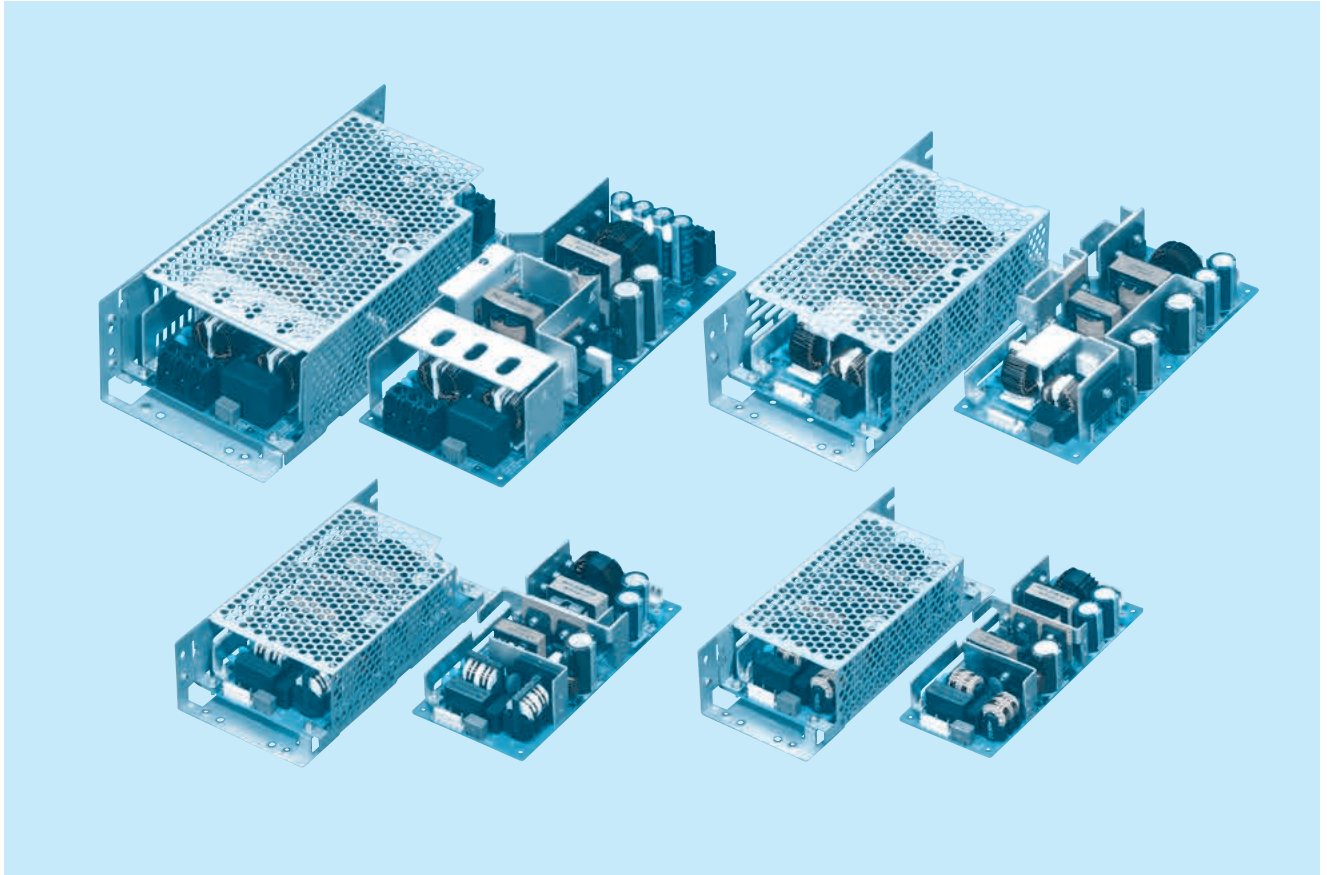




# LFP-series



## Feature

- High power & peak power
- Small and compact PCB construction
- Built-in inrush current, overcurrent and overvoltage protection circuits
- Harmonic attenuator (Complies with IEC61000-3-2 class A)
- Universal input (AC85-264V)
- Power factor correction

## Safety agency approvals

- UL60950-1, C-UL(CSA60950-1), EN62368-1
- 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

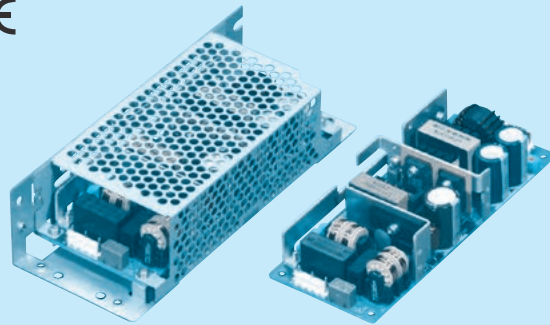
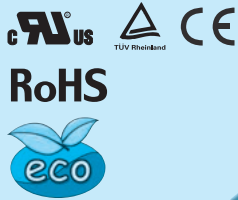
- Low Voltage Directive
- RoHS Directive

## 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

# LFP100F

① LF ② P ③ 100 ④ F 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.

- ① Series name
- ② Single output
- ③ Output wattage
- ④ Universal input
- ⑤ Output voltage
- ⑥ Optional \*1
- C : with Coating
- G : Low leakage current
- J1 : VH(J.S.T.)connector type
- R : with Remote ON/OFF
- R2 : with Remote ON/OFF
- S : with Chassis
- SN : with Chassis & cover

Please refer to Instruction manual 7.

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	LFP100F-24-Y	LFP100F-36-Y	LFP100F-48-Y
MAX OUTPUT WATTAGE[W]	*2 103.2 (206.4)	100.8 (201.6)	100.8 (201.6)
DC OUTPUT	*2 24V 4.3A (8.6A)	36V 2.8A (5.6A)	48V 2.1A (4.2A)

## SPECIFICATIONS

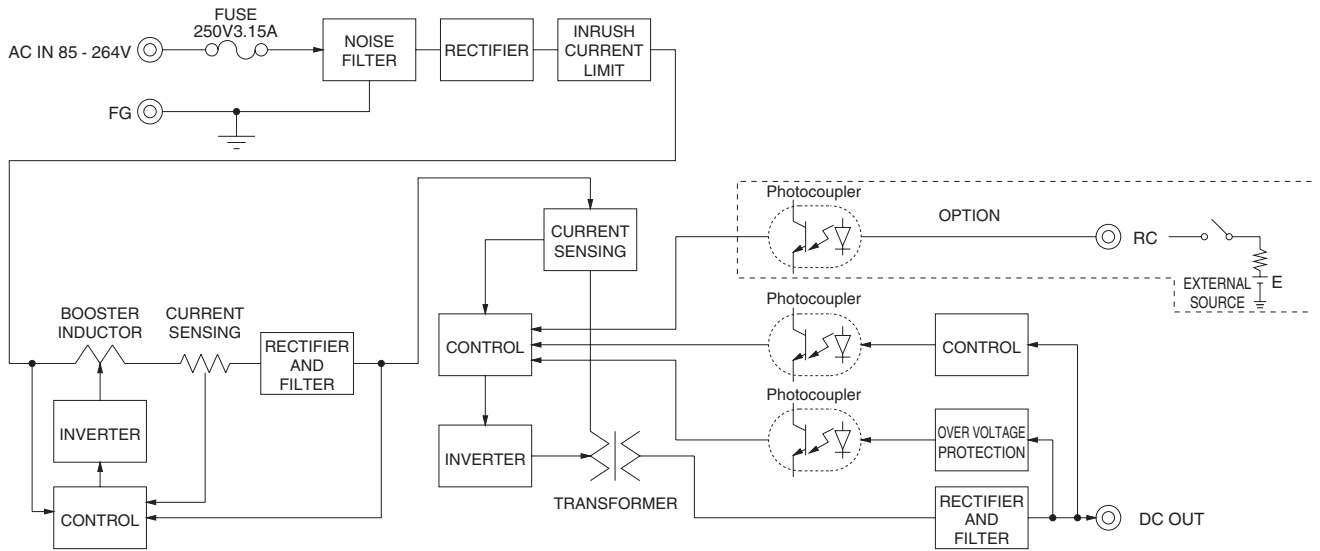
	MODEL	LFP100F-24-Y	LFP100F-36-Y	LFP100F-48-Y	
INPUT	VOLTAGE[V]	AC85 - 264 1 φ (Refer to "Derating", Instruction Manual 1 and 3) *5			
	CURRENT[A]	ACIN 100V	1.3typ (Io=100%)		
		ACIN 200V	0.7typ (Io=100%)		
	FREQUENCY[Hz]	50 / 60 (47 - 63)			
	EFFICIENCY[%]	ACIN 100V	84.0typ (Io=100%)		84.0typ (Io=100%)
		ACIN 200V	87.0typ (Io=100%)		87.0typ (Io=100%)
	POWER FACTOR	ACIN 100V	0.99typ (Io=100%)		
ACIN 200V		0.95typ (Io=100%)			
INRUSH CURRENT[A]	ACIN 100V	15typ (Io=100%) (At cold start) (Ta=25°C)			
	ACIN 200V	30typ (Io=100%) (At cold start) (Ta=25°C)			
LEAKAGE CURRENT[mA]	0.40 / 0.75max (ACIN 100V / 240V 60Hz, Io=100%, According to IEC62368-1 and DEN-AN)				
OUTPUT	VOLTAGE[V]	24	36	48	
	CURRENT[A]	*2 4.3 (Peak 8.6)	2.8 (Peak 5.6)	2.1 (Peak 4.2)	
	LINE REGULATION[mV]	*7 96max	144max	192max	
	LOAD REGULATION[mV]	*7 150max	240max	240max	
	RIPPLE[mVp-p]	*3 0 to +50°C	120max	150max	150max
		-10 - 0°C	160max	200max	200max
	RIPPLE NOISE[mVp-p]*3	0 to +50°C	150max	250max	250max
		-10 - 0°C	180max	300max	300max
	TEMPERATURE REGULATION[mV]	0 to +50°C	240max	360max	480max
		-10 to +50°C	290max	450max	600max
	DRIFT[mV]	*4 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]	21.60 to 27.50		32.40 to 39.60	39.60 to 52.80	
OUTPUT VOLTAGE SETTING[V]	24.00 to 24.96		36.00 to 37.44	48.00 to 49.92	
OVERCURRENT PROTECTION	Works over 101% of rating and recovers automatically				
OVERVOLTAGE PROTECTION[V]	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 6)				
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	*5 -10 to +70°C, 20 - 90%RH (Non condensing) (Refer to "Derating", Instruction Manual 3), 3,000m (10,000feet) max			
	STORAGE TEMP., HUMID. AND ALTITUDE	-20 to +75°C, 20 - 90%RH (Non condensing), 9,000m (30,000feet) max			
	VIBRATION	10 - 55Hz, 19.6m/s <sup>2</sup> (2G), 3minutes period, 60minutes each along X, Y and Z axis			
SAFETY AND NOISE REGULATIONS	IMPACT	196.1m/s <sup>2</sup> (20G), 11ms, once each X, Y and Z axis			
	AGENCY APPROVALS (At only AC input)	UL60950-1, C-UL (CSA60950-1), EN62368-1 Complies with DEN-AN			
	CONDUCTED NOISE	Complies with FCC-B, VCCI-B, CISPR22-B, EN55011-B, EN55022-B			
OTHERS	HARMONIC ATTENUATOR	Complies with IEC61000-3-2 (Class A) *8			
	CASE SIZE/WEIGHT	62 X 33 X 155mm [2.44 X 1.30 X 6.10 inches] (W X H X D) / 290g max (with chassis & cover : 480g max)			
	COOLING METHOD	Convection (Refer to "Derating", Instruction Manual 3) *5			

\*1 Specification is changed at option, refer to Instruction Manual.  
\*2 Peak loading for 10sec. And Duty 40% max, refer to Instruction Manual 6. In detail.  
( ) means peak current. There is a possibility that an internal device is damaged when the specification is exceeded.  
\*3 This is the value that measured on measuring board with capacitor of 22 μF at 150mm from output terminal.

Measured by 20MHz oscilloscope or Ripple-Noise meter (Equivalent to KEISOKU-GIKEN: RM103).  
\*4 Drift is the change in DC output for an eight hour period after a half-hour warm-up at 25°C, with the input voltage held constant at the rated input/output.  
\*5 Derating is required.  
\*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

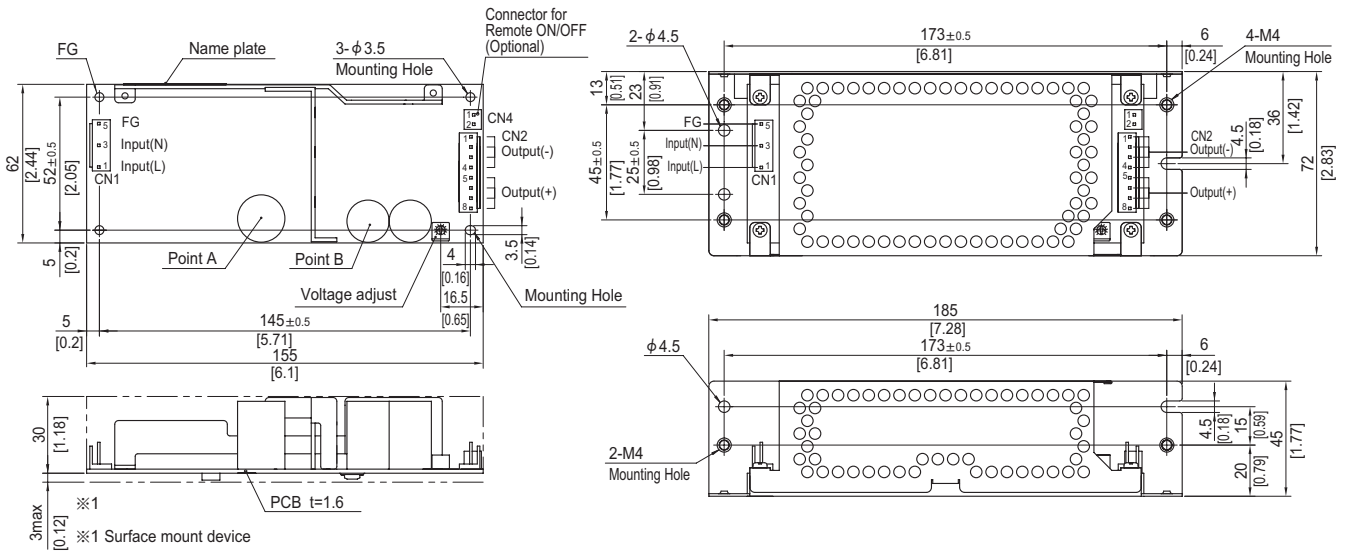


## External view

※ External size of option is different from standard model.

Standard type

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	Chain 1123721-1 Loose 1318912-1
CN2	1-1123723-8	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		CN2	
Pin No.	Input	Pin No.	Output
1	AC(L)	1 to 4	-V
2		5 to 8	+V
3	AC(N)		
4			
5	FG		

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

- ※ Tolerance :  $\pm 1$  [ $\pm 0.04$ ]
- ※ Weight : 290g 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) :  $1.5N \cdot m$  (16kgf · cm) max

### Connector type

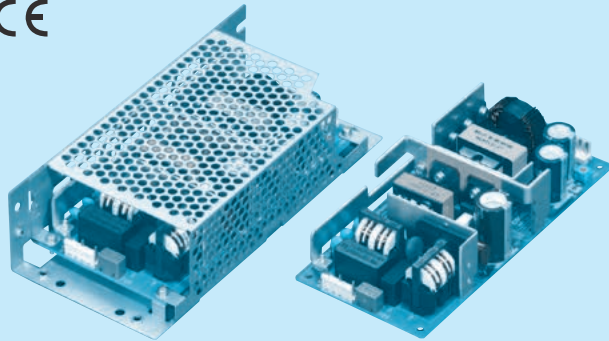
CN4 Option (Mfr:J.S.T)	
PIN No.	Contents
1	RC(+)
2	RC(-)

### Barrier strip type

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

# LFP150F

LF P 150 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.

- ① Series name
- ② Single output
- ③ Output wattage
- ④ Universal input
- ⑤ Output voltage
- ⑥ Optional \*1
- C : with Coating
- G : Low leakage current
- J1 : VH(J.S.T.)connector type
- R : with Remote ON/OFF
- R2 : with Remote ON/OFF
- S : with Chassis
- SN : with Chassis & cover

Please refer to Instruction manual 7.

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	LFP150F-24-Y	LFP150F-36-Y	LFP150F-48-Y
MAX OUTPUT WATTAGE[W]	*2 151.2 (302.4)	151.2 (302.4)	153.6 (307.2)
DC OUTPUT	*2 24V 6.3A (12.6A)	36V 4.2A (8.4A)	48V 3.2A (6.4A)

## SPECIFICATIONS

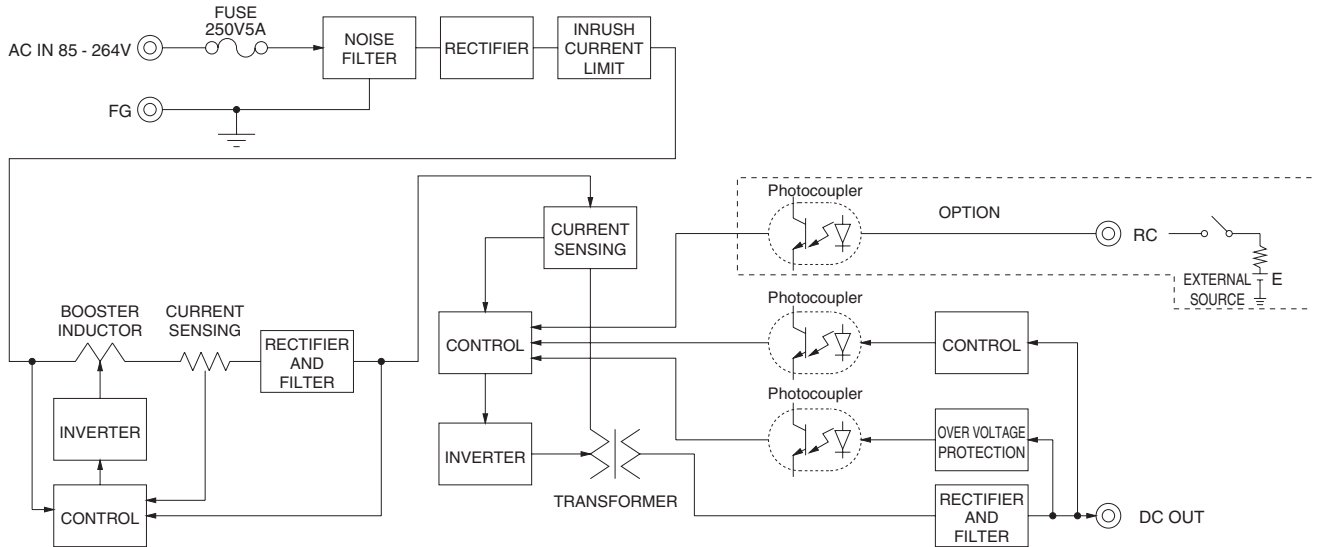
	MODEL	LFP150F-24-Y	LFP150F-36-Y	LFP150F-48-Y	
INPUT	VOLTAGE[V]	AC85 - 264 1 φ (Refer to "Derating", Instruction Manual 1 and 3) *5			
	CURRENT[A]	ACIN 100V	2.0typ (Io=100%)		
		ACIN 200V	1.0typ (Io=100%)		
	FREQUENCY[Hz]	50 / 60 (47 - 63)			
	EFFICIENCY[%]	ACIN 100V	85.5typ (Io=100%)		85.5typ (Io=100%)
		ACIN 200V	88.0typ (Io=100%)		88.0typ (Io=100%)
	POWER FACTOR	ACIN 100V	0.99typ (Io=100%)		
ACIN 200V		0.95typ (Io=100%)			
INRUSH CURRENT[A]	ACIN 100V	15typ (Io=100%) (At cold start) (Ta=25°C)			
	ACIN 200V	30typ (Io=100%) (At cold start) (Ta=25°C)			
LEAKAGE CURRENT[mA]	0.40 / 0.75max (ACIN 100V / 240V 60Hz, Io=100%, According to IEC62368-1 and DEN-AN)				
OUTPUT	VOLTAGE[V]	24	36	48	
	CURRENT[A]	*2 6.3 (Peak 12.6)	4.2 (Peak 8.4)	3.2 (Peak 6.4)	
	LINE REGULATION[mV]	*7 96max	144max	192max	
	LOAD REGULATION[mV]	*7 150max	240max	240max	
	RIPPLE[mVp-p]	*3 0 to +50°C	120max	150max	150max
		-10 - 0°C	160max	200max	200max
	RIPPLE NOISE[mVp-p]*3	0 to +50°C	150max	250max	250max
		-10 - 0°C	180max	300max	300max
	TEMPERATURE REGULATION[mV]	0 to +50°C	240max	360max	480max
		-10 to +50°C	290max	450max	600max
	DRIFT[mV]	*4 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]	21.60 to 27.50		32.40 to 39.60	39.60 to 52.80
OUTPUT VOLTAGE SETTING[V]	24.00 to 24.96		36.00 to 37.44	48.00 to 49.92	
OVERCURRENT PROTECTION	Works over 101% of rating and recovers automatically				
PROTECTION CIRCUIT AND OTHERS	OVERVOLTAGE PROTECTION[V]	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 6)			
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 *5	-10 to +70°C, 20 - 90%RH (Non condensing) (Refer to "Derating", Instruction Manual 3), 3,000m (10,000feet) max			
	STORAGE TEMP., HUMID. AND ALTITUDE	-20 to +75°C, 20 - 90%RH (Non condensing), 9,000m (30,000feet) max			
	VIBRATION	10 - 55Hz, 19.6m/s <sup>2</sup> (2G), 3minutes period, 60minutes each along X, Y and Z axis			
SAFETY AND NOISE REGULATIONS	IMPACT	196.1m/s <sup>2</sup> (20G), 11ms, once each X, Y and Z axis			
	AGENCY APPROVALS (At only AC input)	UL60950-1, C-UL (CSA60950-1), EN62368-1 Complies with DEN-AN			
	CONDUCTED NOISE	Complies with FCC-B, VCCI-B, CISPR22-B, EN55011-B, EN55022-B			
OTHERS	HARMONIC ATTENUATOR	Complies with IEC61000-3-2 (Class A) *8			
	CASE SIZE/WEIGHT	75 X 36.5 X 160mm [2.95 X 1.44 X 6.30 inches] (W X H X D) / 380g max (with chassis & cover : 610g max)			
	COOLING METHOD	Convection (Refer to "Derating", Instruction Manual 3) *5			

\*1 Specification is changed at option, refer to Instruction Manual.  
 \*2 Peak loading for 10sec. And Duty 40% max, refer to Instruction Manual 6. In detail.  
 ( ) means peak current. There is a possibility that an internal device is damaged when the specification is exceeded.  
 \*3 This is the value that measured on measuring board with capacitor of 22 μF at 150mm from output terminal.

Measured by 20MHz oscilloscope or Ripple-Noise meter (Equivalent to KEISOKU-GIKEN: RM103).  
 \*4 Drift is the change in DC output for an eight hour period after a half-hour warm-up at 25°C, with the input voltage held constant at the rated input/output.  
 \*5 Derating is required.  
 \*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

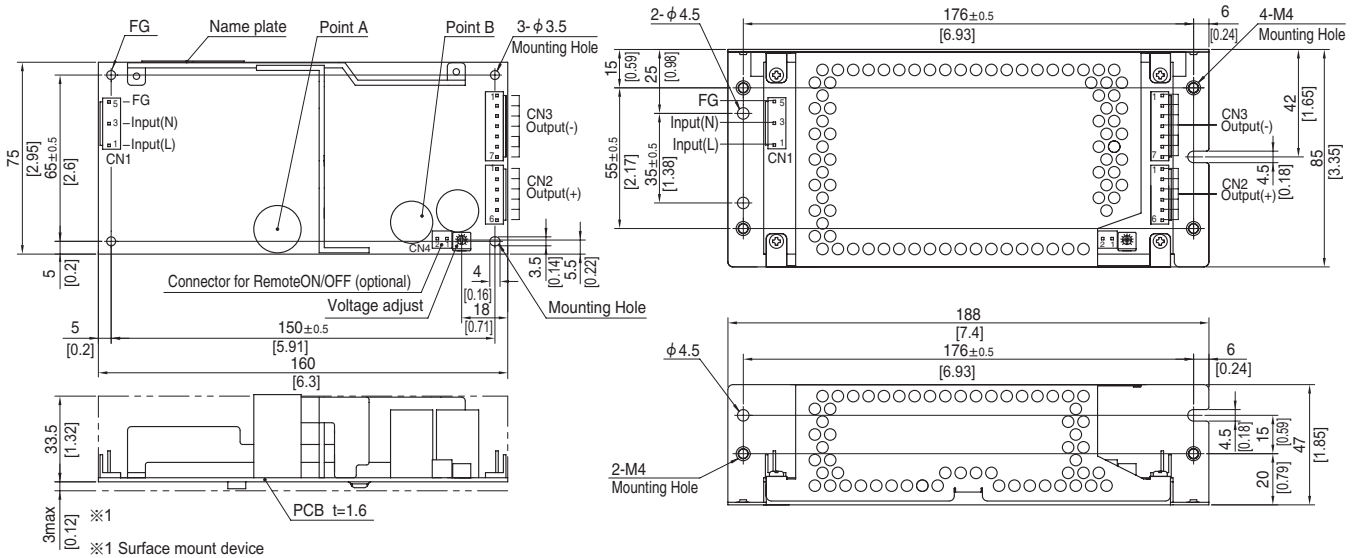


## External view

※ External size of option is different from standard model.

Standard type

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	Chain 1123721-1
		Loose 1318912-1
CN2	1-1123723-6	Chain 1123721-1
		Loose 1318912-1
CN3	1-1123723-7	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		CN2		CN3	
Pin No.	Input	Pin No.	Output	Pin No.	Output
1	AC(L)	1 to 6	+V	1 to 7	-V
2					
3	AC(N)				
4					
5	FG				

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

- ※ Tolerance :  $\pm 1$  [ $\pm 0.04$ ]
- ※ Weight : 380g max (with chassis & cover : 610g max)
- ※ PCB material : CEM3
- ※ Optional chassis and cover material : Electric galvanizing steel board.
- ※ Dimensions in mm, [ ]=inches
- ※ Mounting torque (Mounting hole of chassis) :  $1.5N \cdot m$  (16kgf · cm) max

### Connector type

CN4 Option (Mfr:J.S.T)

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

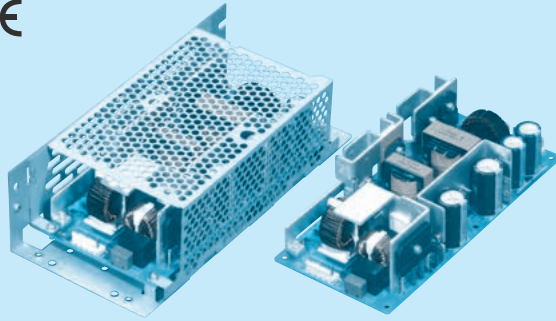
### Barrier strip type

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

# LFP240F

LF P 240 F -□ -□

① ② ③ 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.

- ① Series name
- ② Single output
- ③ Output wattage
- ④ Universal input
- ⑤ Output voltage
- ⑥ Optional \*1
- C : with Coating
- G : Low leakage current
- 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
- U1 : Can be attached the external capacitor unit

Please refer to Instruction manual 7.

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	LFP240F-24-Y	LFP240F-30-Y	LFP240F-36-Y	LFP240F-48-Y
MAX OUTPUT WATTAGE[W]	300 (480)	300 (480)	302.4 (482.4)	302.4 (480)
DC OUTPUT	Convection	30V 8A (16A)	36V 6.7A (13.4A)	48V 5A (10A)
	Forced air	24V 12.5A (20A)	30V 10A (16A)	36V 8.4A (13.4A)

## SPECIFICATIONS

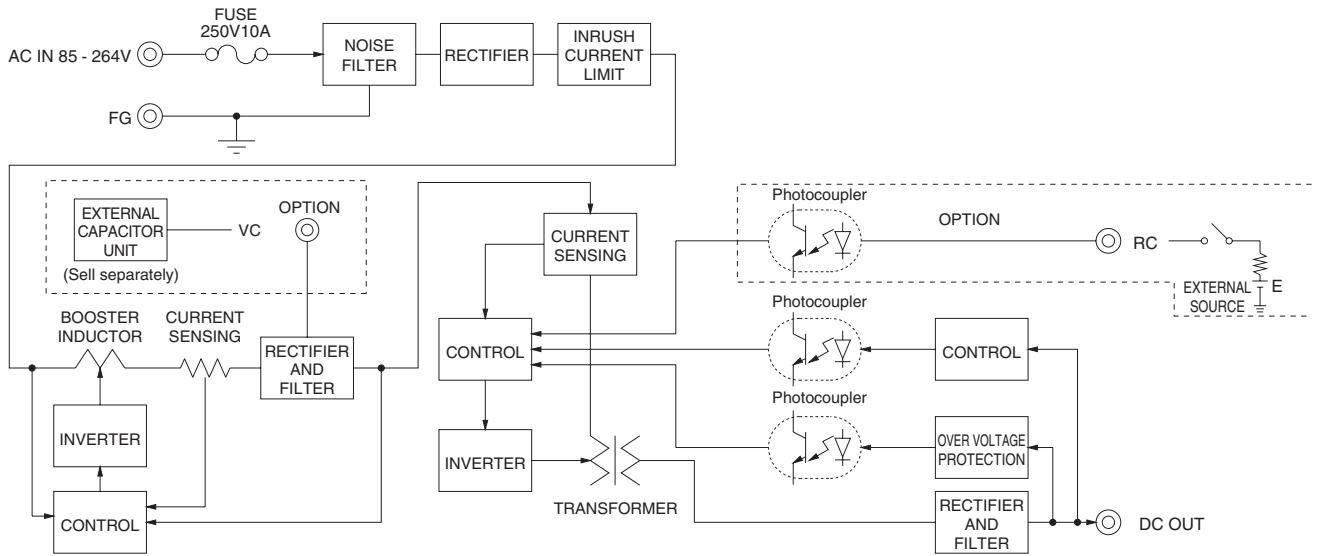
	MODEL	LFP240F-24-Y	LFP240F-30-Y	LFP240F-36-Y	LFP240F-48-Y		
INPUT	VOLTAGE[V]	AC85 - 264 1 φ (Refer to "Derating", Instruction Manual 1 and 3) *5					
	CURRENT[A]	ACIN 100V	3.6typ (Io=100%)				
		ACIN 200V	1.8typ (Io=100%)				
	FREQUENCY[Hz]	50 / 60 (47 - 63)					
	EFFICIENCY[%]	ACIN 100V	86.0typ (Io=100%)	86.0typ (Io=100%)	86.0typ (Io=100%)	86.0typ (Io=100%)	
		ACIN 200V	88.5typ (Io=100%)	88.5typ (Io=100%)	89.0typ (Io=100%)	89.0typ (Io=100%)	
	POWER FACTOR	ACIN 100V	0.99typ (Io=100%)				
		ACIN 200V	0.95typ (Io=100%)				
	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	30	36	48		
	CURRENT[A]	Convection *2	10 (Peak 20)	8 (Peak 16)	6.7 (Peak 13.4)	5 (Peak 10)	
		Forced air *2	12.5 (Peak 20)	10 (Peak 16)	8.4 (Peak 13.4)	6.3 (Peak 10)	
	LINE REGULATION[mV]	*7	96max	144max	144max	192max	
	LOAD REGULATION[mV]	*7	150max	240max	240max	240max	
	RIPPLE[mVp-p]	*3	0 to +50°C	120max	150max	150max	150max
		-10 - 0°C	160max	200max	200max	200max	
	RIPPLE NOISE[mVp-p]*3	0 to +50°C	150max	250max	250max	250max	
		-10 - 0°C	180max	300max	300max	300max	
	TEMPERATURE REGULATION[mV]	0 to +50°C	240max	360max	360max	480max	
		-10 to +50°C	290max	450max	450max	600max	
	DRIFT[mV]	*4	96max	144max	144max	192max	
	START-UP TIME[ms]	350typ (ACIN 100V, Io=100%)					
	HOLD-UP TIME[ms]	*9 20typ (ACIN 100V, Io=100%)					
	OUTPUT VOLTAGE ADJUSTMENT RANGE[V]	21.60 to 27.50					
OUTPUT VOLTAGE SETTING[V]	24.00 to 24.96		30.00 to 31.20		32.40 to 39.60		
PROTECTION CIRCUIT AND OTHERS	OVERCURRENT PROTECTION	Works over 101% of rating and recovers automatically					
	OVERVOLTAGE PROTECTION[V]	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 6)					
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	*5 -10 to +70°C, 20 - 90%RH (Non condensing) (Refer to "Derating", Instruction Manual 3), 3,000m (10,000feet) max					
	STORAGE TEMP., HUMID. AND ALTITUDE	-20 to +75°C, 20 - 90%RH (Non condensing), 9,000m (30,000feet) max					
	VIBRATION	10 - 55Hz, 19.6m/s <sup>2</sup> (2G), 3minutes period, 60minutes each along X, Y and Z axis					
SAFETY AND NOISE REGULATIONS	IMPACT	196.1m/s <sup>2</sup> (20G), 11ms, once each X, Y and Z axis					
	AGENCY APPROVALS (At only AC input)	UL60950-1, C-UL (CSA60950-1), EN62368-1 Complies with DEN-AN					
	CONDUCTED NOISE	Complies with FCC-B, VCCI-B, CISPR22-B, EN55011-B, EN55022-B					
OTHERS	HARMONIC ATTENUATOR	Complies with IEC61000-3-2 (Class A) *8					
	CASE SIZE/WEIGHT	84 X 46 X 180mm [3.31 X 1.81 X 7.09 inches] (W X H X D) / 540g max (with chassis & cover : 860g max)					
	COOLING METHOD	Convection / Forced air (Refer to "Derating", Instruction Manual 3) *5					

\*1 Specification is changed at option, refer to Instruction Manual.  
\*2 Peak loading for 10sec. And Duty 40% max, refer to Instruction Manual 6. In detail.  
( ) means peak current. There is a possibility that an internal device is damaged when the specification is exceeded.  
\*3 This is the value that measured on measuring board with capacitor of 22 μF at 150mm from output terminal.

Measured by 20MHz oscilloscope or Ripple-Noise meter (Equivalent to KEISOKU-GIKEN: RM103).  
\*4 Drift is the change in DC output for an eight hour period after a half-hour warm-up at 25°C, with the input voltage held constant at the rated input/output.  
\*5 Derating is required.  
\*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.  
\*9 By attaching an external capacitor unit, it is possible to extend the hold-up time.  
\* 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

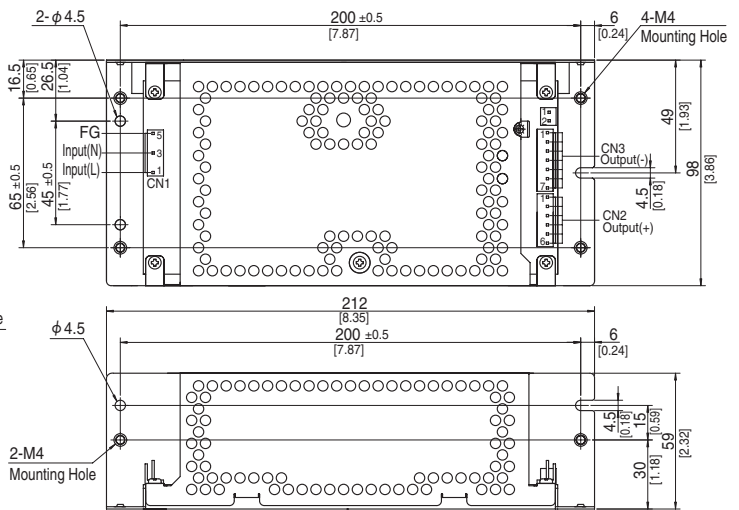
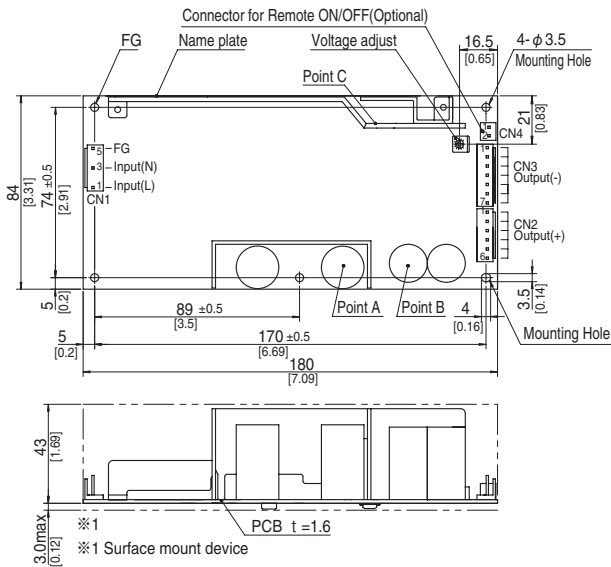


## External view

※ External size of option is different from standard model.

Standard type

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, Point C are thermometry points. Please refer to Instruction Manual 3.

I/O Connector	Mating connector	Terminal
CN1	1-1123724-3	Chain 1123721-1
		Loose 1318912-1
CN2	1-1123723-6	Chain 1123721-1
		Loose 1318912-1
CN3	1-1123723-7	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		CN2		CN3	
Pin No.	Input	Pin No.	Output	Pin No.	Output
1	AC(L)	1 to 6	+V	1 to 7	-V
2					
3	AC(N)				
4					
5	FG				

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

- ※ Tolerance : ±1 [±0.04]
- ※ Weight : 540g max (with chassis & cover : 860g 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)

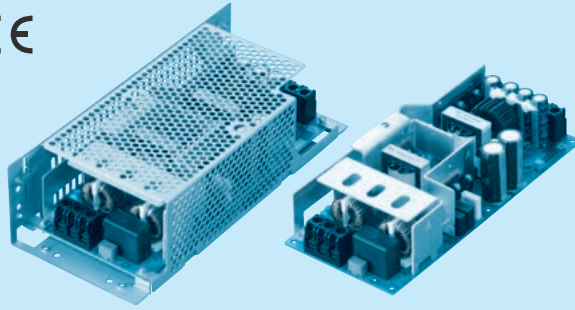
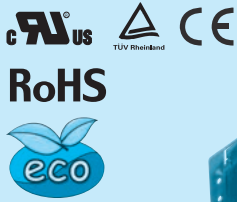
PIN No.	Contents
1	RC(+)
2	RC(-)

### Barrier strip type

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

# LFP300F

① LF ② P ③ 300 ④ F 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.

- ① Series name
- ② Single output
- ③ Output wattage
- ④ Universal input
- ⑤ Output voltage
- ⑥ Optional \*1
- C : with Coating
- G : Low leakage current
- J : EP (Tyco Electronics) connector type
- J1 : VH (J.S.T.) connector type
- R : with Remote ON/OFF
- R2 : with Remote ON/OFF S
- S : with Chassis
- SN : with Chassis & cover
- SNF : with Chassis & cover & fan (Only 24V)
- T1 : Horizontal terminal block
- U1 : Can be attached the external capacitor unit

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.

Please refer to Instruction manual 7.

MODEL	LFP300F-24-TY	LFP300F-30-TY	LFP300F-36-TY	LFP300F-48-TY
MAX OUTPUT WATTAGE[W]	360 (600)	360 (600)	360 (604.8)	360 (604.8)
DC OUTPUT	Convection	24V 12.5A (25A)	30V 10A (20A)	48V 6.3A (12.6A)
	Forced air	24V 15A (25A)	30V 12A (20A)	48V 7.5A (12.6A)

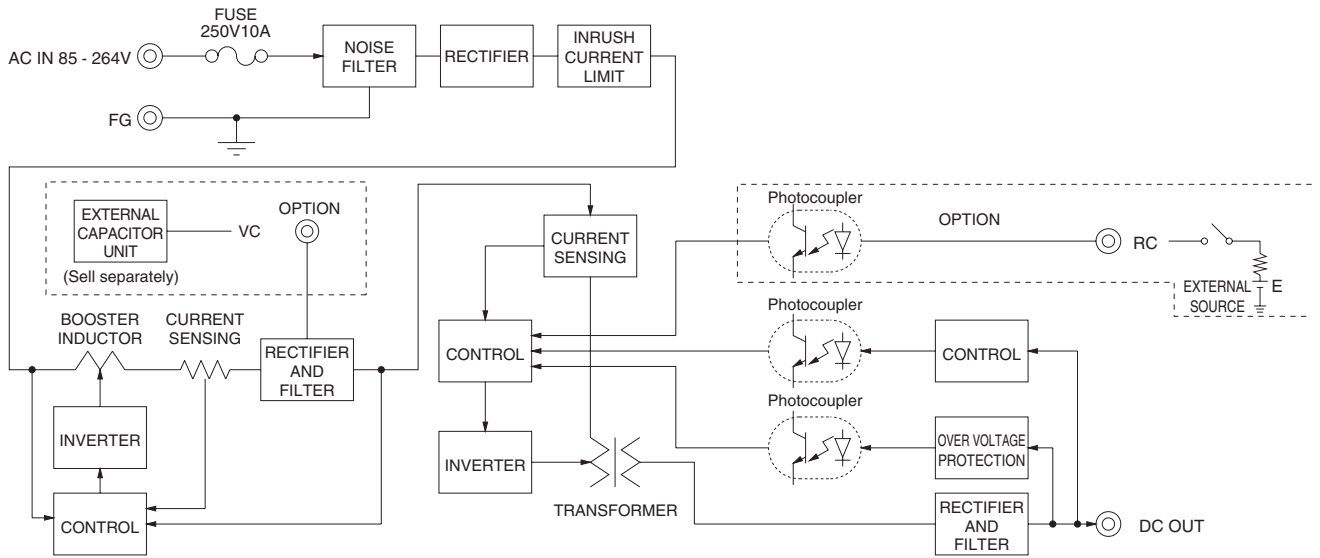
## SPECIFICATIONS

	MODEL	LFP300F-24-TY	LFP300F-30-TY	LFP300F-36-TY	LFP300F-48-TY	
INPUT	VOLTAGE[V]	AC85 - 264 1φ (Refer to "Derating", Instruction Manual 1 and 3) *5				
	CURRENT[A]	ACIN 100V	4.3typ (Io=100%)			
		ACIN 200V	2.2typ (Io=100%)			
	FREQUENCY[Hz]	50 / 60 (47 - 63)				
	EFFICIENCY[%]	ACIN 100V	85.0typ (Io=100%)			
		ACIN 200V	88.0typ (Io=100%)			
	POWER FACTOR	ACIN 100V	0.99typ (Io=100%)			
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]	24	30	36	48	
	CURRENT[A]	ACIN 100V *2	12.5 (Peak 22) Convection	10 (Peak 18) Convection	8.4 (Peak 14.6) Convection	6.3 (Peak 11) Convection
			15 (Peak 22) Forced air	12 (Peak 18) Forced air	10 (Peak 14.6) Forced air	7.5 (Peak 11) Forced air
		ACIN 200V *2	12.5 (Peak 25) Convection	10 (Peak 20) Convection	8.4 (Peak 16.8) Convection	6.3 (Peak 12.6) Convection
			15 (Peak 25) Forced air	12 (Peak 20) Forced air	10 (Peak 16.8) Forced air	7.5 (Peak 12.6) Forced air
	LINE REGULATION[mV]	*7	96max	144max	144max	192max
	LOAD REGULATION[mV]	*7	150max	240max	240max	240max
	RIPPLE[mVp-p]	*3	0 to +40°C	120max	150max	150max
			-10 - 0°C	160max	200max	200max
	RIPPLE NOISE[mVp-p]*3		0 to +40°C	150max	250max	250max
			-10 - 0°C	180max	300max	300max
	TEMPERATURE REGULATION[mV]		0 to +40°C	240max	360max	480max
			-10 to +40°C	290max	450max	600max
DRIFT[mV]	*4	96max	144max	144max	192max	
START-UP TIME[ms]		350typ (ACIN 100V, Io=100%)				
HOLD-UP TIME[ms]	*9	20typ (ACIN 100V, Io=100%)				
OUTPUT VOLTAGE ADJUSTMENT RANGE[V]		21.60 to 27.50	27.00 to 33.00	32.40 to 39.60	39.60 to 52.80	
OUTPUT VOLTAGE SETTING[V]		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 101% of rating and recovers automatically				
	OVERVOLTAGE PROTECTION[V]	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 6)					
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 *5	-10 to +70°C, 20 - 90%RH (Non condensing) (Refer to "Derating", Instruction Manual 3), 3,000m (10,000feet) max				
	STORAGE TEMP., HUMID. AND ALTITUDE	-20 to +75°C, 20 - 90%RH (Non condensing), 9,000m (30,000feet) max				
	VIBRATION	10 - 55Hz, 19.6m/s <sup>2</sup> (2G), 3minutes period, 60minutes each along X, Y and Z axis				
	IMPACT	196.1m/s <sup>2</sup> (20G), 11ms, once each X, Y and Z axis				
SAFETY AND NOISE REGULATIONS	AGENCY APPROVALS (At only AC input)	UL60950-1, C-UL (CSA60950-1), EN62368-1 Complies with DEN-AN				
	CONDUCTED NOISE	Complies with FCC-B, VCCI-B, CISPR22-B, EN55011-B, EN55022-B				
	HARMONIC ATTENUATOR	Complies with IEC61000-3-2 (Class A) *8				
OTHERS	CASE SIZE/WEIGHT	95X52.5X222mm [3.74X2.07X8.74 inches] (W X H X D) (without terminal block) / 810g max (with chassis & cover : 1,270g max)				
	COOLING METHOD	Convection / Forced air (Refer to "Derating", Instruction Manual 3) *5				

\*1 Specification is changed at option, refer to Instruction Manual.  
 \*2 Peak loading for 10sec. And Duty 40% max, refer to Instruction Manual 6. In detail.  
 ( ) means peak current. There is a possibility that an internal device is damaged when the specification is exceeded.  
 \*3 This is the value that measured on measuring board with capacitor of 22μF at 150mm from output terminal.  
 \*4 Drift is the change in DC output for an eight hour period after a half-hour warm-up at 25°C, with the input voltage held constant at the rated input/output.  
 \*5 Derating is required.  
 \*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.  
 \*9 By attaching an external capacitor unit, it is possible to extend the hold-up time.  
 \* 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.



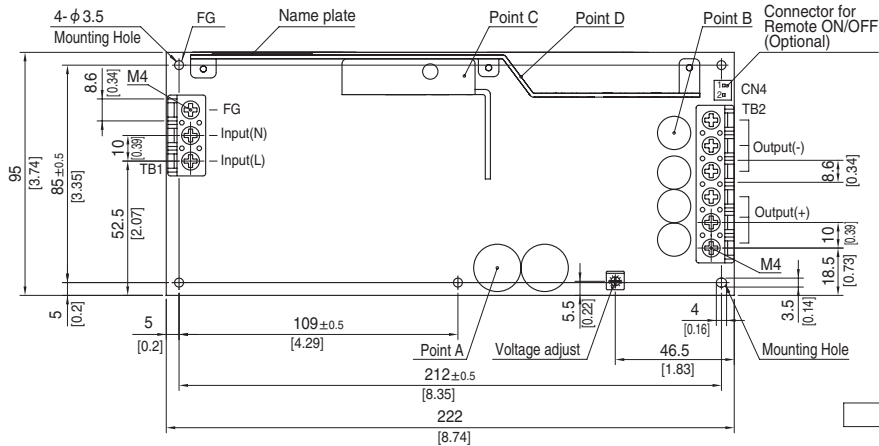
## Block diagram



## External view

※ External size of option is different from standard model.

Standard type



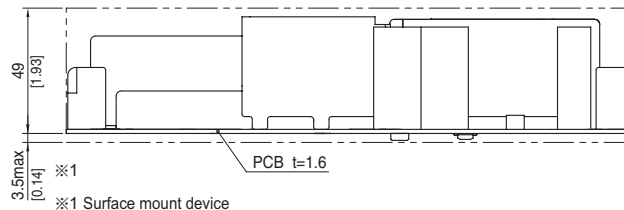
Connector type

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 :  $\pm 1$  [ $\pm 0.04$ ]
- ※ 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**

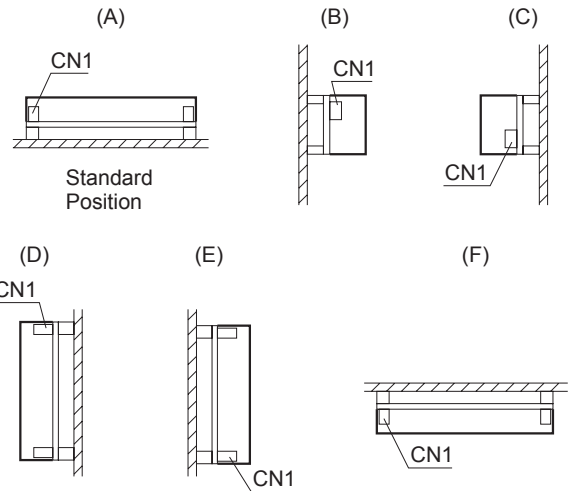
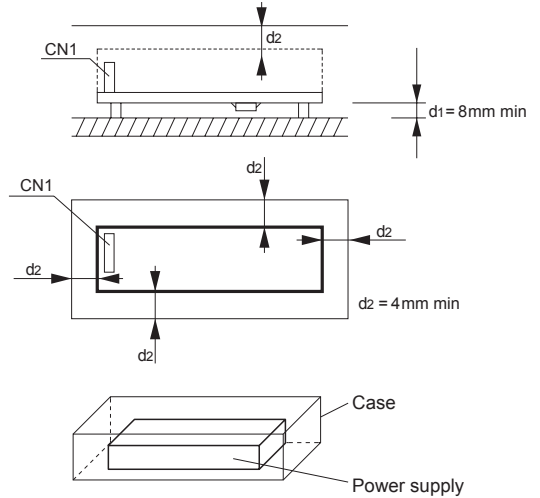
■ This power supply is manufactured by SMD technology. The stress to P.C.B like twisting or bending causes the defect of the unit, so handle the unit with care.

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

■ (F) of LFP300F is not possible. (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.

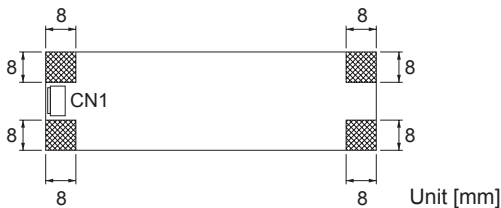
For more details, please contact our sales or engineering departments.



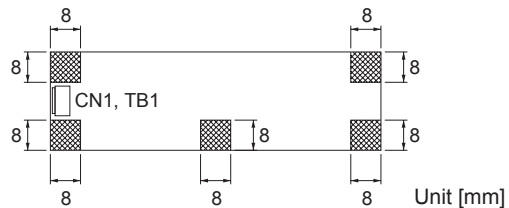
**Mounting screw**

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

● **LFP100F, LFP150F**



● **LFP240F, LFP300F**



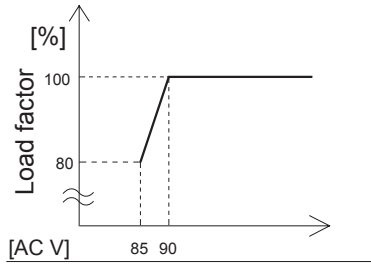
■ If metallic fittings are used on the component side of the board, ensure there is no contact with surface mounted components.

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

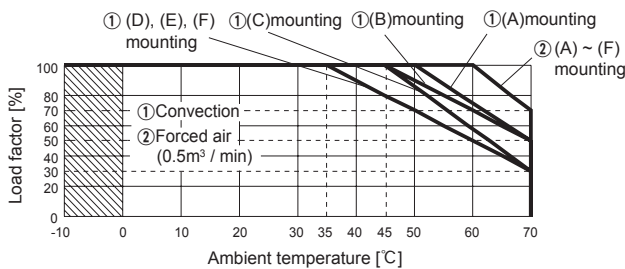
\*Recommendation to electrically connect FG to metal chassis for reducing noise.

Derating

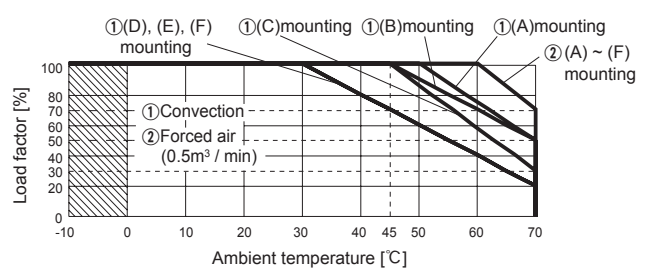
Derating curve for input voltage



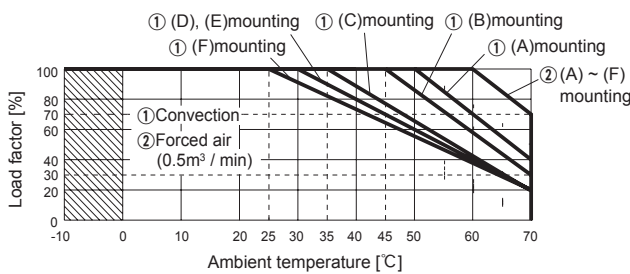
LFP100F Ambient temperature derating curve (Reference value)



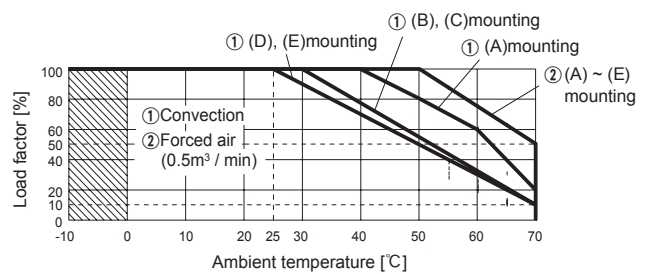
LFP150F Ambient temperature derating curve (Reference value)



LFP240F Ambient temperature derating curve (Reference value)



LFP300F Ambient temperature derating curve (Reference value)



Output voltage	Output power[W]	
	①Convection	②Forced air
24V	240.0	300.0
30V	240.0	300.0
36V	241.2	302.4
48V	240.0	302.4

Output voltage	Output power[W]	
	①Convection	②Forced air
24V	300.0	360.0
30V	300.0	360.0
36V	302.4	360.0
48V	302.4	360.0

■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 necessary to read the "Instruction Manual" and "Before using our product" before you use our product.

Instruction Manual      <https://en.cosel.co.jp/product/powersupply/LFP/>  
 Before using our product      <https://en.cosel.co.jp/technical/caution/index.html>

LFP



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
LFP100F	Active filter	60	1.3	Thermistor	CEM-3		Yes	Yes	No
	Forward converter	130							
LFP150F	Active filter	60	2.0	Thermistor	CEM-3		Yes	Yes	No
	Forward converter	130							
LFP240F	Active filter	60	3.6	SCR	CEM-3		Yes	Yes	No
	Forward converter	130							
LFP300F	Active filter	60	4.3	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.