

- ① Series name
- ② Output wattage
- ③ Universal input
- ④ Output voltage
- ⑤ Optional
  - C : with Coating
  - G : Low leakage current
  - J2: Mini terminal block
  - R : with Remote ON/OFF
  - S : with Chassis
  - SN: with Chassis & cover
  - Y : with Potentiometer

MODEL	LEA50F-3R3-Y	LEA50F-5	LEA50F-9	LEA50F-12	LEA50F-15	LEA50F-18	LEA50F-24	LEA50F-24-H	LEA50F-30	LEA50F-48
MAX OUTPUT WATTAGE[W]	33	50	50.4	51.6	52.5	50.4	50.4	50.4	51	52.8
DC OUTPUT	*5 3.3V 10A	5V 10A	9V 5.6A	12V 4.3A	15V 3.5A	18V 2.8A	24V 2.1A	24V 2.1(2.6)A	30V 1.7A	48V 1.1A

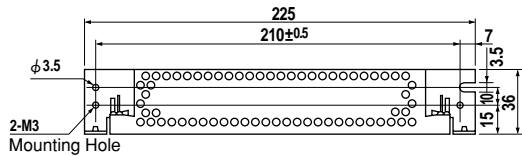
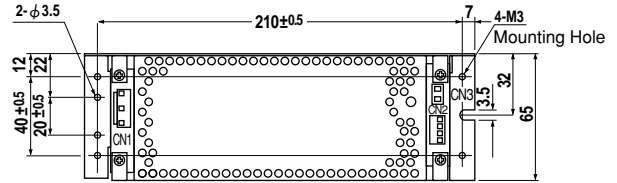
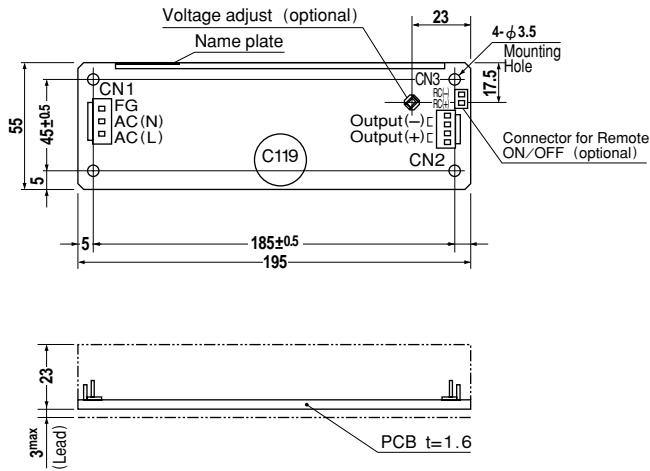
## SPECIFICATIONS

	MODEL	LEA50F-3R3-Y	LEA50F-5	LEA50F-9	LEA50F-12	LEA50F-15	LEA50F-18	LEA50F-24	LEA50F-24-H	LEA50F-30	LEA50F-48	
INPUT	VOLTAGE[V]	AC85 - 264 1φ or DC120 - 370										
	CURRENT[A]	ACIN 100V	0.6	0.7typ								
		ACIN 200V	0.3	0.35typ								
	FREQUENCY[Hz]	50/60 (47 - 63) or DC										
	EFFICIENCY[%]	ACIN 100V	70typ	75typ	78typ	78typ	79typ	80typ	81typ	81typ	82typ	83typ
		ACIN 200V	71typ	77typ	80typ	80typ	81typ	82typ	83typ	83typ	84typ	85typ
	POWER FACTOR	ACIN 100V	0.98typ	0.99typ								
		ACIN 200V	0.91typ	0.93typ								
	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]	0.75max (60Hz, According to IEC60950 and DEN-AN)											
OUTPUT	VOLTAGE[V]	3.3	5	9	12	15	18	24	24	30	48	
	CURRENT[A]	*1 10	10	5.6	4.3	3.5	2.8	2.1	2.1 (Peak 2.6)	1.7	1.1	
	LINE REGULATION[mV]	20max	20max	36max	48max	60max	72max	96max	96max	120max	192max	
	LOAD REGULATION[mV]	40max	40max	100max	100max	120max	120max	150max	150max	180max	300max	
	RIPPLE[mVp-p]	0 to +50°C *2	80max	80max	120max	120max	120max	120max	150max	150max	180max	300max
		-10 - 0°C *2	140max	140max	160max	160max	160max	160max	160max	160max	160max	200max
	RIPPLE NOISE[mVp-p]	0 to +50°C *2	120max	120max	150max	150max	150max	150max	150max	150max	150max	350max
		-10 - 0°C *2	160max	160max	180max	180max	180max	180max	180max	180max	180max	400max
	TEMPERATURE REGULATION[mV]	0 to +50°C	50max	50max	90max	120max	150max	180max	240max	240max	300max	480max
		-10 to +50°C	60max	60max	120max	150max	180max	200max	290max	290max	360max	600max
	DRIFT[mV]	*3 20max	20max	36max	48max	60max	72max	96max	96max	120max	192max	
	START-UP TIME[ms]	500max (ACIN 100V, Io=100%)										
	HOLD-UP TIME[ms]	20typ (Io=100%)										
	OUTPUT VOLTAGE ADJUSTMENT RANGE[V]	2.85 - 3.6	Fixed (*Y which can be adjusted the output is available as optional: ±10%)									
	OUTPUT VOLTAGE SETTING[V]	3.25 - 3.35	4.9 - 5.3	8.6 - 9.4	11.5 - 12.5	14.4 - 15.6	17.3 - 18.7	23.0 - 25.0	23.0 - 25.0	28.5 - 31.5	46.0 - 50.0	
PROTECTION CIRCUIT AND OTHERS	OVERCURRENT PROTECTION	Works over 105% of rating (works over 105% of peak current at option -H) and recovers automatically										
	OVERVOLTAGE PROTECTION	4.00 - 5.25V   Works at 115 - 140% of rating										
	OPERATING INDICATION	Not provided										
	REMOTE SENSING	Not provided										
REMOTE ON/OFF	Option (Refer to Instruction Manual)											
ISOLATION	INPUT-OUTPUT · RC	*4 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	*4 AC500V 1minute, Cutoff current = 100mA, DC500V 50MΩ min (At Room Temperature)										
	OUTPUT-RC	*4 AC100V 1minute, Cutoff current = 100mA, DC100V 10MΩ min (At Room Temperature)										
ENVIRONMENT	OPERATING TEMP., HUMID. AND ALTITUDE	-10 to +70°C, 20 - 90%RH (Non condensing) (Refer to DERATING CURVE), 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	UL1950, C-UL, EN60950, VDE0160 Complies with DEN-AN and IEC60950 (At only AC input)										
	CONDUCTED NOISE	Complies with FCC-B, CISPR22-B, EN55022-B, VCCI-B										
	HARMONIC ATTENUATOR	Complies with IEC61000-3-2										
	CASE SIZE/WEIGHT	55×26×195mm (W×H×D) /210g max (without chassis and cover)										
OTHERS	COOLING METHOD	Convection										

\*1 Peak load for 10sec. or less is acceptable if the total wattage is less than the rated wattage.  
 \*2 This is the value that measured on measuring board with capacitor of 22 μF within 150mm from output terminal.  
 Measured by 20MHz oscilloscope or Ripple-Noise meter (Equivalent to KEISOKU-GIKEN: RM101).  
 \*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.  
 \*4 Applicable when remote control (optional) is added.  
 \*5 ( ): peak current.  
 \* Parallel operation with other model is not possible.  
 \* Derating is required when operated with chassis and cover.

External view



I / O Connector	Mating Connector	Terminal	
CN1	B3P5-VH	VHR-5N	Chain: SVH-21T-P1.1
			Loose: BVH-21T-P1.1
CN2	B4P-VH	VHR-4N	Chain: SVH-21T-P1.1
			Loose: BVH-21T-P1.1
CN3	B2B-XH-A	XHP-2	Chain: SXH-001T-P0.6
			Loose: BXH-001T-P0.6

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

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

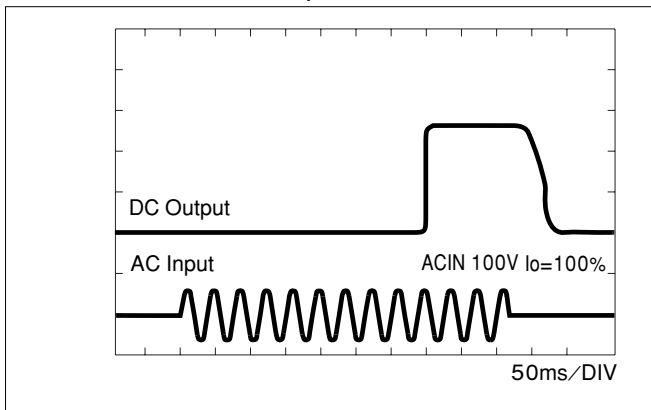
Pin No.	Remote ON/OFF
1	RC(+)
2	RC(-)

※Weight: 210g or less (Without chassis and cover)  
 ※Tolerance: ±1  
 ※Dimensions in mm.  
 ※PCB Material: Glass composite (CEM3)  
 ※Chassis and cover is optional.  
 ※Mounting torque: 0.6N·m(6.3kgf·cm)max

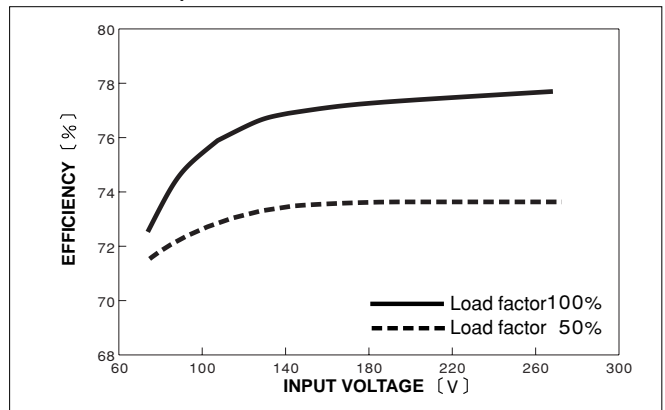
(Mfr: J.S.T.) ※Keep drawing current per pin below 5A for CN2

Performance data

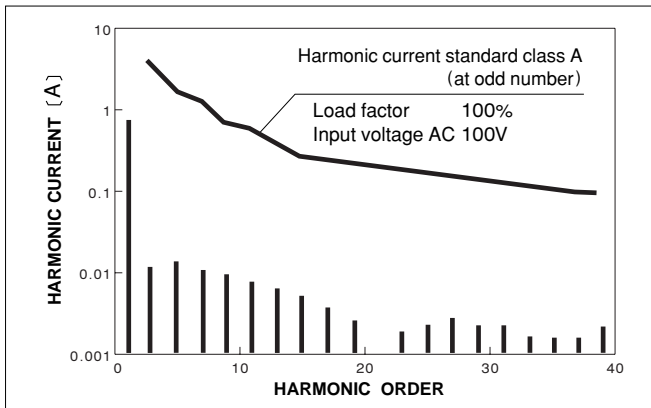
RISE TIME & FALL TIME (LEA50F-5)



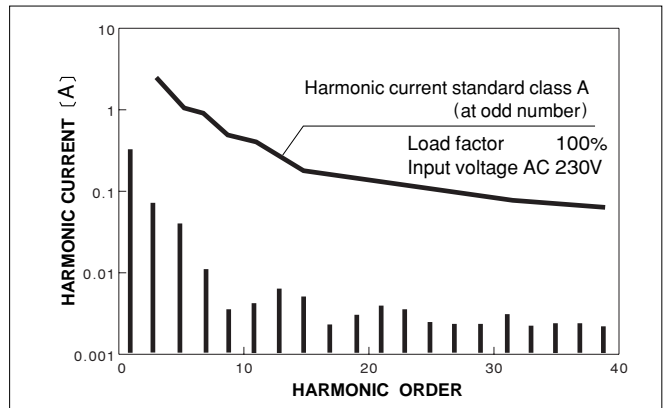
EFFICIENCY (LEA50F-5)

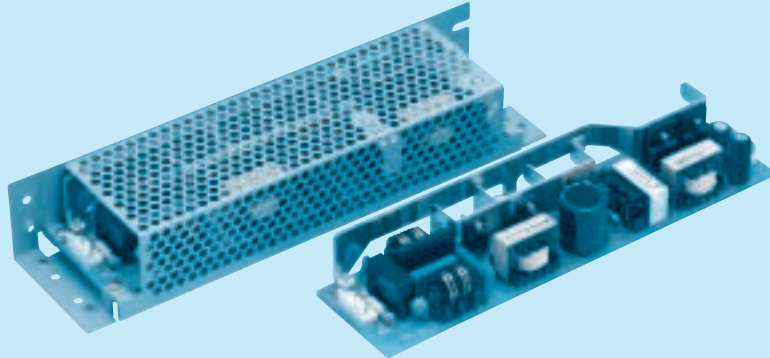


INPUT HARMONIC CURRENT (LEA50F-5)



INPUT HARMONIC CURRENT (LEA50F-5)





- ① Series name
- ② Output wattage
- ③ Universal input
- ④ Output voltage
- ⑤ Optional
  - C : with Coating
  - G : Low leakage current
  - J2: Mini terminal block
  - R : with Remote ON/OFF
  - S : with Chassis
  - SN: with Chassis & cover
  - Y : with Potentiometer

MODEL	LEA75F-3R3-Y	LEA75F-5	LEA75F-9	LEA75F-12	LEA75F-15	LEA75F-18	LEA75F-24	LEA75F-24-H	LEA75F-30	LEA75F-48
MAX OUTPUT WATTAGE[W]	49.5	75	76.5	75.6	75	75.6	76.8	76.8	75	76.8
DC OUTPUT	*5 3.3V 15A	5V 15A	9V 8.5A	12V 6.3A	15V 5A	18V 4.2A	24V 3.2A	24V 3.2(3.8)A	30V 2.5A	48V 1.6A

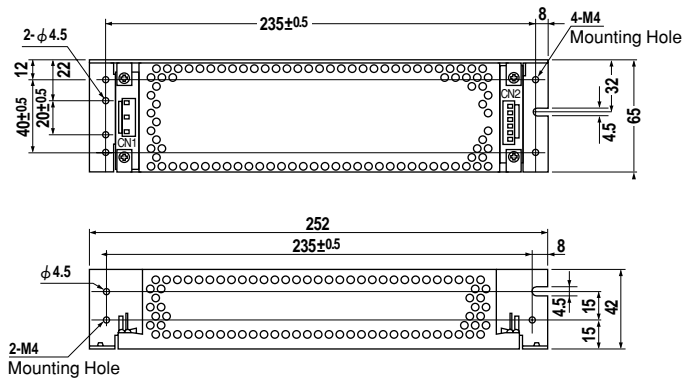
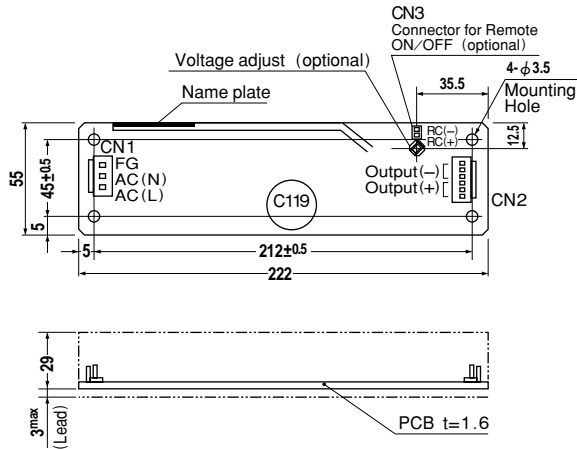
## SPECIFICATIONS

	MODEL	LEA75F-3R3-Y	LEA75F-5	LEA75F-9	LEA75F-12	LEA75F-15	LEA75F-18	LEA75F-24	LEA75F-24-H	LEA75F-30	LEA75F-48	
INPUT	VOLTAGE[V]	AC85 - 264 1φ or DC120 - 370										
	CURRENT[A]	ACIN 100V	0.8	1.1typ								
		ACIN 200V	0.4	0.55typ								
	FREQUENCY[Hz]	50/60 (47 - 63) or DC										
	EFFICIENCY[%]	ACIN 100V	70typ	75typ	78typ	78typ	79typ	81typ	82typ	82typ	82typ	84typ
		ACIN 200V	71typ	77typ	80typ	80typ	81typ	83typ	84typ	84typ	84typ	86typ
	POWER FACTOR	ACIN 100V	0.98typ	0.99typ								
		ACIN 200V	0.92typ	0.94typ								
	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]	0.75max (60Hz, According to IEC60950 and DEN-AN)											
OUTPUT	VOLTAGE[V]	3.3	5	9	12	15	18	24	24	30	48	
	CURRENT[A]	*1 15	15	8.5	6.3	5	4.2	3.2	3.2 (Peak 3.8)	2.5	1.6	
	LINE REGULATION[mV]	20max	20max	36max	48max	60max	72max	96max	96max	120max	192max	
	LOAD REGULATION[mV]	40max	40max	100max	100max	120max	120max	150max	150max	180max	300max	
	RIPPLE[mVp-p]	0 to +50°C *2	80max	80max	120max	120max	120max	120max	150max	150max	180max	300max
		-10 - 0°C *2	140max	140max	160max	160max	160max	160max	160max	160max	160max	200max
	RIPPLE NOISE[mVp-p]	0 to +50°C *2	120max	120max	150max	150max	150max	150max	150max	150max	150max	350max
		-10 - 0°C *2	160max	160max	180max	180max	180max	180max	180max	180max	180max	400max
	TEMPERATURE REGULATION[mV]	0 to +50°C	50max	50max	90max	120max	150max	180max	240max	240max	300max	480max
		-10 to +50°C	60max	60max	120max	150max	180max	200max	290max	290max	360max	600max
	DRIFT[mV]	*3 20max	20max	36max	48max	60max	72max	96max	96max	120max	192max	
	START-UP TIME[ms]	500max (ACIN 100V, Io=100%)										
	HOLD-UP TIME[ms]	20typ (Io=100%)										
	OUTPUT VOLTAGE ADJUSTMENT RANGE[V]	2.85 - 3.6	Fixed (*Y which can be adjusted the output is available as optional: ±10%)									
	OUTPUT VOLTAGE SETTING[V]	3.25 - 3.35	4.9 - 5.3	8.6 - 9.4	11.5 - 12.5	14.4 - 15.6	17.3 - 18.7	23.0 - 25.0	23.0 - 25.0	28.5 - 31.5	46.0 - 50.0	
PROTECTION CIRCUIT AND OTHERS	OVERCURRENT PROTECTION	Works over 105% of rating (works over 105% of peak current at option -H) and recovers automatically										
	OVERVOLTAGE PROTECTION	4.00 - 5.25V   Works at 115 - 140% of rating										
	OPERATING INDICATION	Not provided										
	REMOTE SENSING	Not provided										
REMOTE ON/OFF	Option (Refer to Instruction Manual)											
ISOLATION	INPUT-OUTPUT · RC	*4 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	*4 AC500V 1minute, Cutoff current = 100mA, DC500V 50MΩ min (At Room Temperature)										
	OUTPUT-RC	*4 AC100V 1minute, Cutoff current = 100mA, DC100V 10MΩ min (At Room Temperature)										
ENVIRONMENT	OPERATING TEMP., HUMID. AND ALTITUDE	-10 to +70°C, 20 - 90%RH (Non condensing) (Refer to DERATING CURVE), 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	UL1950, C-UL, EN60950, VDE0160 Complies with DEN-AN and IEC60950 (At only AC input)										
	CONDUCTED NOISE	Complies with FCC-B, CISPR22-B, EN55022-B, VCCI-B										
	HARMONIC ATTENUATOR	Complies with IEC61000-3-2										
OTHERS	CASE SIZE/WEIGHT	55 x 32 x 222mm (W x H x D) /290g max (without chassis and cover)										
	COOLING METHOD	Convection										

\*1 Peak load for 10 sec. or less is acceptable if the total wattage is less than the rated wattage.  
 \*2 This is the value that measured on measuring board with capacitor of 22 μF within 150mm from output terminal.  
 Measured by 20MHz oscilloscope or Ripple-Noise meter (Equivalent to KEISOKU-GIKEN: RM101).  
 \*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.  
 \*4 Applicable when remote control (optional) is added.  
 \*5 ( ): peak current.  
 \* Parallel operation with other model is not possible.  
 \* Derating is required when operated with chassis and cover.

External view



I / O Connector	Mating Connector	Terminal
CN1	B3P5-VH	VHR-5N
CN2	B6P-VH	VHR-6N
CN3	B2B-XH-A	XHP-2

(PIN CONNECTION)

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

Pin No.	Output
1~3	-V
4~6	+V

(Optional)

Pin No.	Remote ON/OFF
1	RC(+)
2	RC(-)

- ※Weight: 290g or less (Without chassis and cover)
- ※Tolerance: ±1
- ※Dimensions in mm.
- ※PCB Material: Glass composite (CEM3)
- ※Chassis and cover is optional.
- ※Chassis and cover is not available to remote ON/OFF unit.
- ※Mounting torque: 1.5N·m(16kgf·cm)max

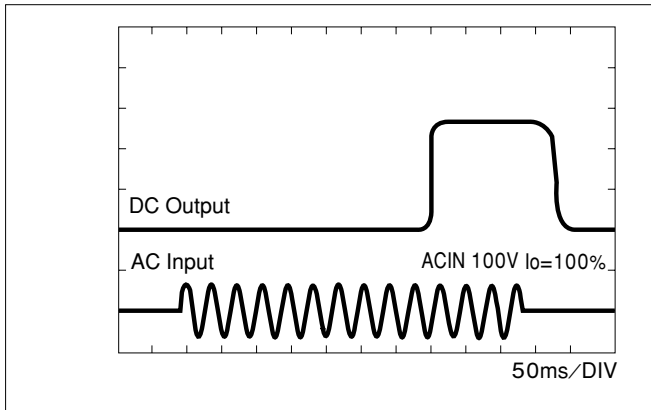
(Mfr: J.S.T.)

※Keep drawing current per pin below 5A for CN2

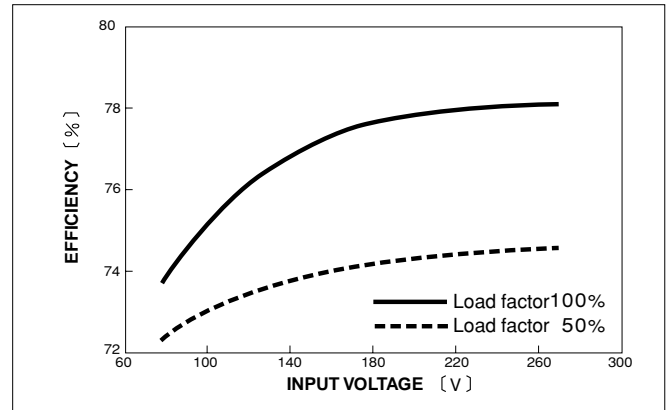
LEA

Performance data

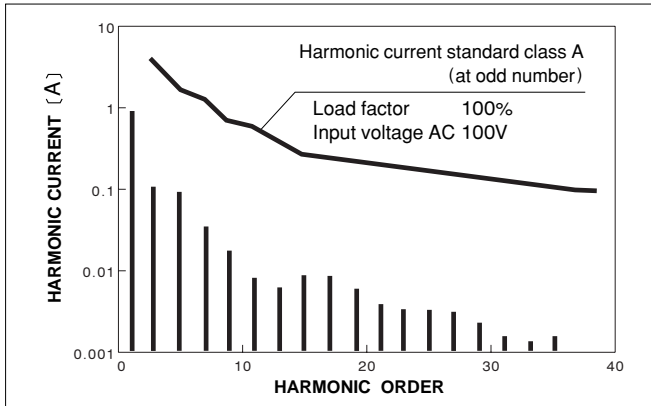
RISE TIME & FALL TIME (LEA75F-5)



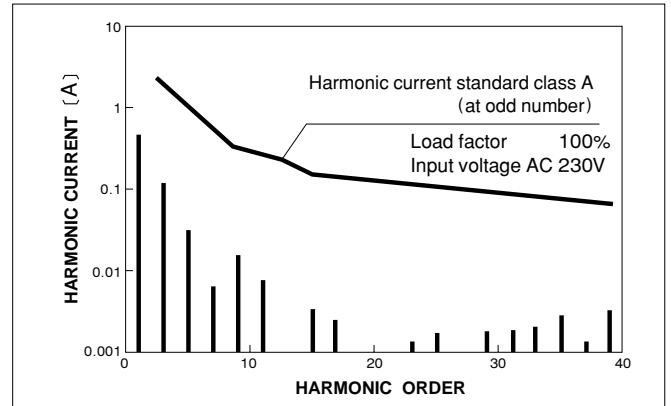
EFFICIENCY (LEA75F-5)

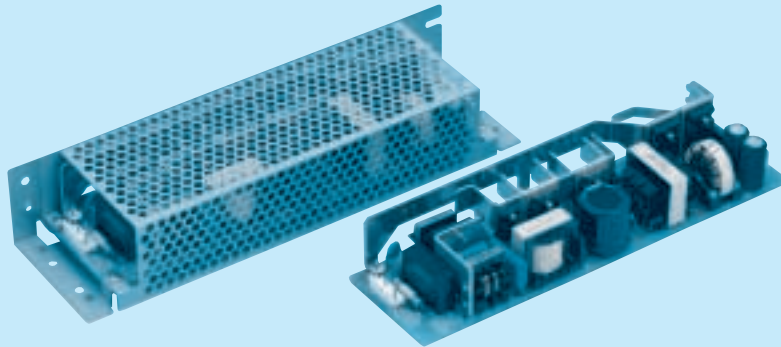


INPUT HARMONIC CURRENT (LEA75F-5)



INPUT HARMONIC CURRENT (LEA75F-5)





- ① Series name
- ② Output wattage
- ③ Universal input
- ④ Output voltage
- ⑤ Optional
  - C :with Coating
  - G :Low leakage current
  - J2:Mini terminal block
  - R :with Remote ON/OFF
  - S :with Chassis
  - SN:with Chassis & cover
  - Y :with Potentiometer

MODEL	LEA100F-3R3-Y	LEA100F-5	LEA100F-9	LEA100F-12	LEA100F-15	LEA100F-18	LEA100F-24	LEA100F-24-H	LEA100F-30	LEA100F-48
MAX OUTPUT WATTAGE[W]	66	100	103.5	102	100.5	100.8	103.2	103.2	105	105.6
DC OUTPUT	*5 3.3V 20A	5V 20A	9V 11.5A	12V 8.5A	15V 6.7A	18V 5.6A	24V 4.3A	24V 4.3(5.0)A	30V 3.5A	48V 2.2A

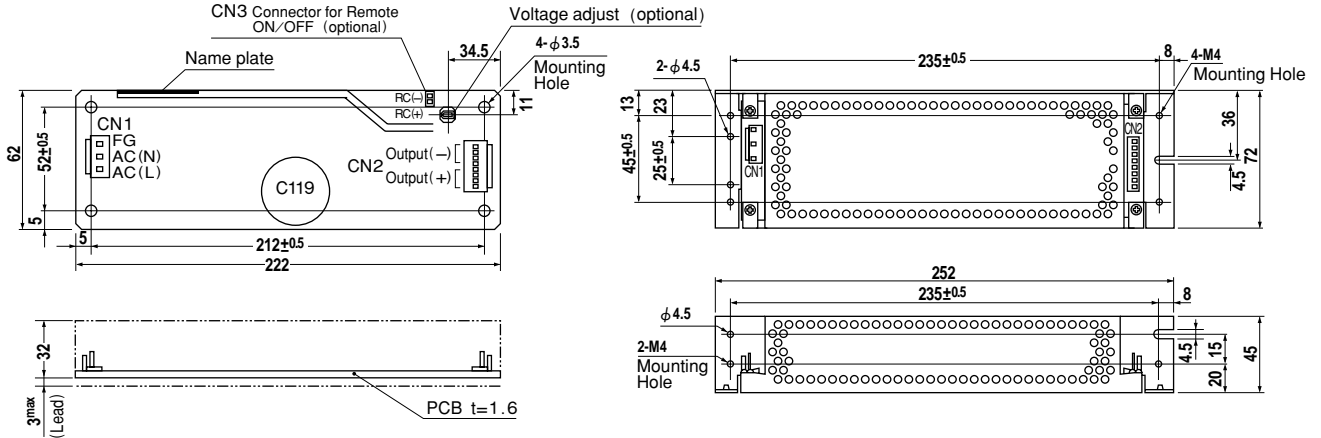
SPECIFICATIONS

	MODEL	LEA100F-3R3-Y	LEA100F-5	LEA100F-9	LEA100F-12	LEA100F-15	LEA100F-18	LEA100F-24	LEA100F-24-H	LEA100F-30	LEA100F-48	
INPUT	VOLTAGE[V]	AC85 - 264 1φ or DC120 - 370										
	CURRENT[A]	ACIN 100V	1.0	1.4typ								
		ACIN 200V	0.5	0.7typ								
	FREQUENCY[Hz]	50/60 (47 - 63) or DC										
	EFFICIENCY[%]	ACIN 100V	71typ	75typ	79typ	79typ	79typ	81typ	81typ	81typ	82typ	83typ
		ACIN 200V	73typ	78typ	81typ	81typ	82typ	83typ	84typ	84typ	85typ	85typ
	POWER FACTOR	ACIN 100V	0.98typ	0.99typ								
		ACIN 200V	0.92typ	0.94typ								
	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]	0.75max (60Hz, According to IEC60950 and DEN-AN)											
OUTPUT	VOLTAGE[V]	3.3	5	9	12	15	18	24	24	30	48	
	CURRENT[A]	*1 20	20	11.5	8.5	6.7	5.6	4.3	4.3 (Peak 5.0)	3.5	2.2	
	LINE REGULATION[mV]	20max	20max	36max	48max	60max	72max	96max	96max	120max	192max	
	LOAD REGULATION[mV]	40max	40max	100max	100max	120max	120max	150max	150max	180max	300max	
	RIPPLE[mVp-p]	0 to +50°C *2	80max	80max	120max	120max	120max	120max	120max	120max	150max	150max
		-10 - 0°C *2	140max	140max	160max	160max	160max	160max	160max	160max	160max	200max
	RIPPLE NOISE[mVp-p]	0 to +50°C *2	120max	120max	150max	150max	150max	150max	150max	150max	150max	350max
		-10 - 0°C *2	160max	160max	180max	180max	180max	180max	180max	180max	180max	400max
	TEMPERATURE REGULATION[mV]	0 to +50°C	50max	50max	90max	120max	150max	180max	240max	240max	300max	480max
		-10 to +50°C	60max	60max	120max	150max	180max	200max	290max	290max	360max	600max
	DRIFT[mV]	*3 20max	20max	36max	48max	60max	72max	96max	96max	120max	192max	
	START-UP TIME[ms]	500max (ACIN 100V, Io=100%)										
	HOLD-UP TIME[ms]	20typ (Io=100%)										
	OUTPUT VOLTAGE ADJUSTMENT RANGE[V]	2.85 - 3.6	Fixed (*Y which can be adjusted the output is available as optional: ±10%)									
	OUTPUT VOLTAGE SETTING[V]	3.25 - 3.35	4.9 - 5.3	8.6 - 9.4	11.5 - 12.5	14.4 - 15.6	17.3 - 18.7	23.0 - 25.0	23.0 - 25.0	28.5 - 31.5	46.0 - 50.0	
PROTECTION CIRCUIT AND OTHERS	OVERCURRENT PROTECTION	Works over 105% of rating (works over 105% of peak current at option -H) and recovers automatically										
	OVERVOLTAGE PROTECTION	4.00 - 5.25V   Works at 115 - 140% of rating										
	OPERATING INDICATION	Not provided										
	REMOTE SENSING	Not provided										
REMOTE ON/OFF	Option (Refer to Instruction Manual)											
ISOLATION	INPUT-OUTPUT · RC	*4 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	*4 AC500V 1minute, Cutoff current = 100mA, DC500V 50MΩ min (At Room Temperature)										
	OUTPUT-RC	*4 AC100V 1minute, Cutoff current = 100mA, DC100V 10MΩ min (At Room Temperature)										
ENVIRONMENT	OPERATING TEMP., HUMID. AND ALTITUDE	-10 to +70°C, 20 - 90%RH (Non condensing) (Refer to DERATING CURVE), 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	UL1950, C-UL, EN60950, VDE0160 Complies with DEN-AN and IEC60950 (At only AC input)										
	CONDUCTED NOISE	Complies with FCC-B, CISPR22-B, EN55022-B, VCCI-B										
	HARMONIC ATTENUATOR	Complies with IEC61000-3-2										
	CASE SIZE/WEIGHT	62 X 35 X 222mm (W X H X D) /380g max (without chassis and cover)										
OTHERS	COOLING METHOD	Convection										

\*1 Peak load for 10 sec. or less is acceptable if the total wattage is less than the rated wattage.  
 \*2 This is the value that measured on measuring board with capacitor of 22 μF within 150mm from output terminal.  
 Measured by 20MHz oscilloscope or Ripple-Noise meter (Equivalent to KEISOKU-GIKEN: RM101).  
 \*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.  
 \*4 Applicable when remote control (optional) is added.  
 \*5 ( ): peak current.  
 \* Parallel operation with other model is not possible.  
 \* Derating is required when operated with chassis and cover.

External view



I / O Connector	Mating Connector	Terminal	
CN1	B3P5-VH	VHR-5N	Chain: SVH-21T-P1.1
			Loose: BVH-21T-P1.1
CN2	B8P-VH	VHR-8N	Chain: SVH-21T-P1.1
			Loose: BVH-21T-P1.1
CN3	B2B-XH-A	XHP-2	Chain: SXH-001T-P0.6
			Loose: BXH-001T-P0.6

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

Pin No.	Output
1~4	-V
5~8	+V

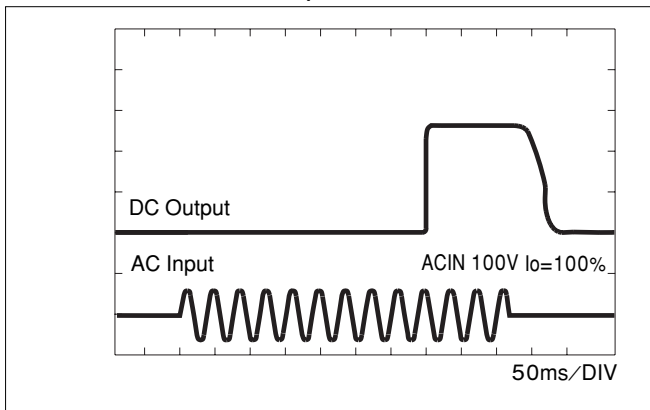
  

Pin No.	Remote ON/OFF
1	RC(+)
2	RC(-)

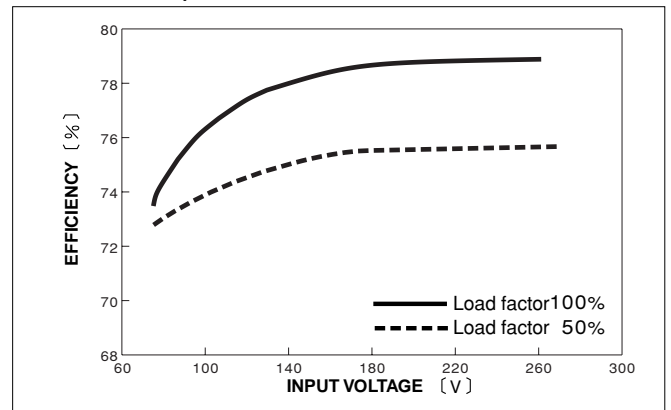
- ※Weight: 380g or less (Without chassis and cover)
- ※Tolerance: ±1
- ※Dimensions in mm.
- ※PCB Material: Glass composite (CEM3)
- ※Chassis and cover is optional.
- ※Chassis and cover is not available to remote ON/OFF unit.
- ※Mounting torque: 1.5N · m(16kgf · cm)max

Performance data

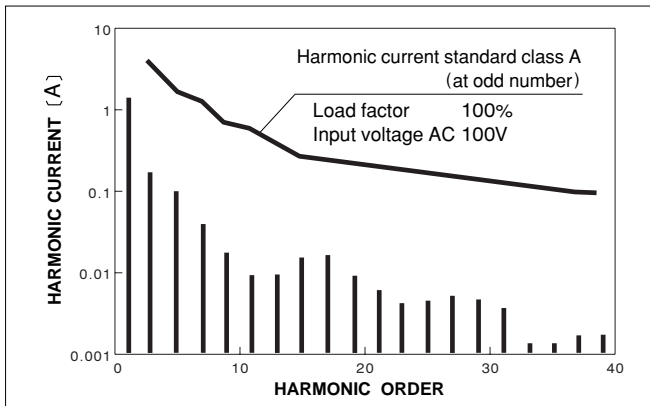
RISE TIME & FALL TIME (LEA100F-5)



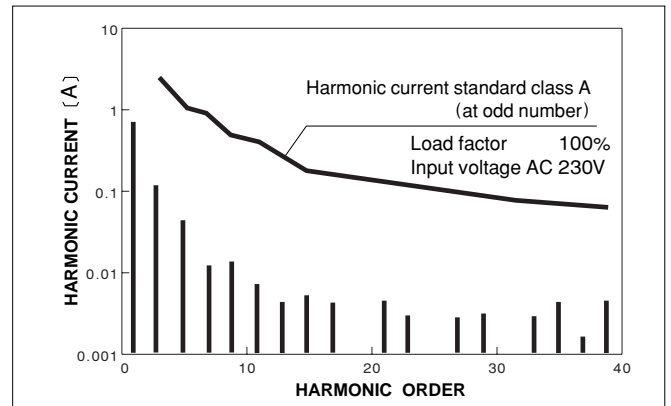
EFFICIENCY (LEA100F-5)

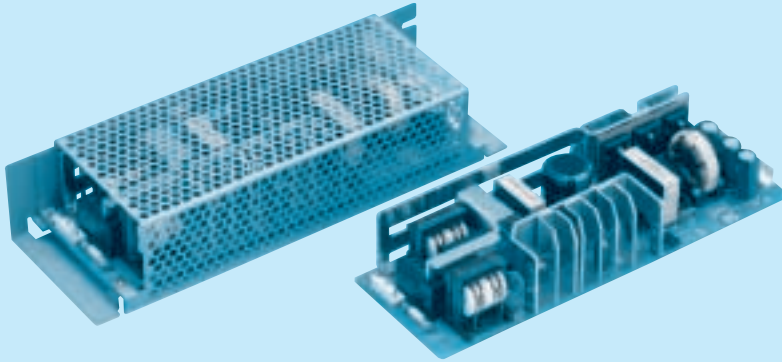


INPUT HARMONIC CURRENT (LEA100F-5)



INPUT HARMONIC CURRENT (LEA100F-5)





- ① Series name
- ② Output wattage
- ③ Universal input
- ④ Output voltage
- ⑤ Optional
  - C : with Coating
  - G : Low leakage current
  - J2: Mini terminal block
  - R : with Remote ON/OFF
  - S : with Chassis
  - SN: with Chassis & cover
  - Y : with Potentiometer

MODEL	LEA150F-3R3-Y	LEA150F-5	LEA150F-9	LEA150F-12	LEA150F-15	LEA150F-18	LEA150F-24	LEA150F-24-H	LEA150F-30	LEA150F-48
MAX OUTPUT WATTAGE[W]	99	150	153	150	150	153	151.2	151.2	150	153.6
DC OUTPUT	*5 3.3V 30A	5V 30A	9V 17A	12V 12.5A	15V 10A	18V 8.5A	24V 6.3A	24V 6.3(7.5)A	30V 5A	48V 3.2A

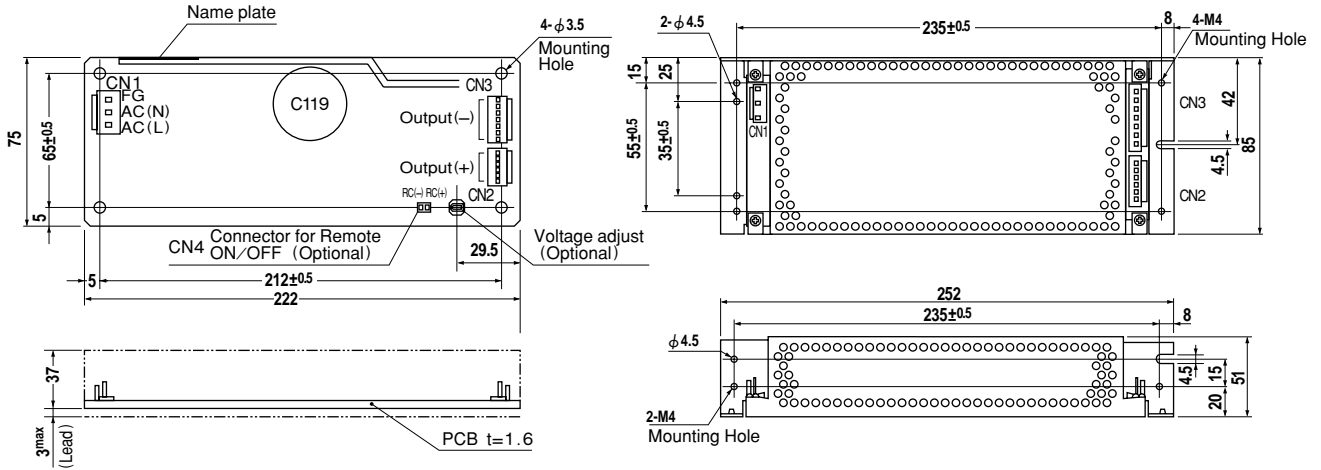
## SPECIFICATIONS

	MODEL	LEA150F-3R3-Y	LEA150F-5	LEA150F-9	LEA150F-12	LEA150F-15	LEA150F-18	LEA150F-24	LEA150F-24-H	LEA150F-30	LEA150F-48	
INPUT	VOLTAGE[V]	AC85 - 264 1φ or DC120 - 370										
	CURRENT[A]	ACIN 100V	1.4	2.0typ								
		ACIN 200V	0.7	1.0typ								
	FREQUENCY[Hz]	50/60 (47 - 63) or DC										
	EFFICIENCY[%]	ACIN 100V	71typ	76typ	79typ	78typ	80typ	81typ	81typ	81typ	84typ	84typ
		ACIN 200V	74typ	79typ	82typ	81typ	83typ	84typ	84typ	84typ	87typ	87typ
	POWER FACTOR	ACIN 100V	0.98typ	0.99typ								
ACIN 200V		0.91typ	0.94typ									
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]	0.75max (60Hz, According to IEC60950 and DEN-AN)											
OUTPUT	VOLTAGE[V]	3.3	5	9	12	15	18	24	24	30	48	
	CURRENT[A]	*1 30	30	17	12.5	10	8.5	6.3	6.3 (Peak 7.5)	5	3.2	
	LINE REGULATION[mV]	20max	20max	36max	48max	60max	72max	96max	96max	120max	192max	
	LOAD REGULATION[mV]	40max	40max	100max	100max	120max	120max	150max	150max	180max	300max	
	RIPPLE[mVp-p]	0 to +50°C *2	80max	80max	120max	120max	120max	120max	120max	120max	150max	150max
		-10 - 0°C *2	140max	140max	160max	160max	160max	160max	160max	160max	160max	200max
	RIPPLE NOISE[mVp-p]	0 to +50°C *2	120max	120max	150max	150max	150max	150max	150max	150max	150max	350max
		-10 - 0°C *2	160max	160max	180max	180max	180max	180max	180max	180max	180max	400max
	TEMPERATURE REGULATION[mV]	0 to +50°C	50max	50max	90max	120max	150max	180max	240max	240max	300max	480max
		-10 to +50°C	60max	60max	120max	150max	180max	200max	290max	290max	360max	600max
	DRIFT[mV]	*3 20max	20max	36max	48max	60max	72max	96max	96max	120max	192max	
	START-UP TIME[ms]	500max (ACIN 100V, Io=100%)										
	HOLD-UP TIME[ms]	20typ (Io=100%)										
OUTPUT VOLTAGE ADJUSTMENT RANGE[V]	2.85 - 3.6	Fixed (*Y which can be adjusted the output is available as optional: ±10%)										
OUTPUT VOLTAGE SETTING[V]	3.25 - 3.35	4.9 - 5.3	8.6 - 9.4	11.5 - 12.5	14.4 - 15.6	17.3 - 18.7	23.0 - 25.0	23.0 - 25.0	28.5 - 31.5	46.0 - 50.0		
PROTECTION CIRCUIT AND OTHERS	OVERCURRENT PROTECTION	Works over 105% of rating (works over 105% of peak current at option -H) and recovers automatically										
	OVERVOLTAGE PROTECTION	4.00 - 5.25V   Works at 115 - 140% of rating										
	OPERATING INDICATION	Not provided										
	REMOTE SENSING	Not provided										
REMOTE ON/OFF	Option (Refer to Instruction Manual)											
ISOLATION	INPUT-OUTPUT · RC	*4 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	*4 AC500V 1minute, Cutoff current = 100mA, DC500V 50MΩ min (At Room Temperature)										
	OUTPUT-RC	*4 AC100V 1minute, Cutoff current = 100mA, DC100V 10MΩ min (At Room Temperature)										
ENVIRONMENT	OPERATING TEMP., HUMID. AND ALTITUDE	-10 to +60°C, 20 - 90%RH (Non condensing) (Refer to DERATING CURVE), 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	UL1950, C-UL, EN60950, VDE0160 Complies with DEN-AN and IEC60950 (At only AC input)										
OTHERS	CONDUCTED NOISE	Complies with FCC-B, CISPR22-B, EN55022-B, VCCI-B										
	HARMONIC ATTENUATOR	Complies with IEC61000-3-2										
OTHERS	CASE SIZE/WEIGHT	75 x 40 x 222mm (W x H x D) /500g max (without chassis and cover)										
	COOLING METHOD	Convection										

\*1 Peak load for 10 sec. or less is acceptable if the total wattage is less than the rated wattage.  
 \*2 This is the value that measured on measuring board with capacitor of 22 μF within 150mm from output terminal.  
 Measured by 20MHz oscilloscope or Ripple-Noise meter (Equivalent to KEISOKU-GIKEN: RM101).  
 \*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.  
 \*4 Applicable when remote control (optional) is added.  
 \*5 ( ): peak current.  
 \* Parallel operation with other model is not possible.  
 \* Derating is required when operated with chassis and cover.

## External view



I / O Connector	Mating Connector	Terminal
CN1	B3P5-VH	VHR-5N
		Chain: SVH-21T-P1.1
		Loose: BVH-21T-P1.1
CN2	B6P-VH	VHR-6N
		Chain: SVH-21T-P1.1
		Loose: BVH-21T-P1.1
CN3	B7P-VH	VHR-7N
		Chain: SVH-21T-P1.1
		Loose: BVH-21T-P1.1
CN4	B2B-XH-A	XHP-2
		Chain: SXH-001T-P0.6
		Loose: BXH-001T-P0.6

(Mfr: J.S.T.)

### (PIN CONNECTION)

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

Pin No.	Output
1~6	+V
1~7	-V

### (Optional)

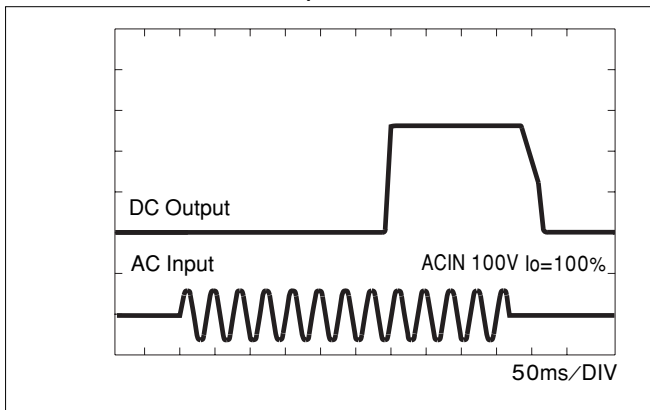
Pin No.	Remote ON/OFF
1	RC(+)
2	RC(-)

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

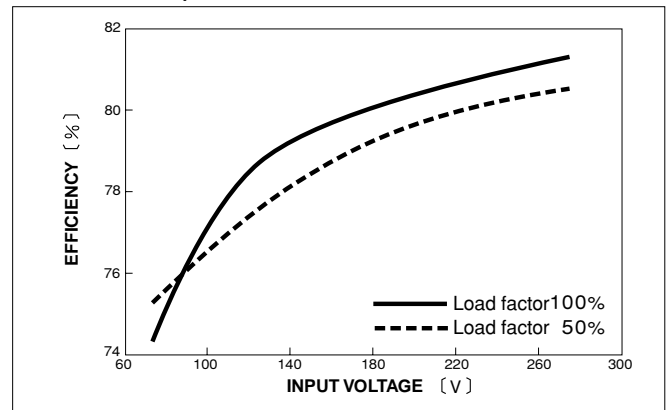
- ※Weight: 500g or less (Without chassis and cover)
- ※Tolerance: ±1
- ※Dimensions in mm.
- ※PCB Material: Glass composite (CEM3)
- ※Chassis and cover is optional.
- ※Chassis and cover is not available to remote ON/OFF unit.
- ※Mounting torque: 1.5N·m(16kgf·cm)max

## Performance data

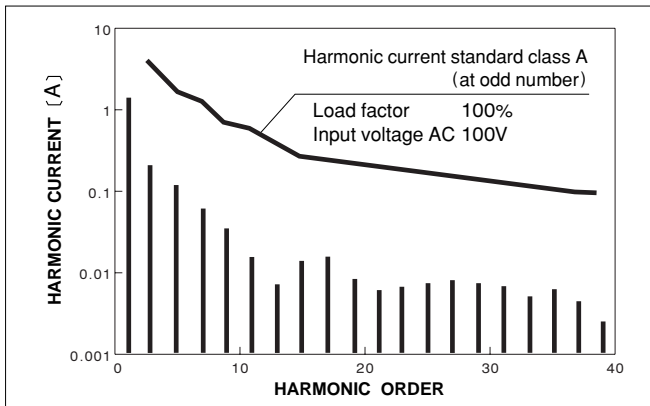
### RISE TIME & FALL TIME (LEA150F-5)



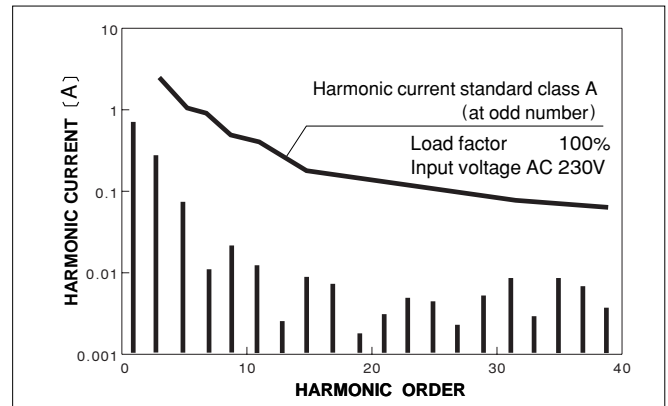
### EFFICIENCY (LEA150F-5)



### INPUT HARMONIC CURRENT (LEA150F-5)



### INPUT HARMONIC CURRENT (LEA150F-5)





## Basic Characteristics Data

Model	Circuit method	Switching frequency [kHz]	Input current *2 [A]	Rated input fuse	Inrush current protection	PCB/Pattern			Series/Parallel operation availability	
						Material	Single sided	Double sided	Series operation	Parallel operation
LEA50F	Active filter	80	0.7	250V 3.15A	Thermistor	CEM-3	Yes		Yes	*1
	Forward converter	130								
LEA75F	Active filter	80	1.1	250V 3.15A	Thermistor	CEM-3	Yes		Yes	*1
	Forward converter	130								
LEA100F	Active filter	80	1.4	250V 5A	Thermistor	CEM-3	Yes		Yes	*1
	Forward converter	130								
LEA150F	Active filter	80	2.0	250V 5A	Thermistor	CEM-3	Yes		Yes	*1
	Forward converter	130								

\*1 Refer to Instruction Manual.

\*2 The value of input current is at ACIN 100V and rated load.

<b>1</b>	<b>Terminal Block</b>	<b>E-54</b>
<b>2</b>	<b>Function</b>	<b>E-54</b>
2.1	Input voltage range .....	E-54
2.2	Inrush current limiting .....	E-54
2.3	Overcurrent protection .....	E-54
2.4	Overvoltage protection .....	E-54
2.5	Output voltage adjustment range .....	E-54
2.6	Isolation .....	E-55
2.7	Remote ON/OFF .....	E-55
<b>3</b>	<b>Series Operation and Parallel Operation</b>	<b>E-55</b>
<b>4</b>	<b>Assembling and Installation Method</b>	<b>E-56</b>
4.1	Installation method .....	E-56
4.2	Derating .....	E-56
4.3	Mounting screw .....	E-57
<b>5</b>	<b>Ground</b>	<b>E-57</b>
<b>6</b>	<b>Others</b>	<b>E-57</b>

## 1 Terminal Block

### ●LEA50F



- ①AC(L)
- ②AC(N)
- ③Frame ground
- ④ } +Output
- ⑤ }
- ⑥ } -Output
- ⑦ }

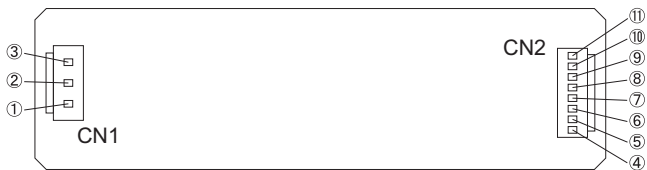
### ●LEA75F



- ①AC(L)
- ②AC(N)
- ③Frame ground
- ④ } +Output
- ⑤ }
- ⑥ }
- ⑦ } -Output
- ⑧ }
- ⑨ }

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### ●LEA100F



- ①AC(L)
- ②AC(N)
- ③Frame ground
- ④ } +Output
- ⑤ }
- ⑥ }
- ⑦ }
- ⑧ } -Output
- ⑨ }
- ⑩ }
- ⑪ }

### ●LEA150F



- ①AC(L)
- ②AC(N)
- ③Frame ground
- ④ } +Output
- ⑤ }
- ⑥ }
- ⑦ }
- ⑧ }
- ⑨ }
- ⑩ } -Output
- ⑪ }
- ⑫ }
- ⑬ }
- ⑭ }
- ⑮ }
- ⑯ }

## 2 Function

### 2.1 Input voltage range

- The range is from AC85V to AC264V or DC120V to DC370V.  
Only AC input is available to comply with agency approval.
- AC input voltage must have a range from AC85V to AC264V for normal operation. If the wrong input is applied, the unit will not operate properly and/or may be damaged.

### 2.2 Inrush current limiting

- Inrush current limiting is built-in.
- If a switch on the input side is installed, it has to be the one handling the input inrush current.
- The thermistor is used for protection from inrush current. When power is turned ON/OFF repeatedly within a short period of time, it is necessary to have enough time for power supply to cool down.

### 2.3 Overcurrent protection

- Overcurrent protection is built-in and comes into effect at over 105% of the rated current. Overcurrent protection prevents the unit from short circuit and overcurrent condition. The unit automatically recovers when the fault condition is cleared.  
When the output voltage drops more than 50% of the rated output voltage value at overcurrent, the average output current is reduced by intermittent operation of power supply.

### 2.4 Overvoltage protection

- The overvoltage protection circuit is built-in and comes into effect at 115 - 140% of the rated voltage (except 3V output voltage type: it operates at 4.00 - 5.25V). The AC input should be shut down if overvoltage protection is in operation. The minimum interval of AC recycling for recovery is 2 to 3 minutes (★).  
★ The recovery time varies depending on input voltage.

#### Remarks:

Please avoid applying the over-rated voltage to the output terminal. Power supply may operate incorrectly or fail. In case of operating a motor etc., please install an external diode on the output terminal to protect the unit.

### 2.5 Output voltage adjustment range

- Adjustment of output voltage is possible by using potentiometer (only available to 3.3V output voltage type).
- Output voltage is increased by turning potentiometer clockwise and is decreased by turning potentiometer counterclockwise.
- Option "-Y" is recommended which can adjust the output voltage.

### 2.6 Isolation

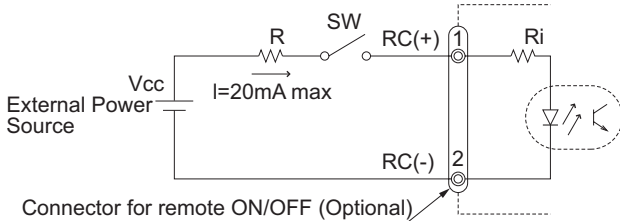
■For a receiving inspection, such as Hi-Pot test, gradually increase (decrease) the voltage for the start (shut down). Avoid using Hi-Pot tester with the timer because it may generate voltage a few times higher than the applied voltage, at ON/OFF of a timer.

If the unit is tested on the isolation between input & output and output & FG, remote ON/OFF must be shorted to output.

### 2.7 Remote ON/OFF (Optional "-R")

■Option "-R" is available for remote ON/OFF.

Between RC(+) and RC(-)	Output
SW ON (4.5 - 12.5V)	ON
SW OFF (0 - 0.5V)	OFF



Connector for remote ON/OFF (Optional)

■When external power source is in the range of 4.5 - 12.5V, current limit resistance R is not required. However, when external power source exceeds 12.5V, current limit resistance R must be connected.

To calculate the current limit resistance use following equation:

$$R[\Omega] = \frac{V_{cc} - (1.1 + R_i \times 0.005)}{0.005}$$

Where;

V<sub>cc</sub> = External Power Source

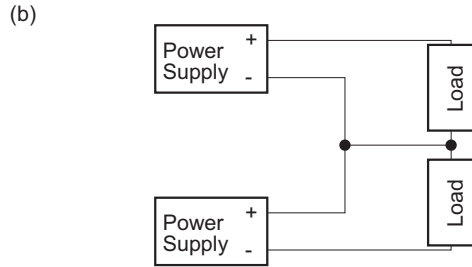
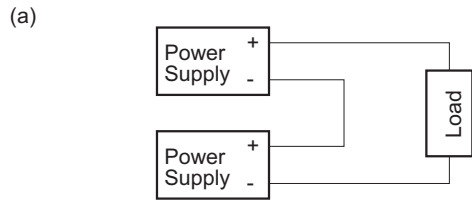
R<sub>i</sub> = The internal resistance (780Ω)

■A wrong connection may damage the internal components of the unit.

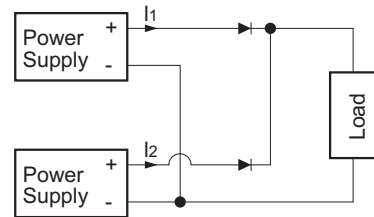
■Remote ON/OFF circuit (RC(+), RC(-)) is isolated from input, output and FG.

## 3 Series Operation and Parallel Operation

■Series operation is available by connecting the outputs of two or more power supplies with the same output voltage, as shown below. Output current in series connection should be lower than the lowest rated current in each unit.



■Parallel redundancy operation is available by connecting the units as shown below.



■Values of I<sub>1</sub> and I<sub>2</sub> become unbalanced by a slight difference of the output voltage. Make sure that the output voltage of units is of equal value and the output current from each power supply does not exceed the rated current.

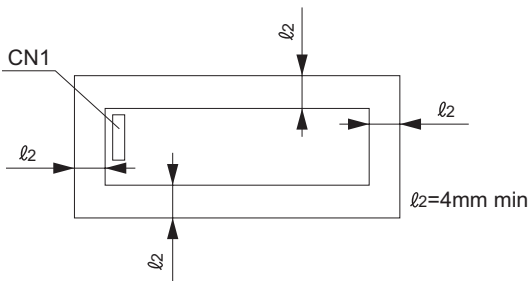
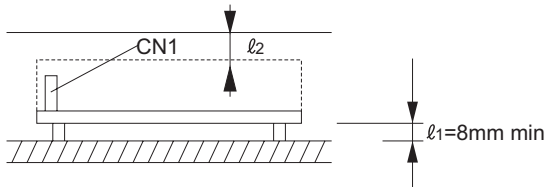
$$I_1, I_2 \leq \text{the rated current value}$$

■Option "-Y" is recommended which can adjust the output voltage.

# 4 Assembling and Installation Method

## 4.1 Installation method

- When two or more power supplies are used side by side, position them with proper intervals to allow enough air ventilation. Ambient temperature around each power supply should not exceed the temperature range shown in derating curve.
- In case of metal chassis, keep the distance between  $l_1$  &  $l_2$  for to insulate between lead of component and metal chassis. If it is less than  $l_1$  &  $l_2$ , insert the insulation sheet between power supply and metal chassis.

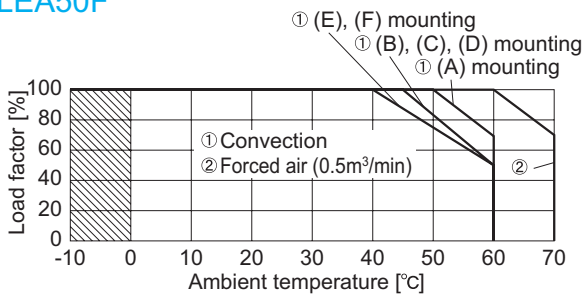


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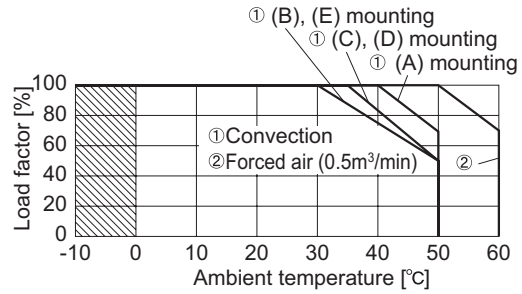
## 4.2 Derating

- The operative ambient temperature is different by with / without case cover or mounting position. Please refer drawings as below.
  - In case②, ventilation must keep the temperature of C119 below 85°C. See External View for the location of C119.
- Note: In the hatched area, the specification of Ripple, Ripple Noise is different from other area.

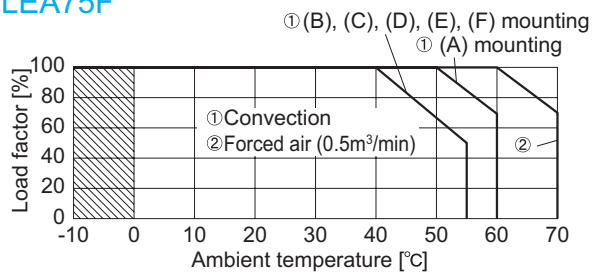
### ●LEA50F



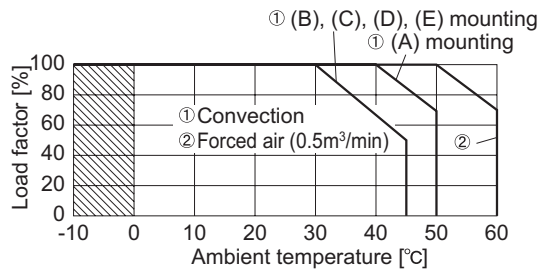
### ●LEA50F-□-SN (Requirement: Min. AC90V)



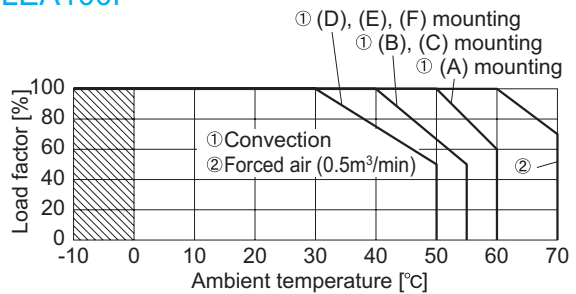
### ●LEA75F



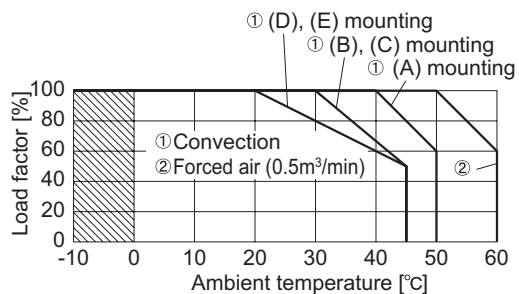
### ●LEA75F-□-SN (Requirement: Min. AC90V)



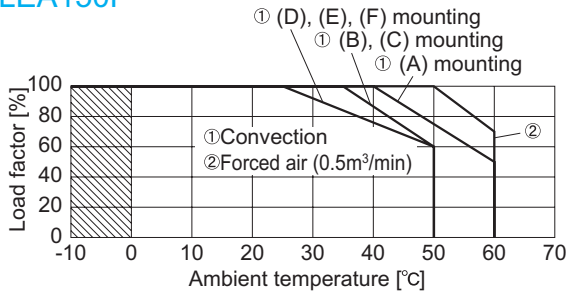
### ●LEA100F



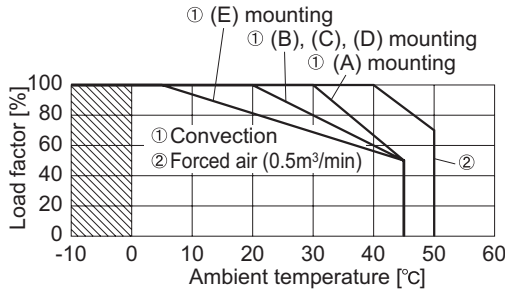
### ●LEA100F-□-SN (Requirement: Min. AC90V)



●LEA150F

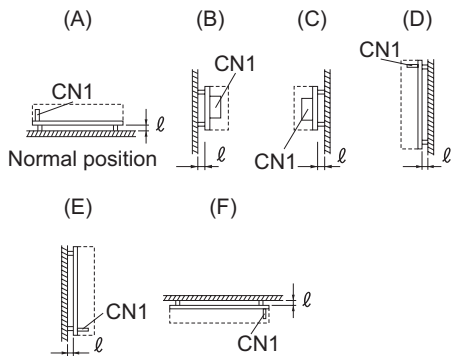


●LEA150F-□-SN (Requirement: Min. AC90V)



■When unit mounted except below drawings, it is required to consider ventilated environment by forced air cooling for temperature /load derating. For details, please consult our sales or engineering departments.

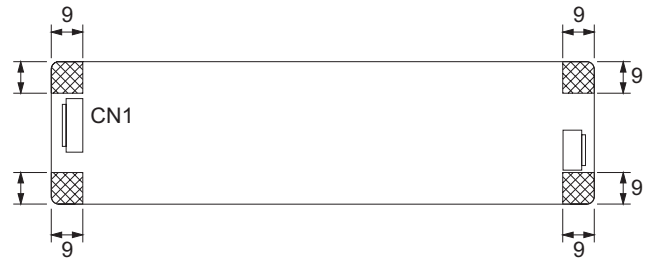
Mounting method



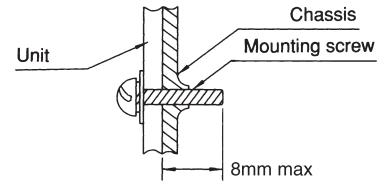
■(F) mounting is not possible when unit is with case cover, but if need to operate unit by (F) positioning with case cover, temperature/load derating is necessary. For more details, please consult our sales or engineering departments.

4.3 Mounting screw

- The mounting screw should be M3. The hatched area shows the allowance of metal parts for mounting.
- Please be careful with that metal parts do not touch mounted parts at front side, where major components are mounted, when a power supply is installed with them.



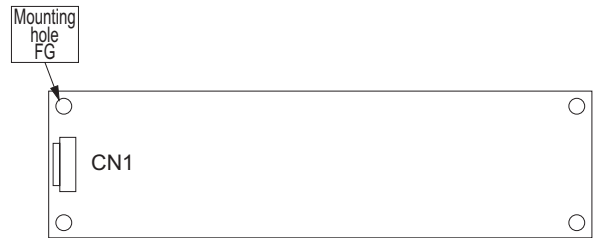
■Keep isolation distance between screw and internal components in case of option "-S", "-SN", as below chart.



5 Ground

■When installing the power supply with your unit, ensure that the input FG terminal or mounting hole FG is connected to safety ground of the unit. However when applying the safety agency, connect the input FG terminal to safety ground of the unit.

LEA



6 Others

- This power supply is the rugged P.C.B. type. Do not drop conductive object in the power supply.
- At light load, there remains high voltage inside the power supply for a few minutes after power OFF. So, at maintenance, take care about electric shock.
- 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.