | 0.45 / 0.75max (ACIN 100V / 240V 60Hz, Io=100%, According to IEC62368-1 and DEN-AN) | | | | | | | | |
| OUTPUT | VOLTAGE[V] | | 3.3 | 5 | 12 | 15 | 24 | 24 | 30 | 36 | 48 |
| | CURRENT[A] ＊5 | Convection | 40 | 40 | 17 | 14 | 12.5 | 12.5 (Peak19) | 10 | 8.4 | 6.3 |
| | | Forced air | 60 | 60 | 27 | 22 | 14 | 14 (Peak19) | 11 | 9.4 | 7 |
| | LINE REGULATION[mV] ＊7 | | 20max | 20max | 48max | 60max | 96max | 96max | 144max | 144max | 192max |
| | LOAD REGULATION[mV] ＊7 | | 40max | 40max | 100max | 120max | 150max | 150max | 240max | 240max | 240max |
| | RIPPLE[mVp-p] | 0 to +40℃ ＊2 | 80max | 80max | 120max | 120max | 120max | 240max | 150max | 150max | 150max |
| | | -10 - 0℃ ＊2 | 140max | 140max | 160max | 160max | 160max | 320max | 200max | 200max | 200max |
| | RIPPLE NOISE[mVp-p] | 0 to +40℃ ＊2 | 120max | 120max | 150max | 150max | 150max | 300max | 250max | 250max | 250max |
| | | -10 - 0℃ ＊2 | 160max | 160max | 180max | 180max | 180max | 360max | 300max | 300max | 300max |
| | TEMPERATURE REGULATION[mV] | 0 to +40℃ | 50max | 50max | 120max | 150max | 240max | 240max | 360max | 360max | 480max |
| | | -10 to +40℃ | 60max | 60max | 150max | 180max | 290max | 290max | 450max | 450max | 600max |
| | DRIFT[mV] ＊3 | | 20max | 20max | 48max | 60max | 96max | 96max | 144max | 144max | 192max |
| | START-UP TIME[ms] | | 350typ (ACIN 100V, Io=100%) | | | | | | | | |
| | HOLD-UP TIME[ms] | | 20typ (ACIN 100V, Io=100%) | | | | | | | | |
| | OUTPUT VOLTAGE ADJUSTMENT RANGE[V] | | 2.85 to 3.63 | 4.50 to 5.50 | 10.80 to 13.20 | 13.50 to 16.50 | 21.60 to 27.50 | 21.60 to 27.50 | 27.00 to 33.00 | 32.40 to 39.60 | 39.60 to 52.80 |
| | OUTPUT VOLTAGE SETTING[V] | | 3.30 to 3.40 | 5.00 to 5.15 | 12.00 to 12.48 | 15.00 to 15.60 | 24.00 to 24.96 | 24.00 to 24.96 | 30.00 to 31.20 | 36.00 to 37.44 | 48.00 to 49.92 |
| PROTECTION CIRCUIT AND OTHERS | OVERCURRENT PROTECTION | | Works over 105% of rating (works over 101% of peak current at option -H) and recovers automatically | | | | | | | | |
| | OVERVOLTAGE PROTECTION | | 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 | 27.60 to 33.60 | 34.50 to 42.00 | 41.40 to 50.40 | 55.20 to 67.20 |
| | OPERATING INDICATION | | Not provided | | | | | | | | |
| | REMOTE SENSING | | Not provided | | | | | | | | |
| | REMOTE ON/OFF | | Option (Refer to Instruction Manual) | | | | | | | | |
| ISOLATION | INPUT-OUTPUT·RC ＊6 | | AC3,000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (At Room Temperature) | | | | | | | | |
| | INPUT-FG | | AC2,000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (At Room Temperature) | | | | | | | | |
| | OUTPUT·RC-FG ＊6 | | AC500V 1minute, Cutoff current = 25mA, DC500V 50MΩ min (At Room Temperature) | | | | | | | | |
| | OUTPUT-RC ＊6 | | AC100V 1minute, Cutoff current = 25mA, DC100V 10MΩ min (At Room Temperature) | | | | | | | | |
| ENVIRONMENT | OPERATING TEMP.,HUMID.AND ALTITUDE ＊4 | | -10 to +70℃, 20 - 90%RH (Non condensing) (Refer to "Derating", Instruction Manual 3), 3,000m (10,000feet) max | | | | | | | | |
| | STORAGE TEMP.,HUMID.AND ALTITUDE | | -20 to +75℃, 20 - 90%RH (Non condensing), 9,000m (30,000feet) 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 | | UL60950-1, C-UL (CSA60950-1), EN60950-1, EN62368-1, EN60065, EN50178 Complies with DEN-AN | | | | | | | | |
| | CONDUCTED NOISE | | Complies with FCC-B, VCCI-B, CISPR-B, EN55011-B, EN55022-B | | | | | | | | |
| | HARMONIC ATTENUATOR | | Complies with IEC61000-3-2 (Class A) ＊8 | | | | | | | | |
| OTHERS | CASE SIZE/WEIGHT | | 95×52.5×222mm [3.74×2.07×8.74 inches] (W×H×D) (without terminal block) / 810g max (with chassis & cover : 1,270g max) | | | | | | | | |
| | COOLING METHOD | | Convection / Forced air (Refer to "Derating", Instruction Manual 3) ＊4 | | | | | | | | |

＊1 Specification is changeed at option, refer to Instruction Manual.
＊2 This is the value that measured on measuring board with capacitor of 22μF at 150mm from output terminal. Measured by 20MHz oscilloscope or Ripple-Noise meter (Equivalent to KEISOKU-GIKEN: RM103).
＊3 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.
＊4 Derating is required.
＊5 ( ) means peak current. There is a possibility that an internal device is damaged when the specification is exceeded. Please contact us about the detail.
＊6 Applicable when remote control (optional) is added.
＊7 Please contact us about dynamic load and input response.
＊8 Please contact us about another class.
＊ To meet the specifications. Do not operate over-loaded condition.
＊ Parallel operation is not possible.
＊ Derating is required when operated with chassis and cover.
＊ Sound noise may be generated by power supply in case of pulse load.

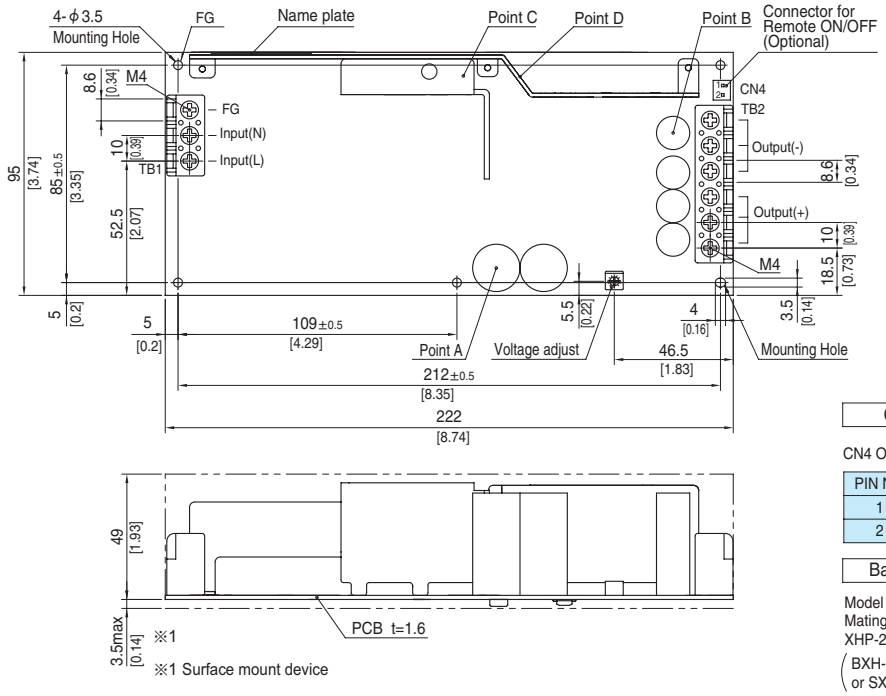
## Block diagram




## External view

※ External size of option is different from standard model.

Standard type




※1 Surface mount device

Connector type

CN4 Option (Mfr:J.S.T)

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

Barrier strip type

Model B2B-XH-A
Mating Connector (Terminal)
XHP-2
(BXH-001T-P0.6
or SXH-001T-P0.6)

※ 5 Mounting holes are existing.
※ The back side of P.C.B. of the power supply is assembled some SMDs.
Be attention not to bump against the attached area by vibration.
※ Use the spacer of 8mm length or more regarding insulation.
And do not use press-fitting bush.
※ Point A, Point B, Point C, Point D are thermometry points.
Please refer to Instruction Manual 3.
※ Keep drawing current per pin below 20A for TB2.

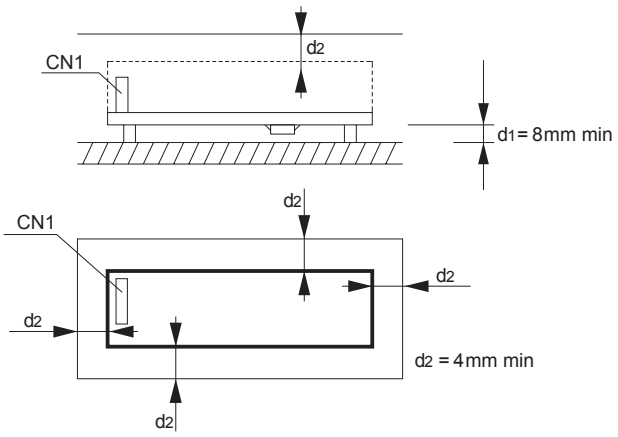
※ Tolerance : ±1 [±0.04]
※ Weight : 810g max (with chassis & cover : 1,270g max)
※ PCB material : CEM3
※ Dimensions in mm, [ ]=inches
※ Screw tightening torque : M4 1.6N・m (16.9kgf・cm) max

## Assembling and Installation Method

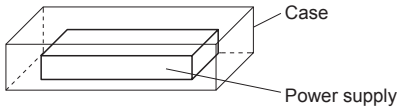
### Installation method

■This power supply is manufactured by SMD technology.The stress to P.C.B like twisting or bending causes the defect of the unit, so handle the unit with care.

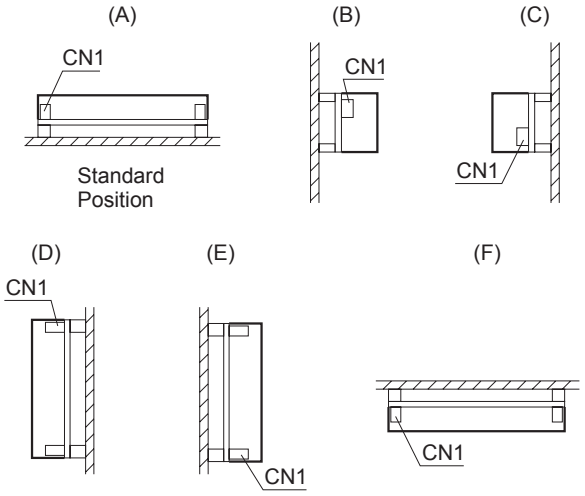
■In case of metal chassis, keep the distance between d1 & d2 for to insulate between lead of component and metal chassis, use the spacer of 8mm or more between d1. If it is less than d1 & d2, insert the insulation sheet between power supply and metal chassis.




■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 confi rming the temperature of point A and point B of Instruction Manual 3.



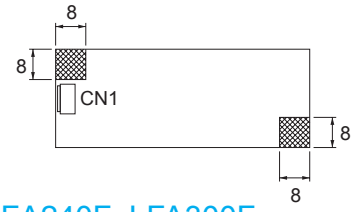

■(F) mounting is not possible when unit is with case cover, but if need to operate unit by (F) positioning with case cover, temperature / load derating is necessary. For more details, please contact our sales or engineering departments.



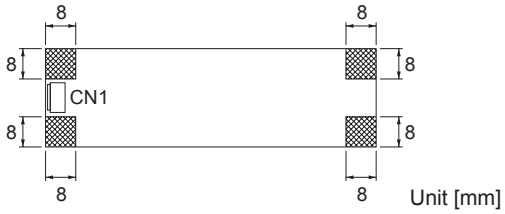

## Mounting screw

■The mounting screw should be M3. The hatched area shows the allowance of metal parts for mounting.

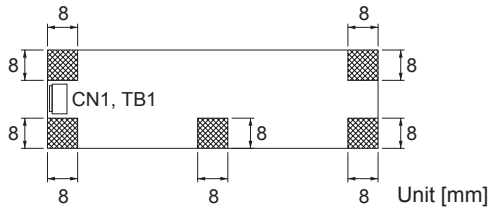
### ● LFA10F, LFA15F




### ● LFA30F, LFA50F, LFA75F, LFA100F, LFA150F




### ● LFA240F, LFA300F



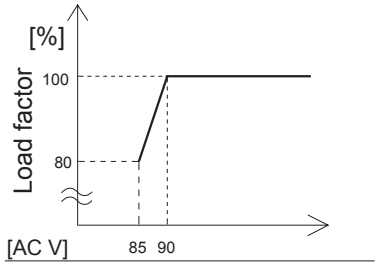

■If metallic fi ttings are used on the component side of the board,ensure there is no contact with surface mounted components.

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

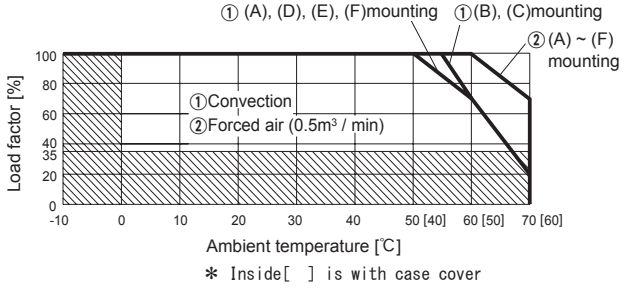
*Recommendation to electrically connect FG to metal chassis for reducing noise.

## Derating

### ●Derating curve for input voltage

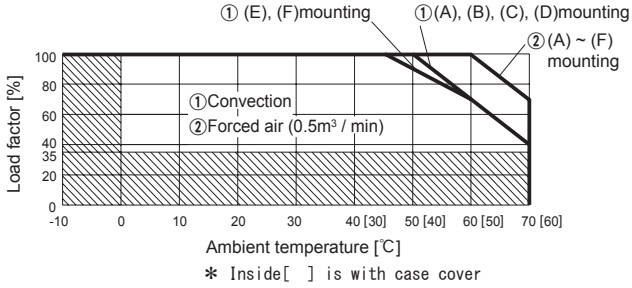



### ●LFA10F Ambient temperature derating curve (Reference value)



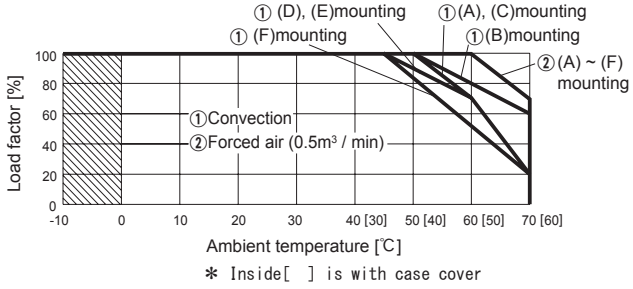

＊ Inside[ ] is with case cover

### ●LFA15F Ambient temperature derating curve (Reference value)



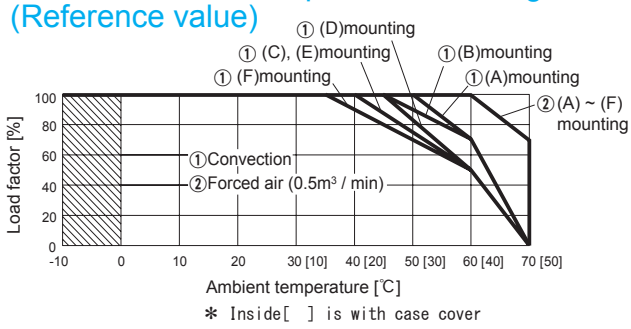

＊ Inside[ ] is with case cover

### ●LFA30F Ambient temperature derating curve (Reference value)



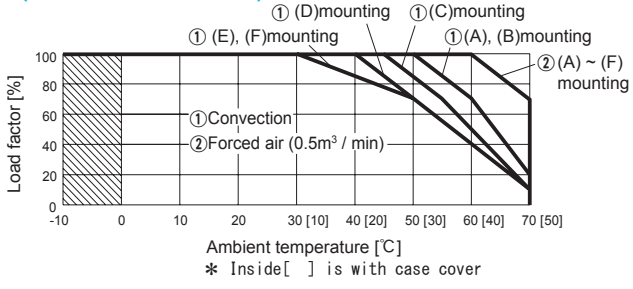

＊ Inside[ ] is with case cover

### ●LFA50F Ambient temperature derating curve (Reference value)



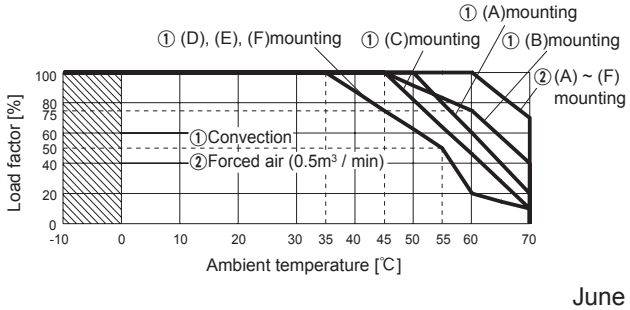

＊ Inside[ ] is with case cover

### ●LFA75F Ambient temperature derating curve (Reference value)

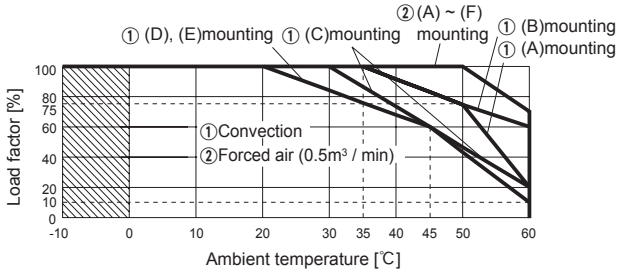



＊ Inside[ ] is with case cover

### ●LFA100F Ambient temperature derating curve (Reference value)

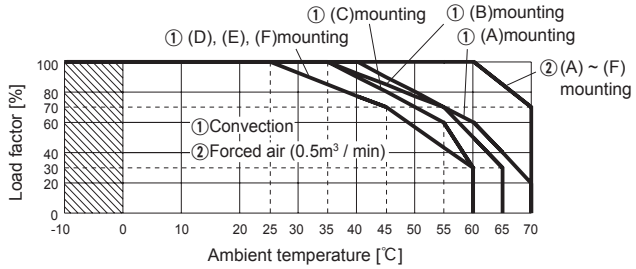



### ●LFA100F-□-SN Ambient temperature derating curve (Reference value)

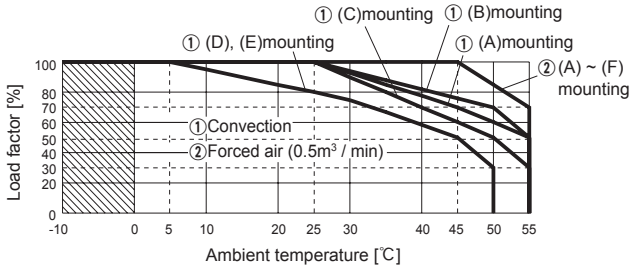


## Derating

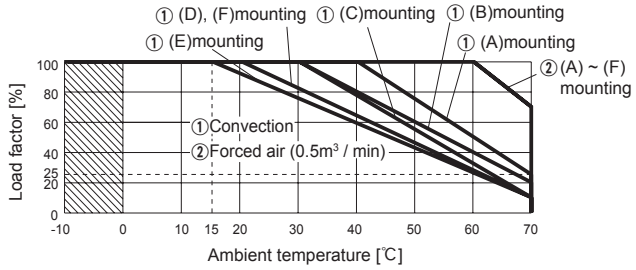
### ●LFA150F Ambient temperature derating curve (Reference value)



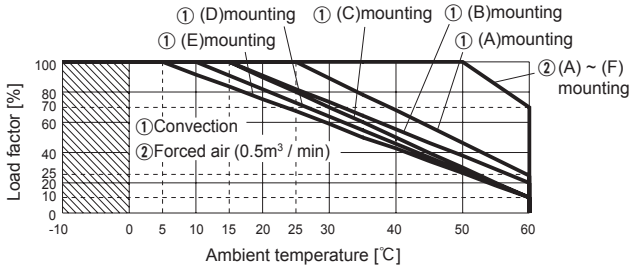

### ●LFA150F-□-SN Ambient temperature derating curve (Reference value)



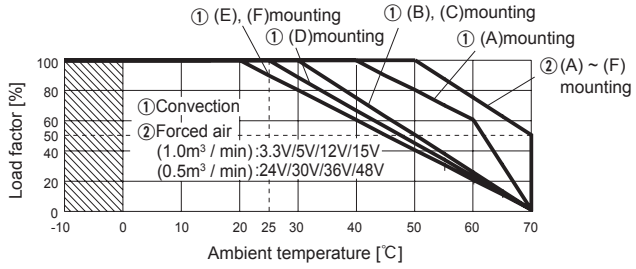

### ●LFA240F Ambient temperature derating curve (Reference value)




### ●LFA240F-□-SN Ambient temperature derating curve (Reference value)




### ●LFA300F Ambient temperature derating curve (Reference value)




| Output voltage | Output power[W] | |
|---|---|---|
| | ①Convection | ②Forced air |
| 3.3V | 132.0 | 198.0 |
| 5V | 200.0 | 300.0 |
| 12V | 204.0 | 324.0 |
| 15V | 210.0 | 330.0 |
| 24V | 300.0 | 336.0 |
| 30V | 300.0 | 330.0 |
| 36V | 302.4 | 338.4 |
| 48V | 302.4 | 336.0 |

■The operative ambient temperature is different by with / without chassis cover or mounting position.
Note: In the hatched area, the specification of Ripple, Ripple Noise is different from other area.

■Make sure the temperature at point A and point B is less than the temperatures shown in Instruction Manual 3.

■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 consult us for more details.

## Instruction Manual

◆ It is neccessary to read the "Instruction Manual" and "Before using our product" before you use our product.

Instruction Manual https://en.cosel.co.jp/product/powersupply/LFA/
Before using our produc https://en.cosel.co.jp/technical/caution/index.html

LFA NOTICE

## Basic Characteristics Data

| Model | Circuit method | Switching frequency [kHz] | Input current ✻1 [A] | Inrush current protection | PCB/Pattern | | | Series/Parallel operation availability ✻2 | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Material | Single sided | Double sided | Series operation | Parallel operation |
| LFA10F | Flyback converter | 100 | 0.26 | LF | CEM-3 | Yes | | Yes | No |
| LFA15F | Flyback converter | 100 | 0.35 | Thermistor | CEM-3 | Yes | | Yes | No |
| LFA30F | Flyback converter | 130 | 0.65 | Thermistor | CEM-3 | Yes | | Yes | No |
| LFA50F | Active filter | 60-440 | 0.67 | Thermistor | CEM-3 | Yes | | Yes | No |
| | Flyback converter | 130 | | | | | | | |
| LFA75F | Active filter | 60-440 | 1.0 | Thermistor | CEM-3 | Yes | | Yes | No |
| | Flyback converter | 130 | | | | | | | |
| LFA100F | Active filter | 60 | 1.3 | Thermistor | CEM-3 | | Yes | Yes | No |
| | Forward converter | 140 | | | | | | | |
| LFA150F | Active filter | 60 | 2.0 | Thermistor | CEM-3 | | Yes | Yes | No |
| | Forward converter | 140 | | | | | | | |
| LFA240F | Active filter | 60 | 3.3 | SCR | CEM-3 | | Yes | Yes | No |
| | Forward converter | 140 | | | | | | | |
| LFA300F | Active filter | 60 | 4.1 | SCR | CEM-3 | | Yes | Yes | No |
| | Forward converter | 140 | | | | | | | |

✻1 The value of input current is at ACIN 100V and rated load.
✻2 Refer to Instruction Manual 2.

МАКРО ГРУПП

## Макро Групп – это:

- дистрибьютор электронных компонентов с 1994 года
- контрактный производитель электроники с 2007 года с собственным производством в Санкт-Петербурге (компания Макро ЕМС, входит в ГК Макро Групп)
- поставщик полупроводниковых материалов
- комплексный поставщик электронных компонентов
- моделирование и производство полупроводниковых эпитаксиальных гетероструктур для задач оптоэлектроники

Головной офис расположен в Санкт-Петербурге. Собственные представительства в крупных промышленных городах России и стран СНГ.

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- инженерная поддержка проектов заказчиков
- сертификат системы менеджмента качестве ISO 9001-2015
- необходимые сертификаты и лицензии