



High voltage pulse noise type : NAP series Low leakage current type : NAM series

\*The EMI/EMC Filter is recommended to connect with several devices.

- 1) Series name 2) Single output 3) Output wattage 4) Universal input
  - ⑤Output voltage

  - Optional
     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.

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			
	VOLTAGE[V]		AC85 - 264 1 ¢ (Refer to Instruction Manual 1.1 and 3.2) *3							
	OUDDENTIAL	ACIN 100V	0.18typ (Io=100%)							
	CURRENT[A]	ACIN 200V	0.11typ (Io=100%)	0.16typ (lo=100%)						
	FREQUENCY[Hz]	FREQUENCY[Hz]		50 / 60 (47 - 440)						
IPUT	EEEIOJENIOVIO/3	ACIN 100V	68.0typ	74.0typ	76.5typ	77.5typ	79.5typ			
	EFFICIENCY[%]	ACIN 200V	68.5typ	76.0typ	79.0typ	80.0typ	83.0typ			
	INDUCTION OF PRESENTATION	ACIN 100V	15typ (lo=100%)							
	INRUSH CURRENT[A]	ACIN 200V	30typ (lo=100%)							
	LEAKAGE CURRENT	[mA]	0.15/0.30max (ACIN	100V / 240V 60Hz, I	o=100%, According to	IEC60950-1 and DEN-	-AN)			
	VOLTAGE[V]		3.3	5	12	15	24			
	CURRENT[A]		2.0	2.0	0.9	0.7	0.5			
	LINE REGULATION[n	nV] *5	20max	20max	48max	60max	96max			
	LOAD REGULATION	[mV] *5	40max	40max	100max	120max	150max			
		0 to +50°C	80max	80max	120max	120max	120max			
	RIPPLE[mVp-p]	-10 - 0℃	140max	140max	160max	160max	160max			
	*1	lo=0 - 35%	190max	160max	240max	240max	280max			
		0 to +50°C	120max	120max	150max	150max	150max			
UTPUT	RIPPLE NOISE[mVp-p]	-10 - 0℃	160max	160max	180max	180max	180max			
	*1	lo=0 - 35%	240max	240max	300max	300max	320max			
	TEMPERATURE REQUILATIONSVC	0 to +50°C	50max	50max	120max	150max	240max			
	TEMPERATURE REGULATION[mV]	-10 to +50°C	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%)							
	<b>OUTPUT VOLTAGE SETT</b>	ING[V]	3.30 to 3.40	4.90 to 5.30	11.50 to 12.50	14.40 to 15.60	23.00 to 25.00			
	OVERCURRENT PROTE	ECTION	Works over 105% of	rating and recovers a	utomatically					
ROTECTION	OVERVOLTAGE PROTE	CTION	4.00 to 5.25	5.75 to 7.00	13.80 to 16.80	17.25 to 21.00	27.60 to 33.60			
RCUIT AND	OPERATING INDICAT	ΓΙΟΝ	Not provided	•	•		,			
THERS	REMOTE SENSING		Not provided							
	REMOTE ON/OFF		Not provided							
	INPUT-OUTPUT		AC3,000V 1minute, Cutoff current = 10mA, DC500V 50M $\Omega$ min (At Room Temperature)							
OLATION	INPUT-FG		AC2,000V 1minute, Cutoff current = 10mA, DC500V 50M $\Omega$ min (At Room Temperature)							
	OUTPUT-FG		AC500V 1minute, Cutoff current = 25mA, DC500V 50M $\Omega$ min (At Room Temperature)							
	OPERATING TEMP., HUMID. AND	ALTITUDE	-10 to +70°C, 20 - 90%RH (Non condensing) (Refer to Instruction Manual 3.2), 3,000m (10,000 feet) max *3							
VIRONMENT	STORAGE TEMP., HUMID. AND A	ALTITUDE	-20 to +75°C, 20 - 90%RH (Non condensing), 9,000m (30,000 feet) max							
IVINONWENT	VIBRATION		10 - 55Hz, 19.6m/s² (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							
LEETY AND	AGENCY APPROVAL		UL60950-1, C-UL (CSA60950-1), EN60950-1, EN50178 Complies with DEN-AN							
AFETY AND DISE	CONDUCTED NOISE		Complies with FCC-B	B, VCCI-B, CISPR-B, E	N55011-B, EN55022-	В				
EGULATIONS	CE MARKING		Low Voltage Directive	,						
	HARMONIC ATTENU	ATOR			(Not built-in to active					
THERS	CASE SIZE/WEIGHT		50×22×73.5mm [1.	.97×0.87×2.89 inch	es] (W×H×D) / 55g r	nax (without chassis ar	nd cover)			
IIILIIO	COOLING METHOD		Convection (Refer to	Instruction Manual 3	.1 and 3.2) *3					

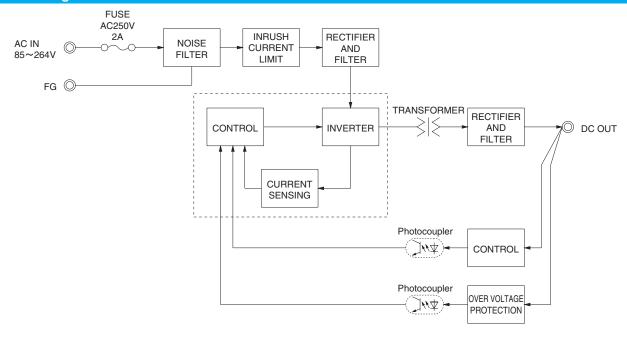
This is the value that measured on measuring board with capacitor of 22  $\mu\,F$  at 150mm from output terminal. Measured by 20MHz oscilloscope or Ripple-Noise meter (Equivalent to KEISOKU-GIKEN: RM103). A circuit reducing standby power is built in this unit. Therefore, the internal switch element is intermittent operated, and the Ripple/Ripple Noise specification in load

factor Io=0-35% is different.

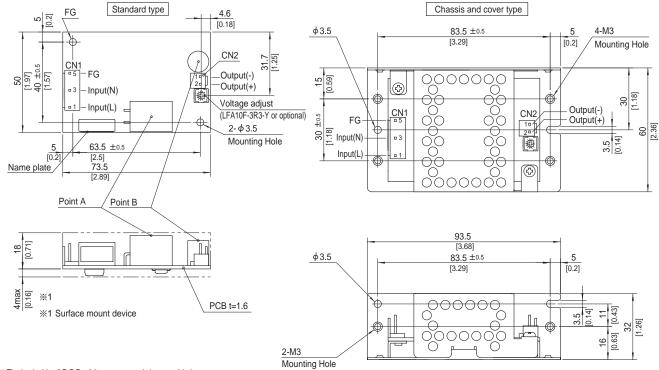
- Please refer to the Instruction Manual 1.7.
- Drift is the change in DC output for an eight hour period after a half-hour warm-up at 25°C, with the input voltage held constant at the rated input/output.
- Derating is required.
- When two or more units are operating it may not comply with the IEC61000-3-2.
- Please contact us for details.
- Please contact us about dynamic load and input response. 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

# LFA10F | COSEL

# **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.
- W 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	T	erminal	
014	4 4400704 0	1-1123722-5	Chain	1123721-1	
CN1 1-11237	1-1123724-3	1-1123722-5	Loose	1318912-1	
ONIO	4 4400700 0	4 4400700 0	Chain	1123721-1	
CN2 1-1123723-2	1-1123722-2	Loose	1318912-1		
(Mfr:Type Fleetrenies)					

(Mfr:Tyco Electronics)

- ※ I/O Connector is Mfr. Tyco Electronics
- $\ensuremath{\ensuremath{\%}}$  Option:-J1:(J.S.T) connector type. Refer to Instruction Manual 5.

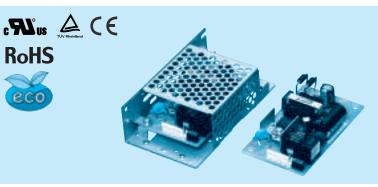
CN1					
Pin No.	Input				
1	AC(L)				
2					
3	AC(N)				
4					
5	FG				

CINZ	
Pin No.	Output
1	-V
2	+V

- \*\* Tolerance: ±1 [±0.04]
   \*\* Weight: 55g max (without chassis and cover)
   \*\* 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

**RoHS** 

LFA





- High voltage pulse noise type : NAP series Low leakage current type : NAM series
- to connect with several devices.
- \*The EMI/EMC Filter is recommended

- 1) Series name 2) Single output 3) Output wattage 4) Universal input
- ⑤Output voltage
- Optional
   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.

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		
	VOLTAGE[V]		AC85 - 264 1 $\phi$ (Refer to Instruction Manual 1.1 and 3.2) *3						
	ALIDDENITA I	ACIN 100V	0.24typ (Io=100%)	0.35typ (lo=100%)					
	CURRENT[A]	ACIN 200V	0.15typ (lo=100%)	0.20typ (lo=100%)					
	FREQUENCY[Hz]		50 / 60 (47 - 440)						
IPUT	EEEIOJENIOV(0/1	ACIN 100V	68.0typ	73.0typ	76.0typ	77.0typ	78.0typ		
	EFFICIENCY[%]	ACIN 200V	69.0typ	76.0typ	78.5typ	80.0typ	81.5typ		
	INDUOLI OUDDENITIAL	ACIN 100V	15typ (Io=100%) (At	cold start) (Ta=25°C)					
	INRUSH CURRENT[A]	ACIN 200V	30typ (Io=100%) (At cold start) (Ta=25°C)						
	LEAKAGE CURRENT	[mA]	0.15/0.30max (ACIN 100V / 240V 60Hz, Io=100%, According to IEC60950-1 and DEN-AN)						
	VOLTAGE[V]		3.3	5	12	15	24		
	CURRENT[A]		3.0	3.0	1.3	1.0	0.7		
	LINE REGULATION[n	nV] *5	20max	20max	48max	60max	96max		
	LOAD REGULATION[	mV] *5	40max	40max	100max	120max	150max		
Ī		0 to +50°C	80max	80max	120max	120max	120max		
	RIPPLE[mVp-p]	-10 - 0℃	140max	140max	160max	160max	160max		
	*1	lo=0 - 35%	190max	160max	240max	240max	280max		
		0 to +50°C	120max	120max	150max	150max	150max		
UTPUT	RIPPLE NOISE[mVp-p]	-10 - 0℃	160max	160max	180max	180max	180max		
	*1	lo=0 - 35%	240max	240max	300max	300max	320max		
	TEMPERATURE REQUILATIONS NO	0 to +50°C	50max	50max	120max	150max	240max		
	TEMPERATURE REGULATION[mV]	-10 to +50°C	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 1 minute of applying input again from turning off the input voltage.						
	HOLD-UP TIME[ms]		20typ (ACIN 100V, Io=100%)						
	OUTPUT VOLTAGE ADJUSTMENT F	RANGE[V]	2.85 to 3.63 Fixed ( "Y" option is available for adjusting output voltage between ±10%)						
	<b>OUTPUT VOLTAGE SETT</b>	ING[V]	3.30 to 3.40	4.90 to 5.30	11.50 to 12.50	14.40 to 15.60	23.00 to 25.00		
	OVERCURRENT PROTE	ECTION	Works over 105% of	rating and recovers au	tomatically				
ROTECTION	OVERVOLTAGE PROTE	CTION	4.00 to 5.25	5.75 to 7.00	13.80 to 16.80	17.25 to 21.00	27.60 to 33.60		
RCUIT AND	OPERATING INDICAT	TION	Not provided	•		•	•		
THERS	REMOTE SENSING		Not provided						
	REMOTE ON/OFF		Not provided						
	INPUT-OUTPUT		AC3,000V 1minute, Cutoff current = 10mA, DC500V 50M $\Omega$ min (At Room Temperature)						
OLATION	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)						
	OPERATING TEMP., HUMID. AND	ALTITUDE	-10 to +70°C, 20 - 90°	%RH (Non condensing	) (Refer to Instruction	Manual 3.2), 3,000m (	10,000 feet) max *		
IVIRONMENT	STORAGE TEMP., HUMID. AND A	ALTITUDE	-20 to +75°C, 20 - 90%RH (Non condensing), 9,000m (30,000 feet) max						
AAIUOMMENI	VIBRATION		10 - 55Hz, 19.6m/s <sup>2</sup> (	10 - 55Hz, 19.6m/s² (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						
AFETY AND	AGENCY APPROVAL	S	UL60950-1, C-UL (CS	SA60950-1), EN60950-	1, EN50178 Complies	with DEN-AN			
AFETY AND DISE	CONDUCTED NOISE			, VCCI-B, CISPR-B, EN	55011-B, EN55022-B				
EGULATIONS	CE MARKING		Low Voltage Directive	e, EMC Directive					
LUCEATIONS	HARMONIC ATTENUA	ATOR		000-3-2 (Class A) *6 (N					
THERS	CASE SIZE/WEIGHT				, ,	x (without chassis and	cover)		
COOLING METHOD			Convection (Refer to	Instruction Manual 3.1	and 3.2) *3				

This is the value that measured on measuring board with capacitor of 22 µF at 150mm from output terminal.

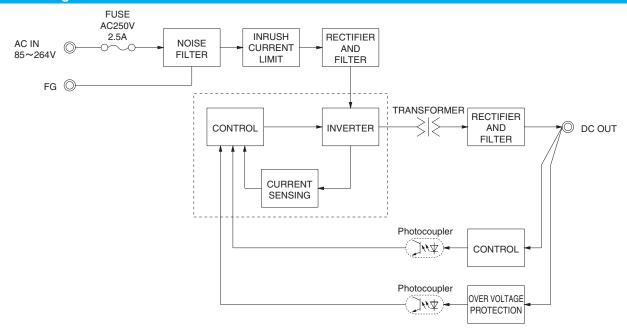
Measured by 20MHz oscilloscope or Ripple-Noise meter (Equivalent to KEISOKU-GIKEN: RM103). A circuit reducing standby power is built in this unit. Therefore, the internal switch element is intermittent

operated, and the Ripple/Ripple Noise specification in load

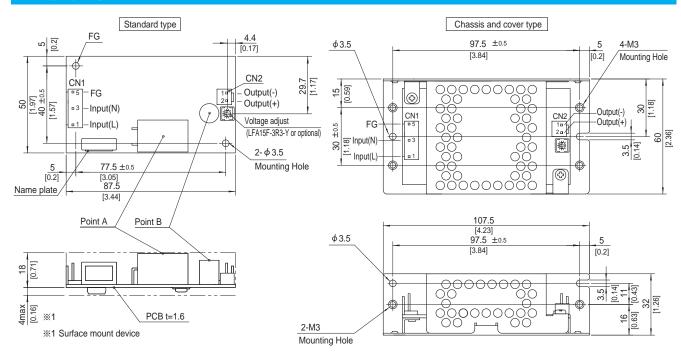
- Please refer to the Instruction Manual 1.7.
  Drift is the change in DC output for an eight hour period after
- a half-hour warm-up at 25°C, with the input voltage held constant at the rated input/output. Derating is required.
- When two or more units are operating it may not comply with the IEC61000-3-2.
- Please contact us about dynamic load and input response. 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

# LFA15F | COSEL

# **Block diagram**



## **External view**



- $\ensuremath{\mathbb{X}}$  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.
- W 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		I/O Connector Mating connector		erminal
CNIA	4 4400704 0	1-1123722-5	Chain	1123721-1
CN1 1-1123724-	1-1123724-3		Loose	1318912-1
0110	1-1123723-2	1-1123722-2	Chain	1123721-1
CN2 1-1	1-1123723-2	1-1123/22-2	Loose	1318912-1

(Mfr:Tyco Electronics)

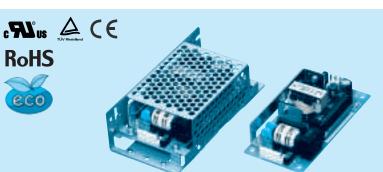
- ※ I/O Connector is Mfr. Tyco Electronics
- ※ Option:-J1:(J.S.T) connector type. Refer to Instruction Manual 5.

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

CINZ						
Pin No.	Output					
1	-V					
2	+V					

- % Tolerance : ±1 [±0.04]
- \* Weight: 80g max (without chassis and cover)
- ※ PCB material / thickness : CEM3 / 1.6mm
- ※ Optional chassis and cover material : Electric galvanizing steel board.
- \* Dimensions in mm, [ ]=inches
- $\frak{M}$  Mounting torque (Mounting hole of chassis) : 0.6N  $\frak{n}$  (6.3kgf  $\frak{n}$  cm) max

LFA



Recommended EMI/EMC Filter NAC-04-472

High voltage pulse noise type : NAP series Low leakage current type : NAM series

\*The EMI/EMC Filter is recommended to connect with several devices.

- 2Single output 3Output wattage 4Universal input
  - ⑤Output voltage

①Series name

- Optional
   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.

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

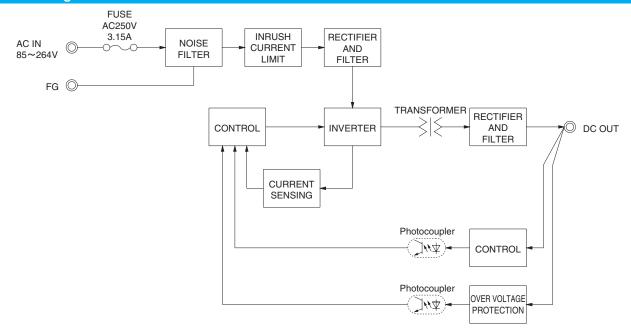
	MODEL		LFA30F-3R3-Y	LFA30F-5	LFA30F-12	LFA30F-15	LFA30F-24			
	VOLTAGE[V]		AC85 - 264 1 φ (Ref	AC85 - 264 1 φ (Refer to Instruction Manual 1.1 and 3.2) *3						
ŀ	CUDDENTIAL	ACIN 100V	0.50typ (lo=100%)	0.65typ (lo=100%)						
ŀ	CURRENT[A]	ACIN 200V	0.30typ (Io=100%)   0.35typ (Io=100%)							
l	FREQUENCY[Hz]		50 / 60 (47 - 440)							
INPUT	EFFICIENCY[%]	ACIN 100V	73typ	76typ	79typ	81typ	82typ			
	EFFICIENCY[%]	ACIN 200V	75typ	79typ	81typ	83typ	84typ			
	INRUSH CURRENT[A]	ACIN 100V	15typ (lo=100%) (At	cold start) (Ta=25°C)						
	INNUSH CONNENT[A]	ACIN 200V	71	30typ (Io=100%) (At cold start) (Ta=25°C)						
	LEAKAGE CURRENT[mA]		0.30 / 0.65max (ACIN 100V / 240V 60Hz, Io=100%, According to IEC60950-1 and DEN-AN)							
	VOLTAGE[V]		3.3	5	12	15	24			
	CURRENT[A]		6.0	6.0	2.5	2.0	1.3			
ŀ	LINE REGULATION[		20max	20max	48max	60max	96max			
	LOAD REGULATION	[mV] *5	40max	40max	100max	120max	150max			
	RIPPLE[mVp-p]	0 to +50°C *1	80max	80max	120max	120max	120max			
	nirrectillvp-bj	-10-0℃ *1	140max	140max	160max	160max	160max			
ŀ	RIPPLE NOISE[mVp-p]	0 to +50°C *1	120max	120max	150max	150max	150max			
OUTPUT	HIFFEE NOISE[IIIVP-P]	-10-0℃ *1	160max	160max	180max	180max	180max			
	TEMPERATURE REGULATION(mV)	0 to +50℃	50max	50max	120max	150max	240max			
	TEMPERATURE REGULATION[IIV]	-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	<del>'</del> '	available for adjusting	<del> </del>	<del>, '</del>			
	OUTPUT VOLTAGE SET		3.30 to 3.40	4.90 to 5.30	11.50 to 12.50	14.40 to 15.60	23.00 to 25.00			
ŀ	OVERCURRENT PROT	ECTION	Works over 105% of rating and recovers automatically							
PROTECTION	OVERVOLTAGE PROTE	ECTION	4.00 to 5.25	5.75 to 7.00	13.80 to 16.80	17.25 to 21.00	27.60 to 33.60			
	OPERATING INDICA	TION	Not provided							
OTHERS	REMOTE SENSING		Not provided							
	REMOTE ON/OFF		Not provided							
	INPUT-OUTPUT		AC3,000V 1minute, Cutoff current = 10mA, DC500V 50M $\Omega$ min (At Room Temperature)							
ISOLATION	INPUT-FG		AC2,000V 1minute, Cutoff current = 10mA, DC500V 50M $\Omega$ min (At Room Temperature)							
	OUTPUT-FG		AC500V 1minute, Cutoff current = 25mA, DC500V 50M $\Omega$ min (At Room Temperature)							
	OPERATING TEMP., HUMID.AND		-10 to +70°C, 20 - 90%RH (Non condensing) (Refer to Instruction Manual 3.2), 3,000m (10,000feet) max *3							
ENVIRONMENT	STORAGE TEMP.,HUMID.AND	ALTITUDE	-20 to +75°C, 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	_		ms, once each X, Y ar						
SAFETY AND	AGENCY APPROVAL		UL60950-1, C-UL (CSA60950-1), EN60950-1, EN50178 Complies with DEN-AN  Complies with FCC-B, VCCI-B, CISPR-B, EN55011-B, EN55022-B							
NOISE	CONDUCTED NOISE	<u> </u>			:N55011-B, EN55022-	В				
REGULATIONS	CE MARKING	===	Low Voltage Directiv		tarib distance of the					
	HARMONIC ATTENU				lot built-in to active filte					
OTHERS	CASE SIZE/WEIGHT				es] (W×H×D) / 130g	max (without chassi	s and cover)			
	COOLING METHOD		Convection (Refer to	Instruction Manual 3.1	and 3.2) *3					

- This is the value that measured on measuring board with capacitor of 22  $\mu\,F$  at 150mm from output terminal.

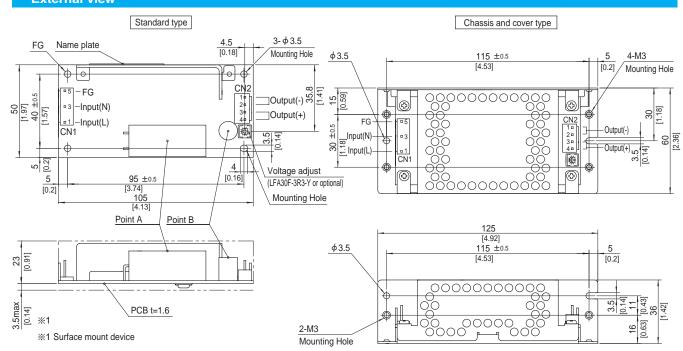
  Measured by 20MHz oscilloscope or Ripple-Noise meter (Equivalent to KEISOKU-GIKEN:
- Drift is the change in DC output for an eight hour period after a half-hour warm-up at  $25\ensuremath{^{\circ}}\xspace$  , with the input voltage held constant at the rated input/output.
- Derating is required.

- When two or more units are operating it may not comply with the IEC61000-3-2. Please contact us for details.
- Please contact us about dynamic load and input response.
- 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.





## **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.
- W 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	
0	I.A	4.4400704.0	1-1123722-5	Chain	1123721-1
CI	N1	1-1123724-3	1-1123722-5	Loose	1318912-1
0	10	1-1123723-4	1-1123722-4	Chain	1123721-1
CI	NZ	1-1123723-4	1-1123722-4	Loose	1318912-1
				(Mfr:Ty	co Electronics)

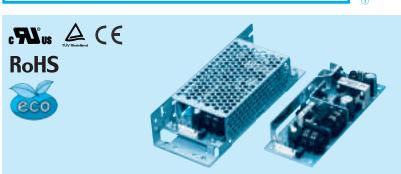
- ※ I/O Connector is Mfr. Tyco Electronics
- $\ \ \, \mbox{\@ifnextcolor}\mbox{\@ifnextco$

CN1					
Input					
AC(L)					
AC(N)					
FG					

	CN2							
ıt	Pin No.	Output						
_)	1, 2	-V						
N)	3, 4	+V						

- % Tolerance : ±1 [±0.04]
  % Weight: 130g max (without chassis and cover)
- ※ 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

<sup>%</sup> Keep drawing current per pin below 5A for CN2.





High voltage pulse noise type : NAP series Low leakage current type : NAM series

\*The EMI/EMC Filter is recommended to connect with several devices.

 Optional
 C: with Coating
 G: Low leakage current J1: VH(J.S.T.)connector type

S: with Chassis

1) Series name 2) Single output 3) Output wattage 4) Universal input

⑤Output voltage

SN: with Chassis & cover Y: with Potentiometer

Specification is changed at option, refer to Instruction Manual.

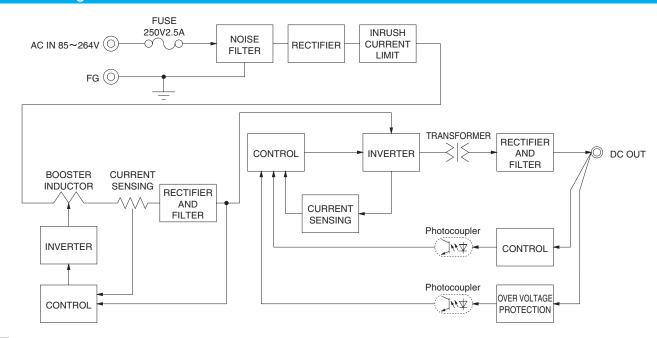
This power supply is manufactured by SMD technology. The stress to P.C.B like twisting or bending causes the defect of the unit, so handle the unit with care.

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

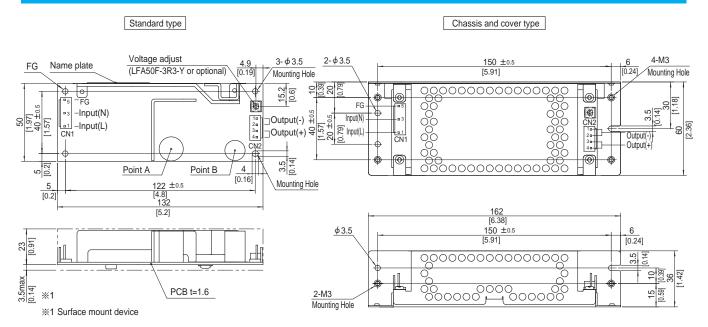
	MODEL		LFA50F-3R3-Y	LFA50F-5	LFA50F-12	LFA50F-15	LFA50F-24	LFA50F-36	LFA50F-48
	VOLTAGE[V]		AC85 - 264 1 q	(Refer to Inst	uction Manual	1.1 and 3.2) *3			
	OUDDENTIAL	ACIN 100V	0.47typ (lo=100%)   0.67typ (lo=100%)						
	CURRENT[A]	ACIN 200V		0.36typ (lo=10	00%)				
	FREQUENCY[Hz]	•	50 / 60 (47 - 6	3)					
	EEEIOIENOVIO/1	ACIN 100V		77.5typ	80.0typ	80.5typ	81.5typ	82.0typ	81.0typ
NPUT	EFFICIENCY[%]	ACIN 200V	74.0typ	79.0typ	81.5typ	81.5typ	83.0typ	83.5typ	82.5typ
	DOWED FACTOR (In 1000)	ACIN 100V	0.96typ	0.97typ			•	•	
	POWER FACTOR (Io=100%)	ACIN 200V	0.83typ	0.90typ					
	INRUSH CURRENT[A]	ACIN 100V	15typ (lo=100	%) (At cold star	t) (Ta=25°C)				
	INRUSH CURRENT[A]	ACIN 200V		%) (At cold star					
	LEAKAGE CURREN	T[mA]	0.40 / 0.75ma	x (ACIN 100V /	240V 60Hz, lo=	=100%, Accordi	ng to IEC60950	-1 and DEN-AN	)
	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°C *1	80max	80max	120max	120max	120max	150max	150max
	IIII I EE[IIIVP-P]	-10 - 0℃ *1	140max	140max	160max	160max	160max	200max	200max
	RIPPLE NOISE[mVp-p]		120max	120max	150max	150max	150max	250max	250max
OUTPUT	TIII T EE NOISE[IIIVP-P]	-10-0℃ *1	160max	160max	180max	180max	180max	300max	300max
	TEMPERATURE REGULATION[mV]	0 to +50℃	50max	50max	120max	150max	240max	360max	480max
	TEMP ENATORIE REGUERRION[IIIV]	-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		2.85 to 3.63 Fixed ( "Y" option is available for adjusting output voltage between ±10%)						
	OUTPUT VOLTAGE SET		3.30 to 3.40	4.90 to 5.30			23.00 to 25.00	34.50 to 37.50	46.00 to 50.00
	OVERCURRENT PROT				d recovers auto				
PROTECTION	OVERVOLTAGE PROTE		4.00 to 5.25	5.75 to 7.00	13.80 to 16.80	17.25 to 21.00	27.60 to 33.60	41.40 to 50.40	55.20 to 67.20
CIRCUIT AND	OPERATING INDICA	TION	Not provided						
OTHERS	REMOTE SENSING		Not provided						
	REMOTE ON/OFF		Not provided						
	INPUT-OUTPUT		AC3,000V 1minute, Cutoff current = 10mA, DC500V 50M $\Omega$ min (At Room Temperature)						
ISOLATION	INPUT-FG		AC2,000V 1minute, Cutoff current = 10mA, DC500V 50M $\Omega$ min (At Room Temperature)						
	OUTPUT-FG		AC500V 1minute, Cutoff current = 25mA, DC500V 50M $\Omega$ min (At Room Temperature)						
	OPERATING TEMP., HUMID.AND		, , , , , , , , , , , , , , , , , , , ,						
ENVIRONMENT	STORAGE TEMP.,HUMID.AND	ALTITUDE	, (), ()						
	VIBRATION		10 - 55Hz, 19.6m/s² (2G), 3minutes period, 60minutes each along X, Y and Z axis						
	IMPACT	1.0	196.1m/s² (20G), 11ms, once each X, Y and Z axis   UL60950-1, C-UL (CSA60950-1), EN60950-1, EN50178 Complies with DEN-AN						
SAFETY AND	AGENCY APPROVAL							-AN	
NOISE	CONDUCTED NOISE	=			CISPR-B, EN5	5011-B, EN550	ZZ-R		
REGULATIONS	CE MARKING	IATOD		irective, EMC D					
	HARMONIC ATTENU			IEC61000-3-2		/MXIIXD) / 4/	NE a many (miller)	ut abassis sur-1 -	aa.)
OTHERS	CASE SIZE/WEIGHT						oog max (withou	ut chassis and c	over)
	COOLING METHOD		Convection (Refer to Instruction Manual 3.1 and 3.2) *3						

- This is the value that measured on measuring board with capacitor of 22  $\mu\,F$  at 150mm from output terminal.
  - Measured by 20MHz oscilloscope or Ripple-Noise meter (Equivalent to KEISOKU-GIKEN:
- 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.
- Derating is required. Please contact us about dynamic load and input response.
- 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.





## **External view**



- ¾ 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.
- W 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/C	) Connector	Mating connector	T	erminal
ONIA	4 4400704 0	1-1123722-5	Chain	1123721-1
CN1	1-1123724-3	1-1123722-5	Loose	1318912-1
ONIO	4 4400700 4	4 4400700 4	Chain	1123721-1
CN2	1-1123723-4	1-1123722-4	Loose	1318912-1

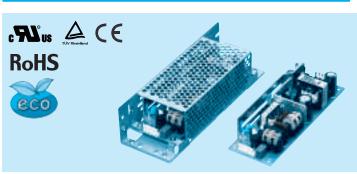
(Mfr:Tyco Electronics)

- ※ I/O Connector is Mfr. Tyco Electronics
- Option:-J1:(J.S.T) connector type. Refer to Instruction Manual 5.

## <PIN CONNECTION>

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

- ※ Tolerance: ±1 [±0.04]
- Weight: 165g max (without chassis and cover)
- 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





High voltage pulse noise type : NAP series Low leakage current type : NAM series

\*The EMI/EMC Filter is recommended to connect with several devices.

- ①Series name ②Single output ③Output wattage ④Universal input
- ⑤Output voltage
- Optional
   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.

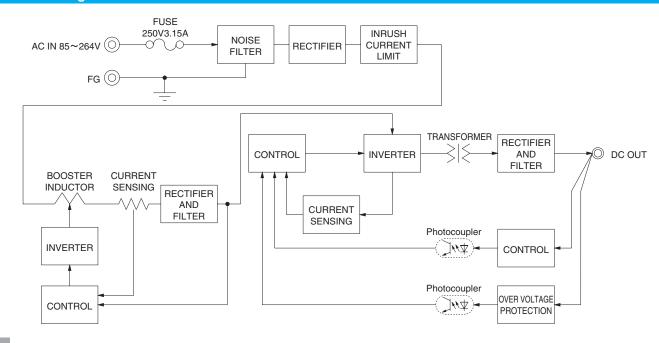
This power supply is manufactured by SMD technology. The stress to P.C.B like twisting or bending causes the defect of the unit, so handle the unit with care.

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							

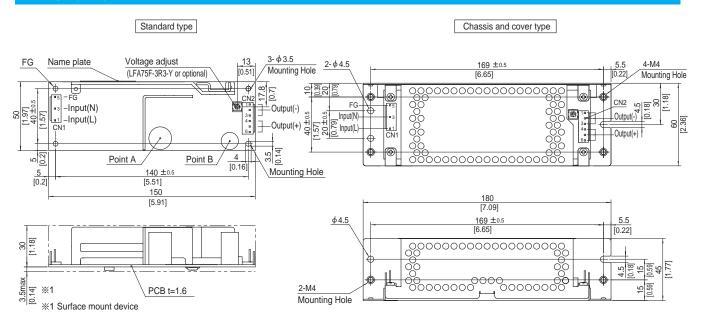
	MODEL		LFA75F-3R3-Y	LFA75F-5	LFA75F-12	LFA75F-15	LFA75F-24	LFA75F-36	LFA75F-48
	VOLTAGE[V]		AC85 - 264 1 ¢	(Refer to Instr	uction Manual	1.1 and 3.2) *3			
		ACIN 100V	0.70typ (lo=100%)   1.00typ (lo=100%)						
	CURRENT[A]	ACIN 200V		0.50typ (lo=10					
	FREQUENCY[Hz]		50 / 60 (47 - 6						
		ACIN 100V	73.5typ	78.0typ	81.5typ	81.5typ	82.5typ	82.5typ	82.5typ
NPUT	EFFICIENCY[%]	ACIN 200V	75.0typ	80.0typ	83.0typ	83.0typ	84.5typ	84.5typ	84.5typ
	DOWED ELOCOD (I. 1000)	ACIN 100V	0.96typ						
	POWER FACTOR (Io=100%)	ACIN 200V	0.83typ	0.90typ					
	INDUCU OUDDENTIAL	ACIN 100V	15typ (lo=100	%) (At cold start	) (Ta=25°C)				
	INRUSH CURRENT[A]	ACIN 200V		%) (At cold start					
	LEAKAGE CURREN	T[mA]	0.40 / 0.75max	(ACIN 100V / :	240V 60Hz, lo=	=100%, Accordi	ng to IEC60950	-1 and DEN-AN)	)
	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°C *1	80max	80max	120max	120max	120max	150max	150max
	HIPPEE[IIIVP-P]	-10-0℃ *1	140max	140max	160max	160max	160max	200max	200max
	RIPPLE NOISE[mVp-p]	0 to +50°C *1	120max	120max	150max	150max	150max	250max	250max
OUTPUT	TIII T LL NOISL[IIIVP-P]	-10-0℃ *1	160max	160max	180max	180max	180max	300max	300max
	TEMPERATURE REGULATION[mV]	0 to +50℃	50max	50max	120max	150max	240max	360max	480max
	TEMP ENATORIE REGUERRION[IIIV]	-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 SET	<del></del>	3.30 to 3.40			14.40 to 15.60	23.00 to 25.00	34.50 to 37.50	46.00 to 50.00
	OVERCURRENT PROT			5% of rating an					
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 INDICA	TION	Not provided						
OTHERS	REMOTE SENSING		Not provided						
	REMOTE ON/OFF		Not provided						
	INPUT-OUTPUT		AC3,000V 1minute, Cutoff current = 10mA, DC500V 50M $\Omega$ min (At Room Temperature)						
ISOLATION	INPUT-FG		AC2,000V 1minute, Cutoff current = 10mA, DC500V 50M $\Omega$ min (At Room Temperature)						
	OUTPUT-FG		AC500V 1minute, Cutoff current = 25mA, DC500V 50M $\Omega$ min (At Room Temperature)						
	OPERATING TEMP., HUMID.AND		, , , , , , , , , , , , , , , , , , , ,						
ENVIRONMENT	STORAGE TEMP.,HUMID.AND	ALIIIUDE	, (), ()						
	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	AGENCY APPROVAL CONDUCTED NOISE		UL60950-1, C-UL (CSA60950-1), EN60950-1, EN50178 Complies with DEN-AN  Complies with FCC-B, VCCI-B, CISPR-B, EN55011-B, EN55022-B						
NOISE	CE MARKING	-	Low Voltage D	irective, EMC D	UISPK-B, ENS	0011-B, EN0502	<u> </u>		
REGULATIONS		IATOR							
	HARMONIC ATTENU			IEC61000-3-2		(M > L > D) / 22	Oa may (withau	ut chassis and c	over)
OTHERS	CASE SIZE/WEIGHT			efer to Instructio		,	og max (williot	it chassis allu c	uvei)
			`	ter to instructio		0 3.2) *3			

- This is the value that measured on measuring board with capacitor of 22  $\mu\,F$  at 150mm from output terminal.
  - Measured by 20MHz oscilloscope or Ripple-Noise meter (Equivalent to KEISOKU-GIKEN:
- 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.
- Derating is required. Please contact us about dynamic load and input response.
- 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.





## **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		
CNIA	1-1123724-3	1-1123722-5	Chain	1123721-1	
CNT	1-1123724-3	1-1123722-5	Loose	1318912-1	
CNO	1-1123723-6	4 4400700 0	Chain	1123721-1	
CINZ	1-1123723-0	1-1123722-6	Loose	1318912-1	
			(Mfr:Ty	co Electronics)	

- ※ I/O Connector is Mfr. Tyco Electronics
- Option:-J1:(J.S.T) connector type. Refer to Instruction Manual 5.

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

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

- ※ Tolerance : ±1 [±0.04]
- Weight: 230g max (without chassis and cover)
- \* 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

<sup>※</sup> Keep drawing current per pin below 5A for CN2.

LFA

c Sus Livrheinted CE **RoHS** 

Recommended EMI/EMC Filter NAC-04-472

High voltage pulse noise type : NAP series Low leakage current type : NAM series

\*The EMI/EMC Filter is recommended

to connect with several devices

1) Series name 2) Single output 3) Output wattage 4) Universal input

⑤Output voltage

© Optional \*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 5

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

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

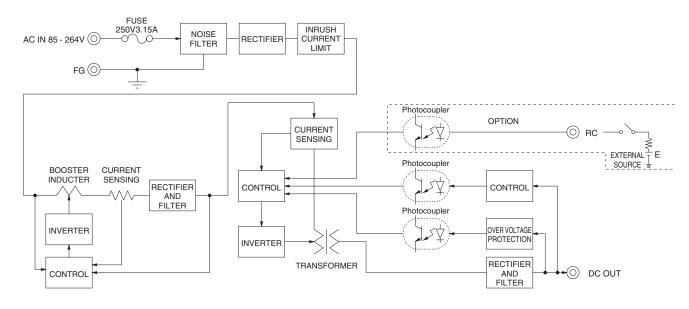
# **SPECIFICATIONS**

so handle the unit with care.

	MODEL		LFA100F-3R3-Y	LFA100F-5-Y	LFA100F-12	LFA100F-15	LFA100F-24	LFA100F-24-H	LFA100F-36	LFA100F-4		
	VOLTAGE[V]		AC85 - 264 1	φ (Refer to I	nstruction Ma	nual 1.1 and	3.2) *4					
	CURRENT[A]	ACIN 100V	0.9typ (Io=100%)	1.3typ (lo=10	00%)							
	CORRENT[A]	ACIN 200V	0.5typ (Io=100%)	0.7typ (lo=10	00%)							
	FREQUENCY[Hz]	•	50 / 60 (47 -	63)								
	EFFICIENCY[0/1	ACIN 100V	77.0typ	82.0typ	82.0typ	83.0typ	84.0typ	84.0typ	84.0typ	84.5typ		
NPUT	EFFICIENCY[%]	ACIN 200V	79.0typ	84.0typ	84.5typ	85.5typ	87.0typ	87.0typ	87.0typ	87.0typ		
	DOWED FACTOR (In 1000())	ACIN 100V	0.98typ	0.99typ		•	•	•				
	POWER FACTOR (Io=100%)	ACIN 200V	0.92typ	0.95typ								
	INDUCU CUDDENTIAL	ACIN 100V	15typ (Io=100%) (At cold start) (Ta=25℃)									
	INRUSH CURRENT[A]	ACIN 200V	30typ (Io=100%) (At cold start) (Ta=25℃)									
	LEAKAGE CURREN	T[mA]	0.40 / 0.75m	ax (ACIN 100	V / 240V 60H	łz, lo=100%,	According to I	EC60950-1 ai	nd DEN-AN)			
	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°C *2	80max	80max	120max	120max	120max	240max	150max	150max		
	RIPPLE[IIIVP-P]	-10-0℃ *2	140max	140max	160max	160max	160max	320max	200max	200max		
	DIDDI E NOICE[m\/n n]	0 to +50°C *2	120max	120max	150max	150max	150max	300max	250max	250max		
OUTPUT	RIPPLE NOISE[mVp-p]	-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		
	TEMPERATURE REGULATION[IIIV]	-10 to +50°C	60max	60max	150max	180max	290max	290max	450max	600max		
	DRIFT[mV] *3 20max			20max	48max	60max	96max	96max	144max	192max		
	START-UP TIME[ms] 350typ (AC			50typ (ACIN 100V, Io=100%)								
	HOLD-UP TIME[ms] 20typ (ACII			Otyp (ACIN 100V, Io=100%)								
	OUTPUT VOLTAGE ADJUSTMENT RANGE[V] 2.85 to		2.85 to 3.63   4.50 to 5.50   Fixed ( "Y" option is available for adjusting output voltage) 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									
	OUTPUT VOLTAGE SET	TING[V]										
	OVERCURRENT PROT	ECTION	Works over 1	105% of rating	g (works over	101% of pea	k current at op	otion -H) and	recovers auto	matically		
ROTECTION	OVERVOLTAGE PROTE	ECTION	4.00 to 5.25	5.75 to 7.00	13.80 to 16.80	17.25 to 21.00	27.60 to 33.60	27.60 to 33.60	41.40 to 50.40	55.20 to 67.2		
	OPERATING INDICA	TION	Not provided									
THERS	REMOTE SENSING		Not provided									
	REMOTE ON/OFF		Option (Refe	r to Instructio	n Manual)							
	INPUT-OUTPUT-RC	*6		C3,000V 1minute, Cutoff current = 10mA, DC500V 50M $\Omega$ min (At Room Temperature)								
SOLATION	INPUT-FG			C2,000V 1minute, Cutoff current = 10mA, DC500V 50M $\Omega$ min (At Room Temperature)								
SOLATION	OUTPUT-RC-FG			C500V 1minute, Cutoff current = 25mA, DC500V 50M $\Omega$ min (At Room Temperature)								
	OUTPUT-RC			C100V 1minute, Cutoff current = 25mA, DC100V 10M $\Omega$ min (At Room Temperature)								
	OPERATING TEMP., HUMID. AND	ALTITUDE *4		0 to +70°C, 20 - 90%RH (Non condensing) (Refer to Instruction Manual 3.2), 3,000m (10,000feet) max								
NVIRONMENT	STORAGE TEMP.,HUMID.AND	ALTITUDE	-20 to +75℃	0 to +75°C, 20 - 90%RH (Non condensing), 9,000m (30,000feet) max								
INVIIIONIIIENI	VIBRATION			- 55Hz, 19.6m/s² (2G), 3minutes period, 60minutes each along X, Y and Z axis								
	IMPACT			0G), 11ms, o								
AFETY AND	AGENCY APPROVAL				, .		78 Complies v	with DEN-AN				
IOISE	CONDUCTED NOISE			th FCC-B, VCC			EN55022-B					
EGULATIONS	HARMONIC ATTENU			th IEC61000-3								
THERS	CASE SIZE/WEIGHT						<d) 280g="" ma<="" td=""><td>ax (without ch</td><td>assis and cov</td><td>er)</td></d)>	ax (without ch	assis and cov	er)		
,	COOLING METHOD		Convection (	Refer to Instru	ction Manual	3.1 and 3.2) *4						

- \*1 Specification is changed at option, refer to Instruction Manual.
- This is the value that measured on measuring board with capacitor of 22 µ F 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°C, with the input voltage held constant
- at the rated input/output
- Derating is required. ( ) means peak current. There is a possibility that an internal device is damaged when the specification is exceeded. Please contact us about the detail.
- Applicable when Remote ON/OFF (optional) is added.
- 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.

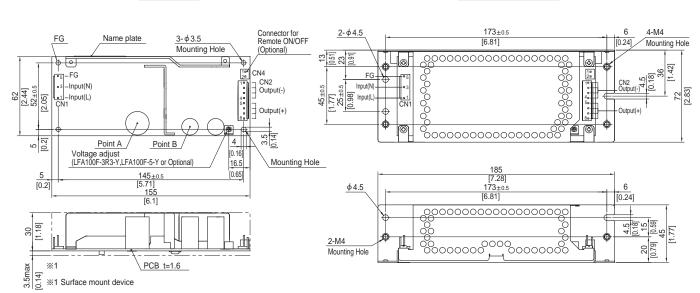




#### **External view**

\* External size of option is different from standard model.

Standard type Chassis and cover type



- ¾ 4 Mounting holes are existing.
- $\ensuremath{\,\times\,}$  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/C	) Connector	Mating connector		
014	1-1123724-3	1-1123722-5	Chain	1123721-1
CN1	1-1123724-3	1-1123722-5	Loose	1318912-1
ONIO	1-1123723-8	1-1123722-8	Chain	1123721-1
CN2	1-1123723-8	1-1123722-8	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 AC(L) 3 AC(N) FG

CNZ									
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 (without chassis and cover)
- \* 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

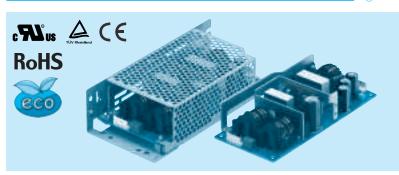
CN4 Option (Mfr:J.S.T)

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



Recommended EMI/EMC Filter NAC-04-472

High voltage pulse noise type : NAP series Low leakage current type : NAM series

\*The EMI/EMC Filter is recommended

to connect with several devices

R2: with Remote ON/OFF

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.

③Output wattage
<ul><li>Universal input</li></ul>
⑤Output voltage
Optional *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

①Series name ②Single output

S: with Chassis SN: with Chassis & cover Y: with Potentiometer

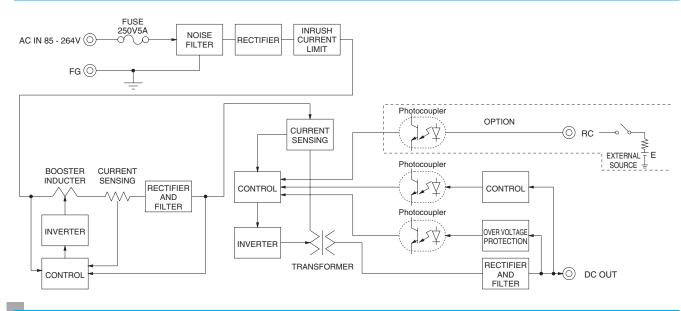
Please refer to Instruction manual 5.

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

	MODEL		LFA150F-3R3-Y	LFA150F-5-Y	LFA150F-12	LFA150F-15	LFA150F-24	LFA150F-24-H	LFA150F-36	LFA150F-48	
	VOLTAGE[V]		AC85 - 264 1	$\phi$ (Refer to I	nstruction Ma	inual 1.1 and	3.2) *4				
	CUDDENTIAL	ACIN 100V	1.4typ (Io=100%)	2.0typ (lo=1	00%)						
	CURRENT[A]	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	
INPUT	EFFICIENCY[%]	ACIN 200V	82.0typ	85.5typ	85.0typ	86.5typ	87.5typ	87.5typ	87.5typ	88.0typ	
	POWER FACTOR (Io=100%)		0.98typ	0.99typ							
	POWER FACTOR (IO=100%)	ACIN 200V	0.92typ	0.95typ							
	INRUSH CURRENT[A]			0%) (At cold s							
	INTIOSIT CONTILITINA	ACIN 200V	30typ (Io=100%) (At cold start) (Ta=25℃)								
	LEAKAGE CURREN	T[mA]	0.40 / 0.75m	ax (ACIN 100)	V / 240V 60H	lz, lo=100%, <i>l</i>	According to I	EC60950-1 a	nd DEN-AN)		
	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[		20max	20max	48max	60max	96max	96max	144max	192max	
	LOAD REGULATION		40max	40max	100max	120max	150max	150max	240max	240max	
	RIPPLE[mVp-p]	0 to +40℃ *2		80max	120max	120max	120max	240max	150max	150max	
	IIII I EE[IIIVP P]		140max	140max	160max	160max	160max	320max	200max	200max	
	RIPPLE NOISE[mVp-p]		120max	120max	150max	150max	150max	300max	250max	250max	
OUTPUT	HIFFEE NOISE[IIIVP-P]	-10-0℃ *2	160max	160max	180max	180max	180max	360max	300max	300max	
	TEMPERATURE REGULATION[mV]		50max	50max	120max	150max	240max	240max	360max	480max	
			60max	60max	150max	180max	290max	290max	450max	600max	
	DRIFT[mV] *3 20max			20max	48max	60max	96max	96max	144max	192max	
			· · · · · · · · · · · · · · · · ·	50typ (ACIN 100V, Io=100%) 0typ (ACIN 100V, Io=100%)							
	HOLD-UP TIME[ms]										
	OUTPUT VOLTAGE ADJUSTMENT					ption is availab					
	OUTPUT VOLTAGE SET					14.40 to 15.60					
	OVERCURRENT PROT					101% of pea					
PROTECTION	OVERVOLTAGE PROTE				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	
OTHERS	OPERATING INDICA	IION	Not provided								
OTTLENS	REMOTE SENSING			Not provided Option (Refer to Instruction Manual)							
	REMOTE ON/OFF INPUT-OUTPUT-RC	**				nA, DC500V 5	:0MO min /A	t Doom Tomn	oroturo)		
	INPUT-FG	*b									
ISOLATION	OUTPUT:RC-FG	*6		C2,000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (At Room Temperature)							
	OUTPUT-RC	*6		$C500V$ 1minute, Cutoff current = 25mA, DC500V 50M $\Omega$ min (At Room Temperature) $C100V$ 1minute, Cutoff current = 25mA, DC100V 10M $\Omega$ min (At Room Temperature)							
	OPERATING TEMP., HUMID.AND	ALTITUDE *4		10 to +70°C, 20 - 90%RH (Non condensing) (Refer to Instruction Manual 3.2), 3,000m (10,000feet) max							
	STORAGE TEMP., HUMID.AND			10 to +75°C, 20 - 90%RH (Non condensing) (Refer to instruction Manual 3.2), 3,000m (10,000feet) max							
ENVIRONMENT	VIBRATION	ALITIODE		- 55Hz, 19.6m/s² (2G), 3minutes period, 60minutes each along X, Y and Z axis							
	IMPACT			6.1m/s² (20G), 11ms, once each X, Y and Z axis							
SAFETY AND	AGENCY APPROVAL	LS				950-1, EN501	78 Complies v	with DEN-AN			
NOISE	CONDUCTED NOISE					, EN55011-B,					
REGULATIONS				h IEC61000-3		, ,					
	CASE SIZE/WEIGHT						(D) / 390g ma	ax (without ch	assis and cov	er)	
OTHERS	COOLING METHOD		75×37.0×160mm [2.95×1.46×6.30 inches] (W×H×D) / 390g max (without chassis and cover)  Convection (Refer to Instruction Manual 3.1 and 3.2) *4								
	COOLING WILL THOSE CONVECTION (Neter to Instruction Manual 3.1 and 3.2) ***										

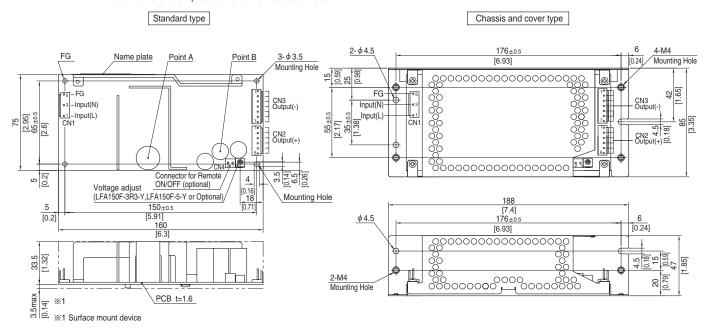
- \*1 Specification is changeed at option, refer to Instruction Manual. This is the value that measured on measuring board with
- capacitor of 22  $\mu\,F$  at 150mm from output terminal. Measured by 20MHz oscilloscope or Ripple-Noise meter (Equivalent to KEISOKU-GIKEN: RM103).
- \*3 Drift is the change in DC output for an eight hour period after a half-hour warm-up at 25°C, with the input voltage held constant
- at the rated input/output
- Derating is required. ( ) means peak current. There is a possibility that an internal device is damaged when the specification is exceeded. Please contact us about the detail.
- Applicable when remote control (optional) is added.
- 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.





## **External view**

\* External size of option is different from standard model.



- % 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	Т	erminal
Ch	ıa	1-1123724-3	1-1123722-5	Chain	1123721-1
CIN	11	1-1123724-3	1-1123722-5	Loose	1318912-1
0.1	10	4 4400700 0	1-1123722-6	Chain	1123721-1
CIN	12	1-1123723-6	1-1123/22-6	Loose	1318912-1
0.	10	4 4400700 7	1-1123722-7	Chain	1123721-1
CIN	13	1-1123723-7	1-1123/22-/	Loose	1318912-1

(Mfr:Tyco Electronics)

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

# -PIN CONNECTIONS

CHIN CONNECTIONS									
CN1			CN2			CN3			
Pin No.	Input		Pin No.	Output		Pin No.	Output		
1	AC(L)								
2									
3	AC(N)		1 to 6	+V		1 to 7	-V		
4									
5	FG								

- % Tolerance : ±1 [±0.04]
- Weight: 390g max (without chassis and cover)
- ※ PCB material : CEM3
- ※ Optional chassis and cover material : Electric galvanizing steel board.
- ※ Dimensions in mm, [ ]=inches
- $\ensuremath{\textrm{\%}}$  Mounting torque (Mounting hole of chassis) :1.5N  $^{\bullet}$  m (16kgf  $^{\bullet}$  cm) max

# Connector type

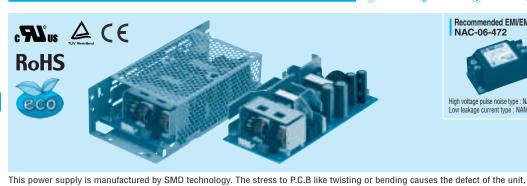
CN4 Option (Mfr:J.S.T)

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



High voltage pulse noise type : NAP series Low leakage current type : NAM series

Recommended EMI/EMC Filter NAC-06-472

2Single output 3Output wattage 4Universal input

①Series name

- ⑤Output voltage
- Optional \*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 5.

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

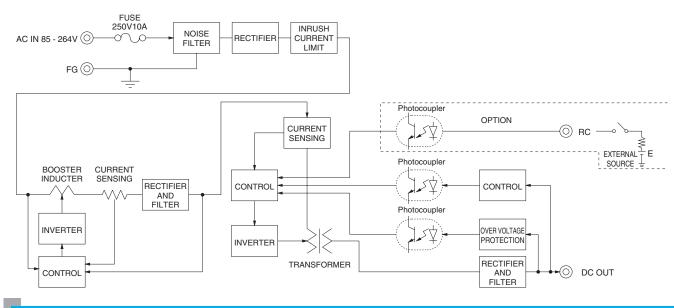
# **SPECIFICATIONS**

so handle the unit with care.

	MODEL		LFA240F-24	LFA240F-24-H	LFA240F-36	LFA240F-48					
	VOLTAGE[V]		AC85 - 264 1 φ (Refer to Instruction Manual 1.1 and 3.2) *4								
	CURRENTIAL ACIN 100V		V 3.3typ (Io=100%)								
	CURRENT[A]	ACIN 200V	1.7typ (Io=100%)								
	FREQUENCY[Hz]		50 / 60 (47 - 63)								
	EFFICIENCY[0/]	ACIN 100V	84.5typ	84.5typ	84.5typ	84.5typ					
INPUT	EFFICIENCY[%]	ACIN 200V	87.5typ	87.5typ	87.5typ	87.5typ					
	DOWER FACTOR (I. 4000())	ACIN 100V	0.99typ	•	•	•					
	POWER FACTOR (Io=100%)	ACIN 200V	0.95typ								
	INDUCUI OUDDENTIAL	ACIN 100V	15 / 30typ (Io=100%) (Pr	imary inrush current /Secon	dary inrush current) (More th	nen 3 sec. to re-start)					
	INRUSH CURRENT[A]	ACIN 200V	30 / 30typ (Io=100%) (Pr	imary inrush current /Secon	dary inrush current) (More th	nen 3 sec. to re-start)					
	LEAKAGE CURREN	T[mA]			, According to IEC60950-1 a						
	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					
	DIDDI ElmVa3	0 to +40℃ *2	120max	240max	150max	150max					
	RIPPLE[mVp-p]	-10 - 0°C *2	160max	320max	200max	200max					
	DIDDLE MOIOEL	0 to +40℃ *2	150max	300max	250max	250max					
OUTPUT	RIPPLE NOISE[mVp-p]	-10 - 0°C *2	180max	360max	300max	300max					
		0 to +40℃	240max	240max	360max	480max					
	TEMPERATURE REGULATION[mV]	-10 to +40°C	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					
	OVERCURRENT PROTECTION		Works over 105% of ratin	ng (works over 101% of pe	ak current at option -H) and	recovers automatically					
PROTECTION	OVERVOLTAGE PROTE	ECTION	27.60 to 33.60	27.60 to 33.60	41.40 to 50.40	55.20 to 67.20					
CIRCUIT AND	OPERATING INDICA	TION	Not provided								
OTHERS	REMOTE SENSING		Not provided								
	REMOTE ON/OFF		Option (Refer to Instruction Manual)								
	INPUT-OUTPUT-RC	*6	AC3,000V 1minute, Cutoff current = 10mA, DC500V 50M $\Omega$ min (At Room Temperature)								
ISOLATION	INPUT-FG		AC2,000V 1minute, Cutoff current = 10mA, DC500V 50M $\Omega$ min (At Room Temperature)								
ISOLATION	OUTPUT:RC-FG	*6	AC500V 1minute, Cutoff of	current = 25mA, DC500V 5	$0$ Μ $\Omega$ min (At Room Tempe	rature)					
	OUTPUT-RC	*6									
	OPERATING TEMP., HUMID. AND	ALTITUDE *4	-10 to +70°C, 20 - 90%RH (Non condensing) (Refer to Instruction Manual 3.2), 3,000m (10,000feet) max								
ENVIRONMENT	STORAGE TEMP., HUMID. AND	ALTITUDE	-20 to +75°C, 20 - 90%RH (Non condensing), 9,000m (30,000feet) max								
ENVIRONMENT	VIBRATION		10 - 55Hz, 19.6m/s <sup>2</sup> (2G),	3minutes period, 60minutes	tes each along X, Y and Z ax	(is					
	IMPACT		196.1m/s² (20G), 11ms, o								
SAFETY AND	AGENCY APPROVAL	LS	UL60950-1, C-UL (CSA60	0950-1), EN60950-1, EN50	178 Complies with DEN-AN						
NOISE	CONDUCTED NOISE		Complies with FCC-B, VC	CI-B, CISPR-B, EN55011-E	8, EN55022-B						
REGULATIONS	HARMONIC ATTENU	JATOR	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	XD) / 550g max (without c	hassis and cover)					
OTHERS	COOLING METHOD		Convection (Refer to Instr	uction Manual 3.1 and 3.2)	*4						
14 0 10 1		r to Inoterrati	on Manual at the reted input		* O Diagos contact us about						

- \*1 Specification is changeed at option, refer to Instruction Manual. This is the value that measured on measuring board with
- capacitor of 22 µ F at 150mm from output terminal. Measured by 20MHz oscilloscope or Ripple-Noise meter (Equivalent to KEISOKU-GIKEN: RM103).
- 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
- Derating is required. ( ) means peak current. There is a possibility that an internal device is damaged when the specification is exceeded. Please contact us about the detail.
- Applicable when remote control (optional) is added.
- 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.



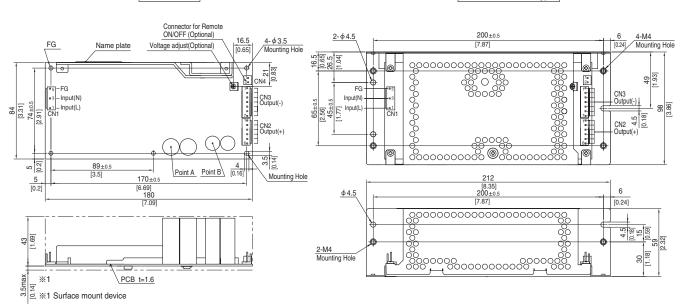


## **External view**

\* External size of option is different from standard model.

Standard type

Chassis and cover type



- \* The back side of P.C.B. of the power supply is assembled some
- 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/C	Connector	Mating connector	Т	erminal		
CNI	1-1123724-3	1-1123722-5	Chain	1123721-1		
CN1	1-1123/24-3	1-1123722-5	Loose	1318912-1		
0110	1-1123723-6	1123723-6 1-1123722-6 Chain 1123		1123721-1		
CINZ	1-1123723-6	1-1123722-0	Loose	1318912-1		
	4 4400700 7	1-1123722-7	Chain 112372	1123721-1		
CN3	1-1123723-7	1-1123722-7	Loose	1318912-1		
			Loose	1310312-1		

(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)									
2										
3	AC(N)		1 to 6	+V		1 to 7	-V			
4										
5	FG									
W. K description and the last EA for ONIO ONIO										

- % Keep drawing current per pin below 5A for CN2,CN3.
- % Tolerance : ±1 [±0.04]
- % Weight: 550g max (without chassis and cover)
- \* 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 LFA

c Sus Livrheinted CE **RoHS** 



High voltage pulse noise type: NAP series Low leakage current type: NAM series

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

- H: with the function to be acceptable to output peak current (Only 24V, 30V, 36V and 48V)

  J: EP (190e Electronics) connector type (Except 3.3V and 5V)

  J: VH (J.-S.T.) connector type (Except 3.3V and 5V)

  R: with Remote ON/OFF

  R2: with Remote ON/OFF

  S2: with Chassis
  SNF: with Chassis & cover & fan (Only 5V, 12V and 24V)

  TI: Holizontal terminal block

	So handle the till with care.										uction manual 5.
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
	DC OUTPUT *5	Forced air	3.3V 60A	5V 60A	12V 27A	15V 22A	24V 14A	24V 14 (19)A	30V 11A	36V 9.4A	48V 7A

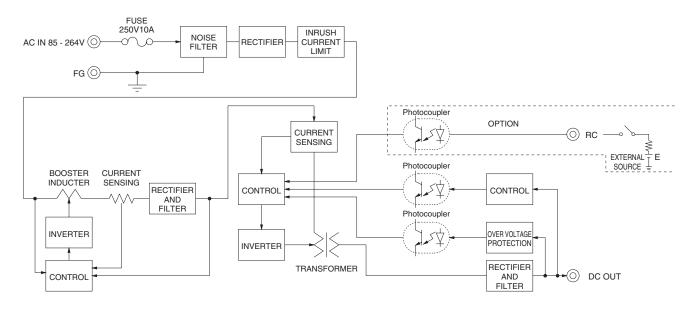
This power supply is manufactured by SMD technology. The stress to P.C.B like twisting or bending causes the defect of the unit,

	ICATIONS														
	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				
	VOLTAGE[V]		AC85 - 264 1 $\phi$ (Refer to Instruction Manual 1.1 and 3.2) *4												
	OUDDENTIAL	ACIN 100V	2.7typ (Io=100%) 4.1typ (Io=100%)												
	CURRENT[A]	ACIN 200V	1.4typ (lo=100%)   2.0typ (lo=100%)												
	FREQUENCY[Hz]		50 / 60 (47 - 63)												
		ACIN 100V	75.0typ	79.0tvp	80.0typ	81.5typ	85.0typ	85.0typ	85.5typ	85.5tvp	85.5tvp				
INPUT	EFFICIENCY[%]	ACIN 200V	77.0typ	82.5typ	83.0typ	84.5typ	88.0typ	88.0typ	88.0typ	88.0typ	88.0typ				
	DOMES - 1 0 - 0 - 1 0 -	ACIN 100V	0.98typ	0.99typ											
	POWER FACTOR (Io=100%)	ACIN 200V	0.92typ	0.95typ											
		ACIN 100V	15 / 30typ	Io=100%) (	Primary inru	sh current /S	Secondary inr	ush current)	(More then 3	3 sec. to re-s	tart)				
	INRUSH CURRENT[A]	ACIN 200V					Secondary inr								
	LEAKAGE CURREN	•						, According to IEC60950-1 and DEN-AN)							
	VOLTAGE[V]		3.3	5	12	15	24	24	30	36	48				
		Convection	40	40	17	14	12.5	12.5 (Peak19)	10	8.4	6.3				
	CURRENT[A] *5	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°C *2	80max	80max	120max	120max	120max	240max	150max	150max	150max				
		-10-0℃ *2	140max	140max	160max	160max	160max	320max	200max	200max	200max				
		0 to +40℃ *2	120max	120max	150max	150max	150max	300max	250max	250max	250max				
OUTPUT	RIPPLE NOISE[mVp-p]	-10-0℃ *2	160max	160max	180max	180max	180max	360max	300max	300max	300max				
	TEMPERATURE REGULATION[mV]	0 to +40°C	50max	50max	120max	150max	240max	240max	360max	360max	480max				
		-10 to +40°C	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				
	OVERCURRENT PROTECTION		Works over	105% of ra	ting (works	over 101%	of peak curre	ent at option	-H) and rec	overs auton	natically				
PROTECTION	OVERVOLTAGE PROTE	CTION	4.00 to 5.25	5.75 to 7.00	13.80 to 16.80	17.25 to 21.00	27.60 to 33.60	27.60 to 33.60	34.50 to 42.00	41.40 to 50.40	55.20 to 67.20				
<b>CIRCUIT AND</b>	OPERATING INDICA	TION	Not provided												
OTHERS	REMOTE SENSING		Not provide	d											
	REMOTE ON/OFF				ction Manua										
	INPUT-OUTPUT-RC	*6	AC3,000V 1minute, Cutoff current = 10mA, DC500V 50M $\Omega$ min (At Room Temperature)												
ISOLATION	INPUT-FG		AC2,000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (At Room Temperature)												
ISOLATION	OUTPUT-RC-FG	*6					00V 50MΩ n								
	OUTPUT-RC	*6	AC100V 1minute, Cutoff current = 25mA, DC100V 10M $\Omega$ min (At Room Temperature)												
	OPERATING TEMP., HUMID. AND A	ALTITUDE *4	-10 to +70°C, 20 - 90%RH (Non condensing) (Refer to Instruction Manual 3.2), 3,000m (10,000feet) max								eet) max				
ENVIRONMENT	STORAGE TEMP., HUMID. AND ALTITUDE						0,000m (30,0								
LIVINONWLIVI	VIBRATION		10 - 55Hz,	19.6m/s² (20	G), 3minutes	period, 60r	minutes each	along X, Y	and Z axis						
	IMPACT				s, once each										
SAFETY AND	AGENCY APPROVAL						EN50178 Co		DEN-AN						
NOISE	CONDUCTED NOISE						)11-B, EN55	022-B							
REGULATIONS	HARMONIC ATTENUATOR				0-3-2 (Class										
OTHERS	CASE SIZE/WEIGHT						V×H×D) (w		nal block) /	810g max					
O.HEHO	COOLING METHOD		Convection / Forced air (Refer to Instruction Manual 3.1 and 3.2) *4												

- Specification is changeed at option, refer to Instruction Manual
- This is the value that measured on measuring board with capacitor of 22 µ F at 150mm from output terminal. Measured by 20MHz oscilloscope or Ripple-Noise meter (Equivalent to KEISOKU-GIKEN: RM103).
- 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
- Derating is required. ( ) means peak current. There is a possibility that an internal device is damaged when the specification is exceeded. Please contact us about the detail..
- Applicable when remote control (optional) is added.
- Please contact us about dynamic load and input response.
- 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.



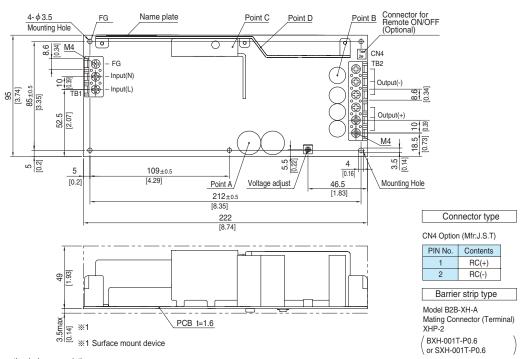




#### **External view**

\* External size of option is different from standard model.

# Standard type



- $\ensuremath{\mathbb{X}}$  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 (without chassis and cover)PCB material: CEM3
- ※ Dimensions in mm, [ ]=inches
- \* Screw tightening torque : M4 1.6N · m (16.9kgf · cm) max