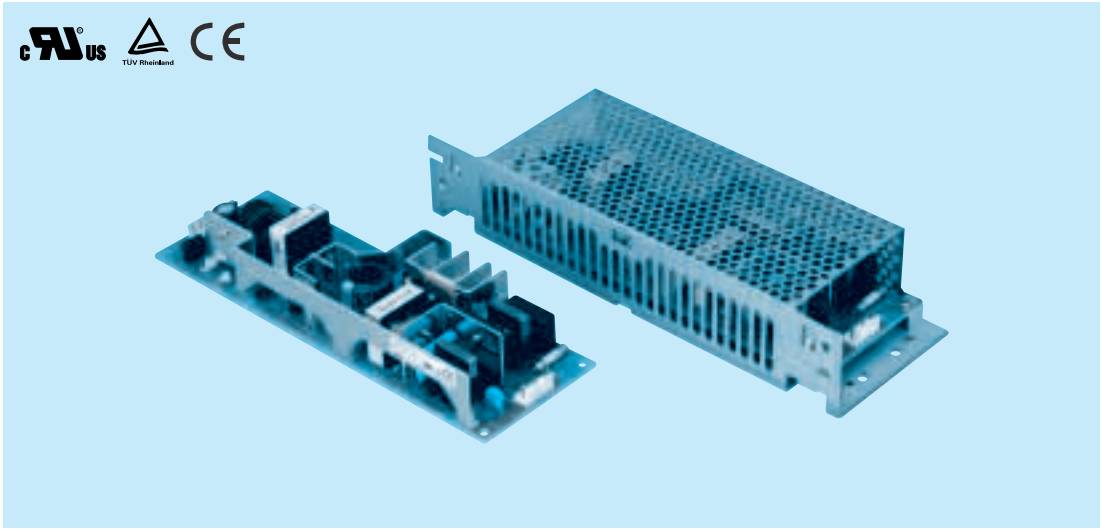
COSEL Rugged PCB type

LEP 00

Ordering information

LEP 100 F -24 -□

① ② ③ ④ ⑤



①Series name
②Output wattage
③Universal input
④Output voltage
⑤Optional ＊1
G :Low leakage current
R :with Remote ON/OFF
S :with Chassis
SN:with Chassis & cover
T :Vertical terminal block
U :Operating stop voltage is set at a lower value
Z :with ZT

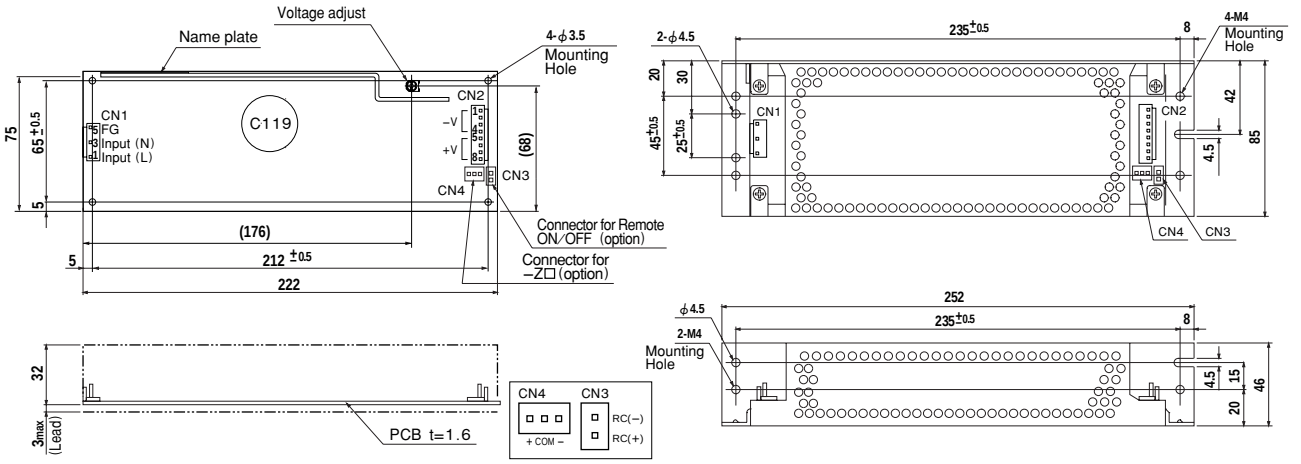
MODEL	LEP100F-24	LEP100F-36	LEP100F-48
DC OUTPUT	+24V 4.2(Peak 7)A	+36V 2.8(Peak 4.7)A	+48V 2.1(Peak 3.5)A

SPECIFICATIONS

	MODEL		LEP100F-24	LEP100F-36	LEP100F-48
INPUT	VOLTAGE[V]		AC85 - 264 1φ or DC 120 - 370		
	CURRENT[A]	ACIN 100V	1.4typ (Io=100%)		
		ACIN 200V	0.7typ (Io=100%)		
	FREQUENCY[Hz]		50/60 (47 - 63) or DC		
	EFFICIENCY[%]	ACIN 100V	81typ (Io=100%)	82typ (Io=100%)	83typ (Io=100%)
		ACIN 200V	84typ (Io=100%)	85typ (Io=100%)	85typ (Io=100%)
	POWER FACTOR	ACIN 100V	0.98typ (Io=100%)		
		ACIN 200V	0.93typ (Io=100%)		
	INRUSH CURRENT[A]	ACIN 100V	15typ (Io=100%) (At cold start) (Ta=25℃)		
		ACIN 200V	30typ (Io=100%) (At cold start) (Ta=25℃)		
	LEAKAGE CURRENT[mA]		0.75max (60Hz, According to IEC60950 and DEN-AN)		
OUTPUT	VOLTAGE[V]		+24	+36	+48
	CURRENT[A]	＊2	0 - 4.2 (Peak 7)	0 - 2.8 (Peak 4.7)	0 - 2.1 (Peak 3.5)
	WATTAGE[W]		100.8 (Peak 168)	100.8 (Peak 169.2)	100.8 (Peak 168)
	LINE REGULATION[mV]		48max	48max	48max
	LOAD REGULATION[mV]		76max	90max	150max
	RIPPLE[mVp-p]	0 to +50℃ ＊3	120max	120max	150max
		-10 - 0℃ ＊3	160max	160max	300max
	RIPPLE NOISE[mVp-p]	0 to +50℃ ＊3	150max	150max	250max
		-10 - 0℃ ＊3	180max	180max	350max
	TEMPERATURE REGULATION[mV]	0 to +50℃	120max	150max	240max
		-10 to +50℃	145max	180max	300max
	DRIFT[mV]	＊4	48max	48max	48max
	START-UP TIME[ms]		500max (ACIN 100V, Io=100%)		
	HOLD-UP TIME[ms]		20typ (ACIN 100V, Io=100%)		
	OUTPUT VOLTAGE ADJUSTMENT RANGE[V]		21.4 - 26.4	26.4 - 39.6	39.6 - 52.8
	OUTPUT VOLTAGE SETTING[V]		23.0 - 25.0	35.0 - 37.0	46.0 - 50.0
PROTECTION CIRCUIT AND OTHERS	OVERCURRENT PROTECTION		Works over 101% of peak current and recovers automatically		
	OVERVOLTAGE PROTECTION		Works at 115 - 140% of rating		
	REMOTE ON/OFF		Option (Refer to Instruction Manual)		
ISOLATION	INPUT-OUTPUT · RC	＊5	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	＊5	AC500V 1minute, Cutoff current = 100mA, DC500V 50MΩ min (At Room Temperature)		
	OUTPUT-RC	＊5	AC100V 1minute, Cutoff current = 100mA, DC100V 10MΩ min (At Room Temperature)		
ENVIRONMENT	OPERATING TEMP.,HUMID.AND ALTITUDE		-10 to +70℃, 20 - 90%RH (Non condensing) (Refer to DERATING CURVE), 3,000m (10,000feet) max		
	STORAGE TEMP.,HUMID.AND ALTITUDE		-20 to +75℃, 20 - 90%RH (Non condensing), 9,000m (30,000feet) max		
	VIBRATION		10 - 55Hz, 19.6m/s² (2G), 3minutes period, 60minutes each along X, Y and Z axis		
	IMPACT		196.1m/s² (20G), 11ms, once each X, Y and Z axis		
SAFETY AND NOISE REGULATIONS	AGENCY APPROVALS		UL60950, C-UL(CSA60950), EN60950, EN50178 Complies with DEN-AN and IEC60950 (At only AC input)		
	CE MARKING		Low Voltage Directive, EMC Directive		
	CONDUCTED NOISE		Complies with FCC-B, CISPR22-B, EN55022-B, VCCI-B		
	HARMONIC ATTENUATOR		Complies with IEC61000-3-2		
OTHERS	CASE SIZE/WEIGHT		75×35×222mm (W×H×D) /380g max (without chassis and cover)		
	COOLING METHOD		Convection		

＊1 Specification is changed at option, refer to Instruction Manual 6.
＊2 Peak loading for 10sec. And Duty 35% max, refer to Instruction Manual 5. In detail.
＊3 This is the value that measured on measuring board with capacitor of 22μF within 150mm from output terminal.Measured by 20MHz oscilloscope or Ripple-Noise meter (Equivalent to KEISOKU-GIKEN: RM101).
＊4 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.
＊5 Applicable when remote control (optional) is added.
＊ Parallel operation with other model is not possible.
＊ Derating is required when operated with chassis and cover.
＊ A sound may occur from power supply at peak loading.

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 (Option)	B2B-XH-A	XHP-2	Chain: SXH-001T-P0.6
			Loose: BXH-001T-P0.6
CN4 (Option)	B3B-XH-A	XHP-3	Chain: SXH-001T-P0.6
			Loose: BXH-001T-P0.6

(Mfr: J.S.T.)

〈PIN CONNECTION〉

CN1

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

CN2

Pin No.	Output
1, 2, 3, 4	−V
5, 6, 7, 8	+V

CN3 (Option)

Pin No.	Remote ON/OFF
1	RC(+)
2	RC(−)

CN4 (Option)

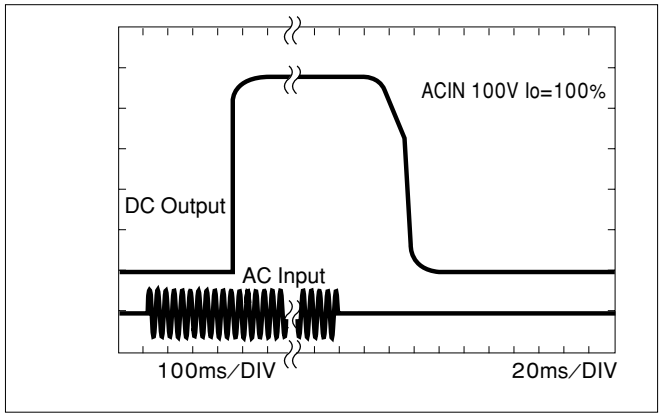
Pin No.	−Z□
1	+
2	COM
3	−

※Weight: 380g or less
(Without chassis and cover)
※Tolerance: ±1
※Dimensions in mm.
※PCB Material : CEM3
※Chassis and cover is optional.
※Mounting torque: 1.5N·m(16kgf·cm)max

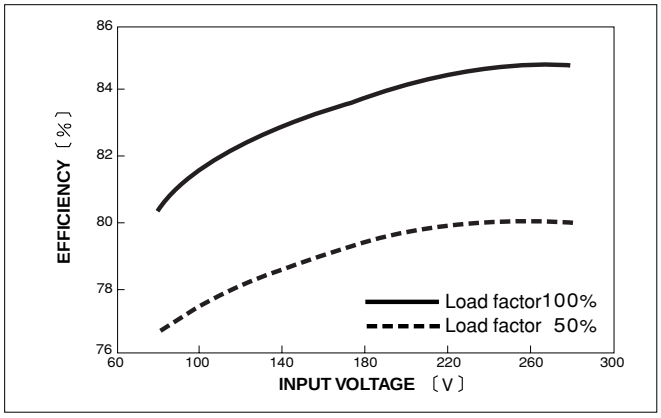
※Keep drawing current per pin below 5A(7A at peak load)for CN2

Performance data

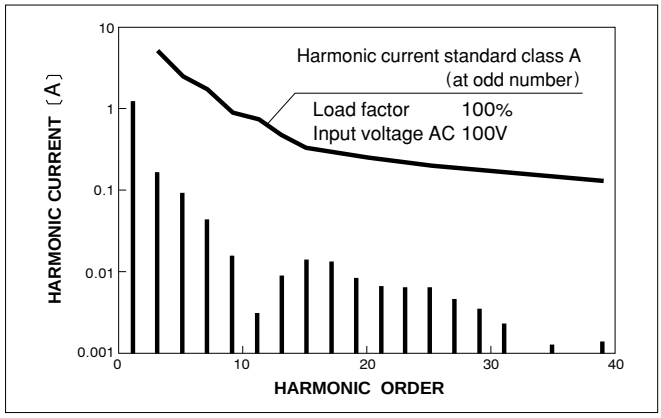
■RISE TIME & FALL TIME (LEP100F-24)



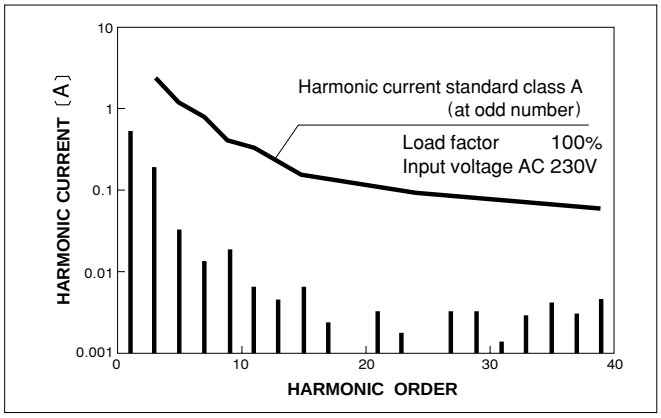
■EFFICIENCY (LEP100F-24)



■INPUT HARMONIC CURRENT (LEP100F-24)



■INPUT HARMONIC CURRENT (LEP100F-24)



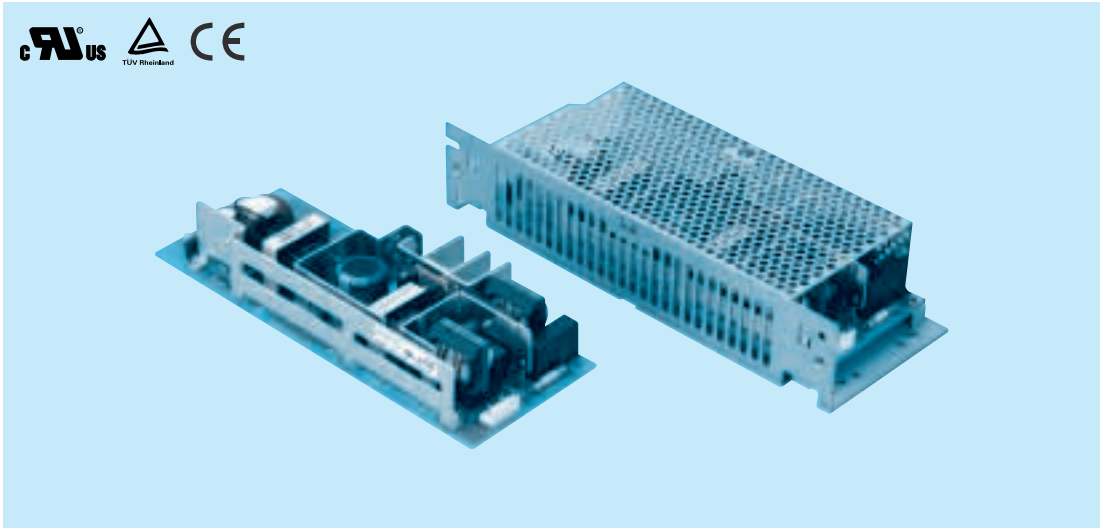
LEP

COSEL Rugged PCB type

LEP 50

Ordering information

LEP 150 F -24 -□
① ② ③ ④ ⑤



①Series name
②Output wattage
③Universal input
④Output voltage
⑤Optional ＊1
G :Low leakage current
R :with Remote ON/OFF
S :with Chassis
SN:with Chassis & cover
T :Vertical terminal block
U :Operating stop voltage is set at a lower value
Z :with ZT

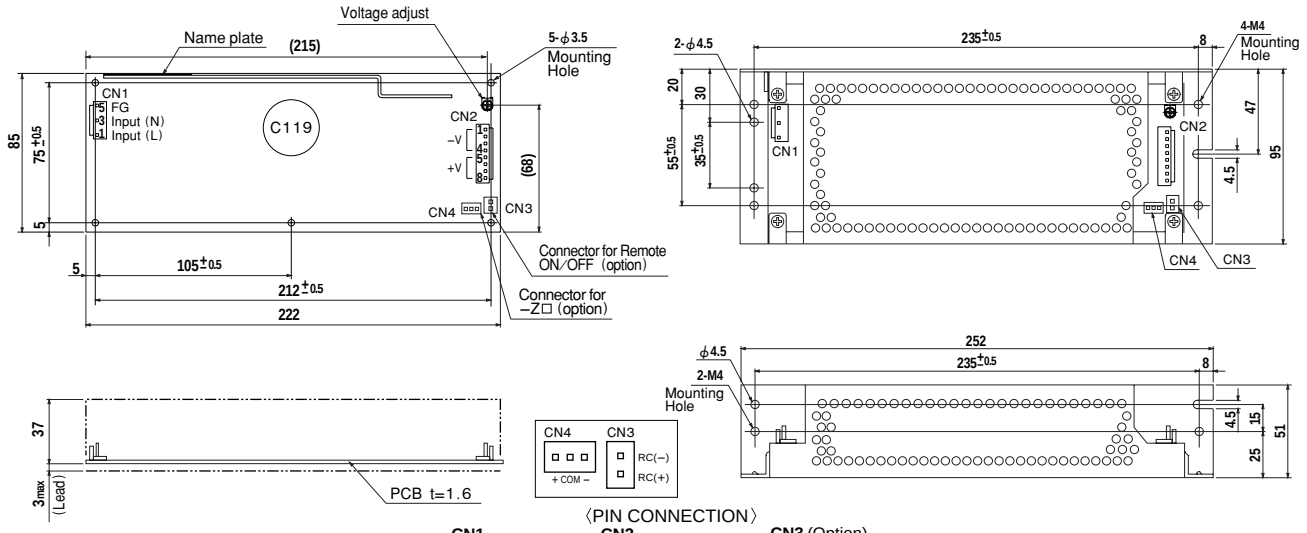
MODEL	LEP150F-24	LEP150F-36	LEP150F-48
DC OUTPUT	+24V 6.3(Peak 12)A	+36V 4.2(Peak 8)A	+48V 3.2(Peak 6)A

SPECIFICATIONS

	MODEL		LEP150F-24	LEP150F-36	LEP150F-48
INPUT	VOLTAGE[V]		AC85 - 264 1φ or DC 120 - 370		
	CURRENT[A]	ACIN 100V	2.0typ (Io=100%)		
		ACIN 200V	1.0typ (Io=100%)		
	FREQUENCY[Hz]		50/60 (47 - 63) or DC		
	EFFICIENCY[%]	ACIN 100V	82typ (Io=100%)	83typ (Io=100%)	84typ (Io=100%)
		ACIN 200V	85typ (Io=100%)	86typ (Io=100%)	87typ (Io=100%)
	POWER FACTOR	ACIN 100V	0.98typ (Io=100%)		
		ACIN 200V	0.93typ (Io=100%)		
	INRUSH CURRENT[A]	ACIN 100V	15typ (Io=100%) (At cold start) (Ta=25℃)		
		ACIN 200V	30typ (Io=100%) (At cold start) (Ta=25℃)		
	LEAKAGE CURRENT[mA]		0.75max (60Hz, According to IEC60950 and DEN-AN)		
OUTPUT	VOLTAGE[V]		+24	+36	+48
	CURRENT[A]	＊2	0 - 6.3 (Peak 12)	0 - 4.2 (Peak 8)	0 - 3.2 (Peak 6)
	WATTAGE[W]		151.2 (Peak 288)	151.2 (Peak 288)	153.6 (Peak 288)
	LINE REGULATION[mV]		48max	48max	48max
	LOAD REGULATION[mV]		76max	90max	150max
	RIPPLE[mVp-p]	0 to +45℃ ＊3	120max	120max	150max
		-10 - 0℃ ＊3	160max	160max	300max
	RIPPLE NOISE[mVp-p]	0 to +45℃ ＊3	150max	150max	250max
		-10 - 0℃ ＊3	180max	180max	350max
	TEMPERATURE REGULATION[mV]	0 to +45℃	120max	150max	240max
		-10 to +45℃	145max	180max	300max
	DRIFT[mV]	＊4	48max	48max	48max
	START-UP TIME[ms]		500max (ACIN 100V, Io=100%)		
	HOLD-UP TIME[ms]		20typ (ACIN 100V, Io=100%)		
	OUTPUT VOLTAGE ADJUSTMENT RANGE[V]		21.4 - 26.4	26.4 - 39.6	39.6 - 52.8
	OUTPUT VOLTAGE SETTING[V]		23.0 - 25.0	35.0 - 37.0	46.0 - 50.0
PROTECTION CIRCUIT AND OTHERS	OVERCURRENT PROTECTION		Works over 101% of peak current and recovers automatically		
	OVERVOLTAGE PROTECTION		Works at 115 - 140% of rating		
	REMOTE ON/OFF		Option (Refer to Instruction Manual)		
ISOLATION	INPUT-OUTPUT · RC	＊5	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	＊5	AC500V 1minute, Cutoff current = 100mA, DC500V 50MΩ min (At Room Temperature)		
	OUTPUT-RC	＊5	AC100V 1minute, Cutoff current = 100mA, DC100V 10MΩ min (At Room Temperature)		
ENVIRONMENT	OPERATING TEMP.,HUMID.AND ALTITUDE		-10 to +70℃, 20 - 90%RH (Non condensing) (Refer to DERATING CURVE), 3,000m (10,000feet) max		
	STORAGE TEMP.,HUMID.AND ALTITUDE		-20 to +75℃, 20 - 90%RH (Non condensing), 9,000m (30,000feet) max		
	VIBRATION		10 - 55Hz, 19.6m/s² (2G), 3minutes period, 60minutes each along X, Y and Z axis		
	IMPACT		196.1m/s² (20G), 11ms, once each X, Y and Z axis		
SAFETY AND NOISE REGULATIONS	AGENCY APPROVALS		UL60950, C-UL(CSA60950), EN60950, EN50178 Complies with DEN-AN and IEC60950 (At only AC input)		
	CE MARKING		Low Voltage Directive, EMC Directive		
	CONDUCTED NOISE		Complies with FCC-B, CISPR22-B, EN55022-B, VCCI-B		
	HARMONIC ATTENUATOR		Complies with IEC61000-3-2		
OTHERS	CASE SIZE/WEIGHT		85×40×222mm (W×H×D) /490g max (without chassis and cover)		
	COOLING METHOD		Convection		

＊1 Specification is changed at option, refer to Instruction Manual 6.
＊2 Peak loading for 10sec. And Duty 35% max, refer to Instruction Manual 5. In detail.
＊3 This is the value that measured on measuring board with capacitor of 22μF within 150mm from output terminal.Measured by 20MHz oscilloscope or Ripple-Noise meter (Equivalent to KEISOKU-GIKEN: RM101).
＊4 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.
＊5 Applicable when remote control (optional) is added.
＊ Parallel operation with other model is not possible.
＊ Derating is required when operated with chassis and cover.
＊ A sound may occur from power supply at peak loading.

External view



〈PIN CONNECTION〉

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 (Option)	B2B-XH-A	XHP-2	Chain: SXH-001T-P0.6
			Loose: BXH-001T-P0.6
CN4 (Option)	B3B-XH-A	XHP-3	Chain: SXH-001T-P0.6
			Loose: BXH-001T-P0.6

(Mfr: J.S.T.)

CN1

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

CN2

Pin No.	Output
1, 2, 3, 4	−V
5, 6, 7, 8	+V

CN3 (Option)

Pin No.	Remote ON/OFF
1	RC(+)
2	RC(−)

CN4 (Option)

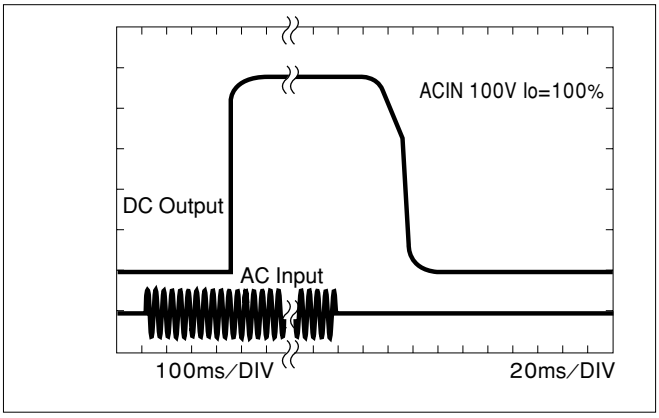
Pin No.	−Z□
1	+
2	COM
3	−

※Weight: 490g or less
(Without chassis and cover)
※Tolerance: ±1
※Dimensions in mm.
※PCB Material : CEM3
※Chassis and cover is optional.
※Mounting torque: 1.5N·m(16kgf·cm)max

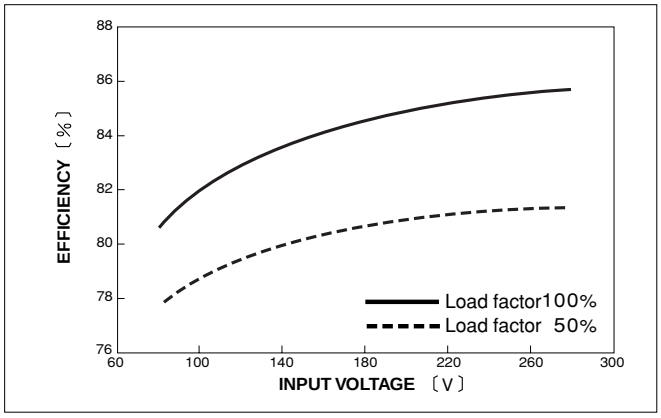
※Keep drawing current per pin below 5A(7A at peak load)for CN2

Performance data

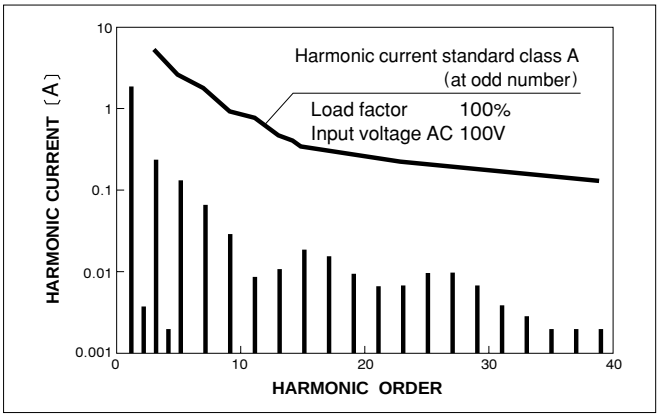
■RISE TIME & FALL TIME (LEP150F-24)



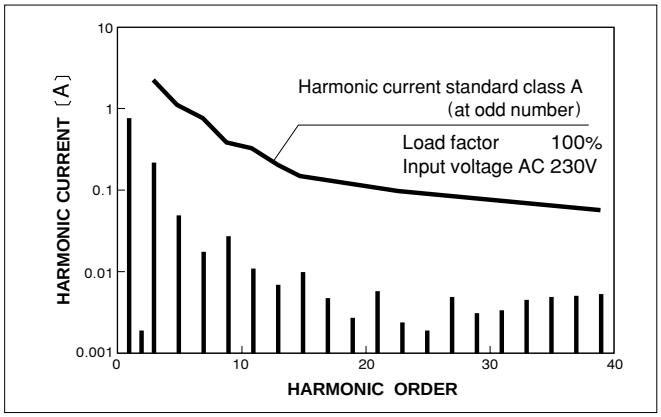
■EFFICIENCY (LEP150F-24)



■INPUT HARMONIC CURRENT (LEP150F-24)



■INPUT HARMONIC CURRENT (LEP150F-24)



LEP

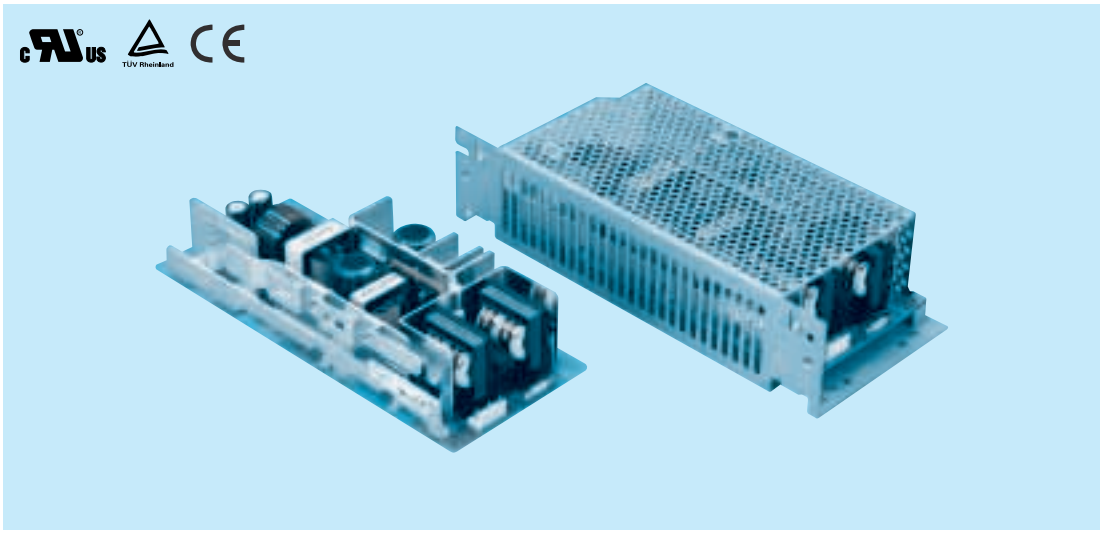
COSEL **Rugged PCB type**

LEP 40

Ordering information

LEP 240 F -24 -□

① ② ③ ④ ⑤



①Series name
②Output wattage
③Universal input
④Output voltage
⑤Optional ＊1
G :Low leakage current
R :with Remote ON/OFF
S :with Chassis
SN:with Chassis & cover
T :Vertical terminal block
U :Operating stop voltage is set at a lower value
Z :with ZT

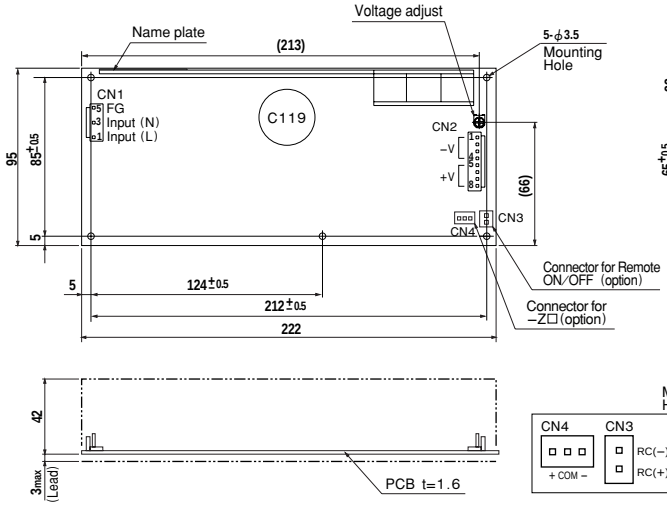
MODEL	LEP240F-24	LEP240F-36	LEP240F-48
DC OUTPUT	+24V 10(Peak 20)A	+36V 6.7(Peak 13.4)A	+48V 5(Peak 10)A

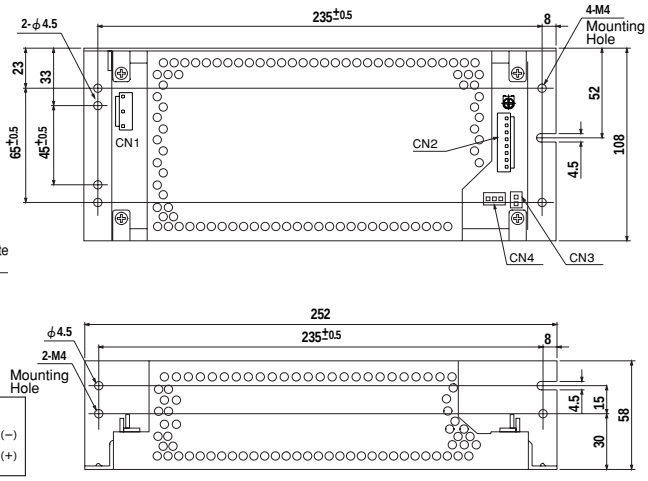
SPECIFICATIONS

	MODEL		LEP240F-24	LEP240F-36	LEP240F-48
INPUT	VOLTAGE[V]		AC85 - 264 1φ or DC 120 - 370		
	CURRENT[A]	ACIN 100V	3.3typ (Io=100%)		
		ACIN 200V	1.7typ (Io=100%)		
	FREQUENCY[Hz]		50/60 (47 - 63) or DC		
	EFFICIENCY[%]	ACIN 100V	83typ (Io=100%)	84typ (Io=100%)	84typ (Io=100%)
		ACIN 200V	86typ (Io=100%)	87typ (Io=100%)	87typ (Io=100%)
	POWER FACTOR	ACIN 100V	0.98typ (Io=100%)		
		ACIN 200V	0.93typ (Io=100%)		
	INRUSH CURRENT[A]	ACIN 100V	15typ (Io=100%) (More than 3sec. to re-start)		
		ACIN 200V	30typ (Io=100%) (More than 3sec. to re-start)		
	LEAKAGE CURRENT[mA]		0.75max (60Hz, According to IEC60950 and DEN-AN)		
OUTPUT	VOLTAGE[V]		+24	+36	+48
	CURRENT[A]	＊2	0 - 10 (Peak 20)	0 - 6.7 (Peak 13.4)	0 - 5 (Peak 10)
	WATTAGE[W]		240.0 (Peak 480)	241.2 (Peak 482.4)	240.0 (Peak 480)
	LINE REGULATION[mV]		48max	48max	48max
	LOAD REGULATION[mV]		76max	90max	150max
	RIPPLE[mVp-p]	0 to +40℃ ＊3	120max	120max	150max
		-10 - 0℃ ＊3	160max	160max	300max
	RIPPLE NOISE[mVp-p]	0 to +40℃ ＊3	150max	150max	250max
		-10 - 0℃ ＊3	180max	180max	350max
	TEMPERATURE REGULATION[mV]	0 to +40℃	120max	150max	240max
		-10 to +40℃	145max	180max	300max
	DRIFT[mV]	＊4	48max	48max	48max
	START-UP TIME[ms]		500max (ACIN 100V, Io=100%)		
	HOLD-UP TIME[ms]		20typ (ACIN 100V, Io=100%)		
	OUTPUT VOLTAGE ADJUSTMENT RANGE[V]		21.4 - 26.4	26.4 - 39.6	39.6 - 52.8
	OUTPUT VOLTAGE SETTING[V]		23.0 - 25.0	35.0 - 37.0	46.0 - 50.0
PROTECTION CIRCUIT AND OTHERS	OVERCURRENT PROTECTION		Works over 101% of peak current and recovers automatically		
	OVERVOLTAGE PROTECTION		Works at 115 - 140% of rating		
	REMOTE ON/OFF		Option (Refer to Instruction Manual)		
ISOLATION	INPUT-OUTPUT · RC	＊5	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	＊5	AC500V 1minute, Cutoff current = 100mA, DC500V 50MΩ min (At Room Temperature)		
	OUTPUT-RC	＊5	AC100V 1minute, Cutoff current = 100mA, DC100V 10MΩ min (At Room Temperature)		
ENVIRONMENT	OPERATING TEMP.,HUMID.AND ALTITUDE		-10 to +70℃, 20 - 90%RH (Non condensing) (Refer to DERATING CURVE), 3,000m (10,000feet) max		
	STORAGE TEMP.,HUMID.AND ALTITUDE		-20 to +75℃, 20 - 90%RH (Non condensing), 9,000m (30,000feet) max		
	VIBRATION		10 - 55Hz, 19.6m/s² (2G), 3minutes period, 60minutes each along X, Y and Z axis		
	IMPACT		196.1m/s² (20G), 11ms, once each X, Y and Z axis		
SAFETY AND NOISE REGULATIONS	AGENCY APPROVALS		UL60950, C-UL(CSA60950), EN60950, EN50178 Complies with DEN-AN and IEC60950 (At only AC input)		
	CE MARKING		Low Voltage Directive, EMC Directive		
	CONDUCTED NOISE		Complies with FCC-B, CISPR22-B, EN55022-B, VCCI-B		
	HARMONIC ATTENUATOR		Complies with IEC61000-3-2		
OTHERS	CASE SIZE/WEIGHT		95×45×222mm (W×H×D) /690g max (without chassis and cover)		
	COOLING METHOD		Convection		

＊1 Specification is changed at option, refer to Instruction Manual 6.
＊2 Peak loading for 10sec. And Duty 35% max, refer to Instruction Manual 5. In detail.
＊3 This is the value that measured on measuring board with capacitor of 22μF within 150mm from output terminal.Measured by 20MHz oscilloscope or Ripple-Noise meter (Equivalent to KEISOKU-GIKEN: RM101).
＊4 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.
＊5 Applicable when remote control (optional) is added.
＊ Parallel operation with other model is not possible.
＊ Derating is required when operated with chassis and cover.
＊ A sound may occur from power supply at peak loading.

External view





〈PIN CONNECTION〉

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 (Option)	B2B-XH-A	XHP-2	Chain: SXH-001T-P0.6
			Loose: BXH-001T-P0.6
CN4 (Option)	B3B-XH-A	XHP-3	Chain: SXH-001T-P0.6
			Loose: BXH-001T-P0.6

(Mfr: J.S.T.)

CN1

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

CN2

Pin No.	Output
1, 2, 3, 4	−V
5, 6, 7, 8	+V

CN3 (Option)

Pin No.	Remote ON/OFF
1	RC(+)
2	RC(−)

CN4 (Option)

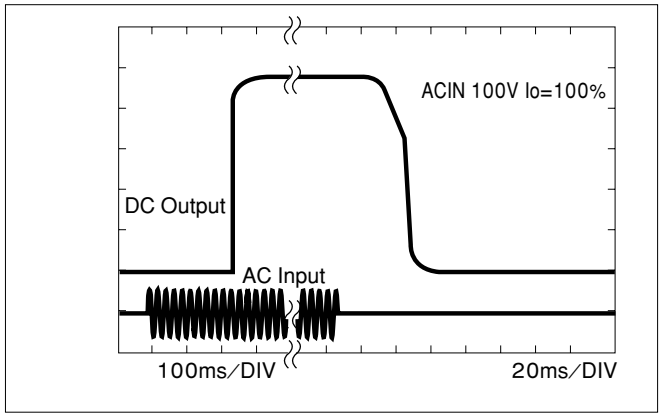
Pin No.	−Z□
1	+
2	COM
3	−

※Weight: 690g or less
(Without chassis and cover)
※Tolerance: ±1
※Dimensions in mm.
※PCB Material : CEM3
※Chassis and cover is optional.
※Mounting torque: 1.5N·m(16kgf·cm)max

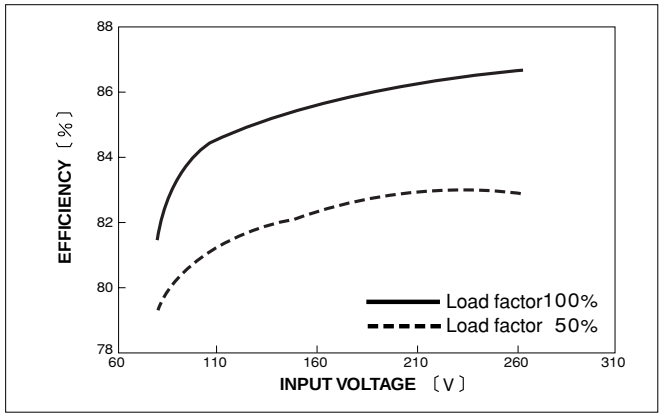
※Keep drawing current per pin below 5A(7A at peak load)for CN2

Performance data

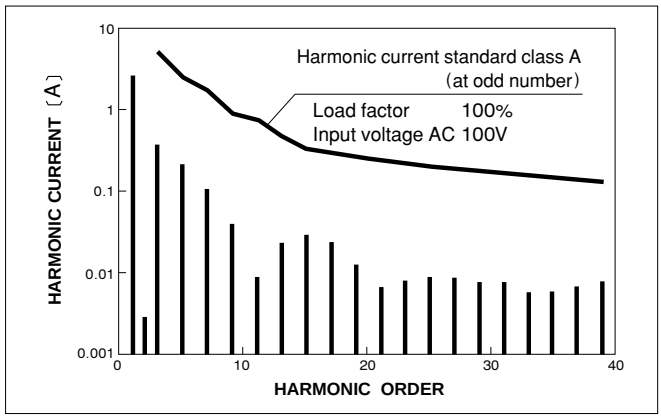
■RISE TIME & FALL TIME (LEP240F-24)



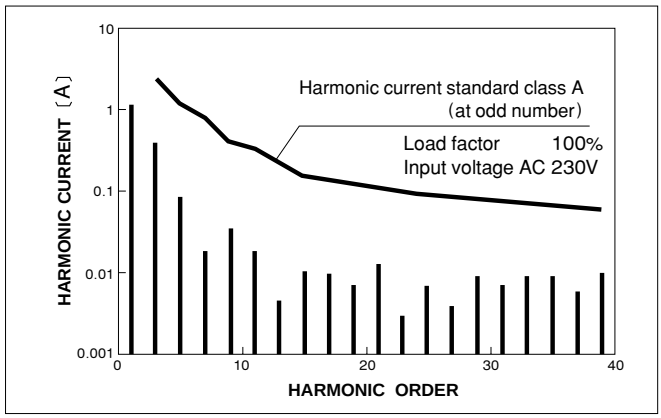
■EFFICIENCY (LEP240F-24)



■INPUT HARMONIC CURRENT (LEP240F-24)



■INPUT HARMONIC CURRENT (LEP240F-24)



LEP

1 Function

1.1 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.
In addition, it is possible to correspond Low input voltage or Instantaneous line drop (optional : -U). Consult with us.

1.2 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.

●LEP100F・LEP150F

■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.

●LEP240F

■The thyristor technique 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 between power ON and OFF to operate resistance circuit for inrush current.

LEP

1.3 Overcurrent protection

■Overcurrent protection is built-in and comes into effect at over 101% of the peak current in.Overcurrent protection prevents the unit from short circuit and overcurrent condition.
The unit automatically recovers when the fault condition is cleared.

●Intermittent current characteristics

■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.

1.4 Peakcurrent protection

■Peakcurrent protection is built-in (refer to Instruction Manual 5. for Peak loading).
If this function comes into effect, the output is shut down.
The minimum interval of AC recycling for recovery is 2 to 3 minutes (*).

* The recovery time varies depending on input voltage and load condition.

1.5 Overvoltage protection

■Output
Working overvoltage protection.
Overvoltage protection is built-in and comes into effect at 115-140% of the rated voltage.
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.

1.6 Output voltage adjustment range

■Adjustment of output voltage is possible by using potentiometer.

■Output voltage is increased by turning potentiometer clockwise and is decreased by turning potentiometer counterclockwise.

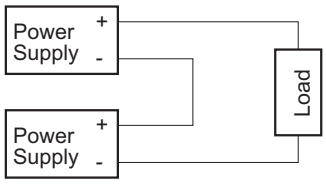
1.7 Isolation

■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 (option) must be shorted to outputs.

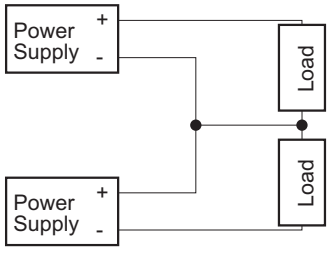
2 Series Operation and Parallel Operation

■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.

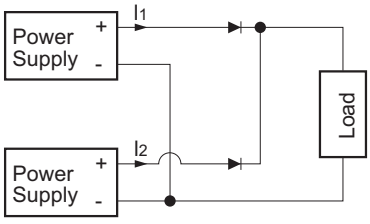
(a)



(b)



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



■Values of I_1 and I_2 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.

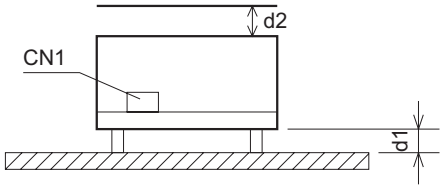
$I_1, I_2 \leqq$ the rated current value

3 Assembling and Installation Method

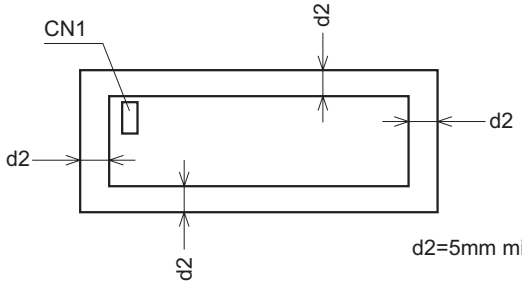
3.1 Installation method

■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 d1 and d2 for to insulate between lead of component and metal chassis. If ti is less than d1 and d2, insert the insulation sheet between power supply and metal chassis.



d1=8mm min



d2=5mm min

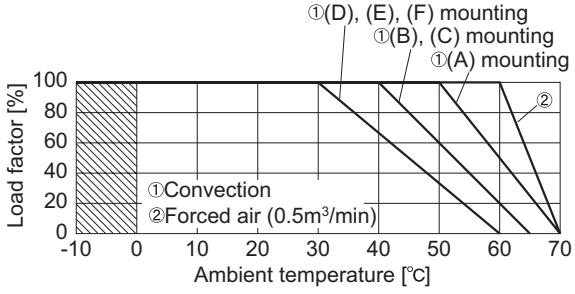
3.2 Derating

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

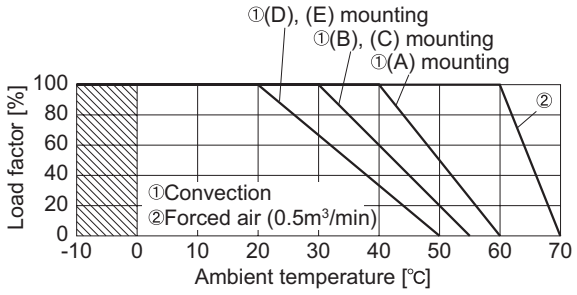
■In case②, ventilation must keep the temperature of C119 below 85℃. See External View for the location of C119.

■The operative ambient temperature is different by with/without case cover or mounting position.
Please refer to drawings as below.

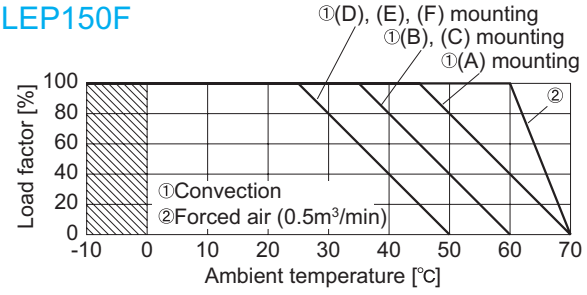
●LEP100F



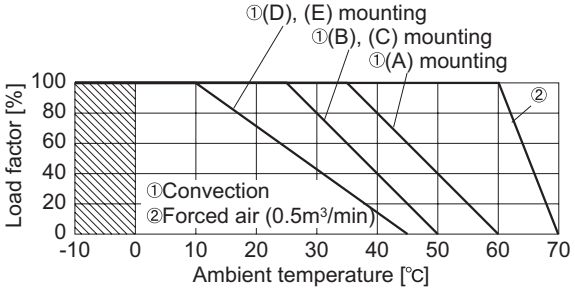
●LEP100F-□-SN (requirement: Min. AC90V)



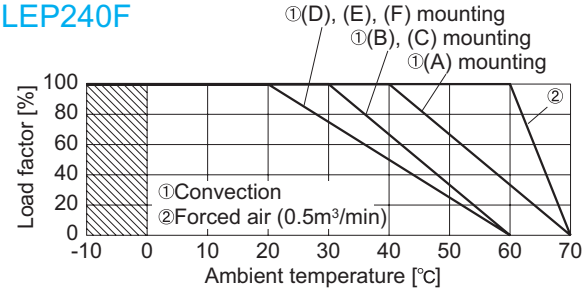
●LEP150F



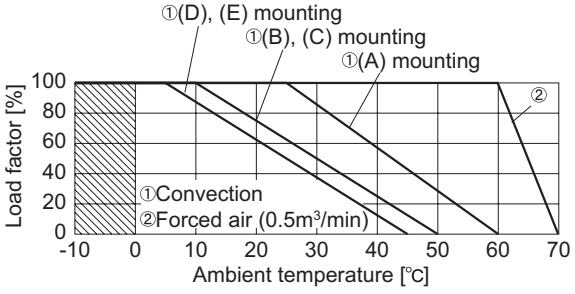
●LEP150F-□-SN (requirement: Min. AC90V)



●LEP240F



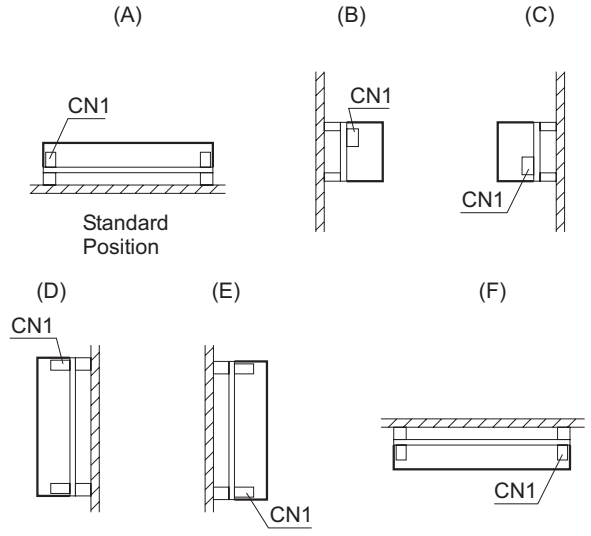
●LEP240F-□-SN (requirement: Min. AC90V)



■Option "-SN" is easy to be full of heat air inside power supply. The ventilation design with derating or forced air is recommended.

■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.

■(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 department.

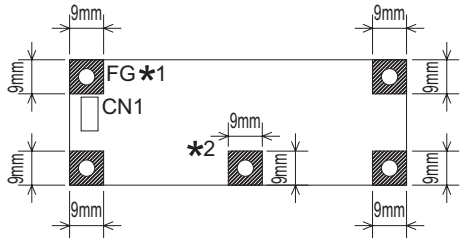


3.3 Mounting screw

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

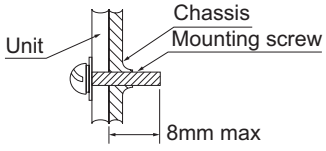
■Please be carefull with that metal parts do not touch mounted parts at front side, where major components are mounted, when a power supply is installed with them.

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



✱1 Recommendation to electrically connect FG to metal chassis for reducing noise.

✱2 LEP150F and LEP240F only
Refer to External view for location



LEP

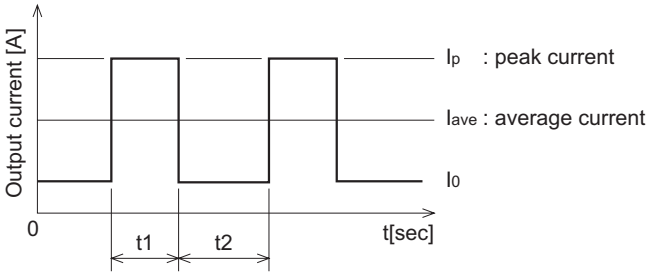
4 Ground

■When installing the power supply with your unit, ensure that the input FG terminal of CN1 or mounting hole FG is connected to safety ground of the unit.

However when applying the safety agency, connect the input FG terminal of CN1 to safety ground of the unit.

5 Peak loading

■Peak load is possible to draw as below.

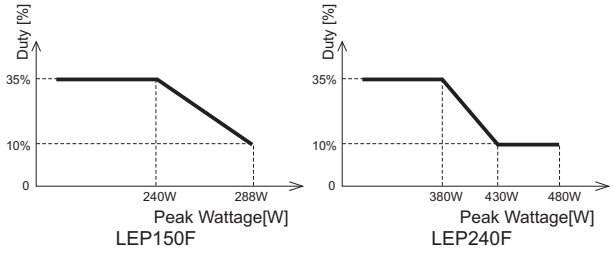


$t1 \leqq 10$ [sec], $I_{ave} = \dfrac{I_p\, t_1 + I_0\, t_2}{t_1 + t_2} \leqq$ rated current,

$\dfrac{t_1}{t_1 + t_2} \leqq 0.35$ (at LEP100F)

$\dfrac{t_1}{t_1 + t_2} \leqq$ Duty (at LEP150F, LEP240F)

In case of LEP150F, LEP240F, Duty is depended on peak load, refer to below chart.



6 Option and others

6.1 Outline of option

●-G

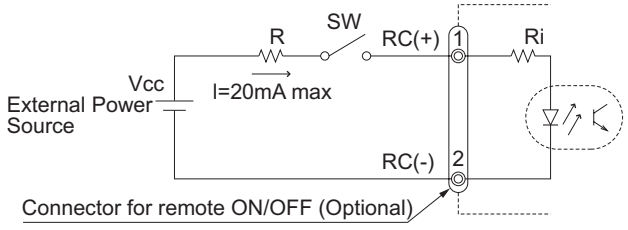
■Option "-G" means leakage current is smaller than standard model by reducing the value of earth capacitor at input filter circuit.

Leakage current	0.1mA max
Conducted noise	Not available

●-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



■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:

$$R[\Omega] = \frac{Vcc - (1.1 + Ri \times 0.005)}{0.005}$$

Where;

Vcc = External Power Source

Ri = 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.

LEP

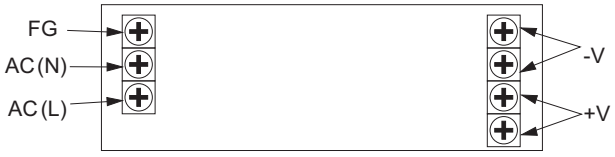
●-S・-SN

■Option "-S" means chassis is attached to standard model.

■Option "-SN" means chassis and cover is attached to standard model. Refer to 3.2 Derating for derating curve.

●-T

■Option "-T" means input and output interface are changed "Connector" to "Terminal block".



●-U

・Operation stop voltage is set at a lower value than standard version.

Use condition

Input	AC50V(DC70V)	
	Duty 1s/30s	
Output	LEP100F	75W
	LEP150F	114W
	LEP240F	180W

※Avoid continuously operating about 1[sec] and more so that the power supply is broken.

●-Z □

■Option "-Z □ " means ZT3 series in COSEL is mounted on standard model.

Refer to external view for output terminal.

Refer to COSEL catalog about ZT specification in detail.

It is possible to select ZT as below chart.

Please consult us use in, output 36V.

Optional symbol	-Z31	-Z32	-Z33	-Z34	-Z35
Mounted Power supply	ZTS3 2405	ZTS3 2412	ZTS3 2415	ZTW3 2412	ZTW3 2415
Notice	Output voltage in LEP series is 24[V].				
Optional symbol	-Z41	-Z42	-Z43	-Z44	-Z45
Mounted Power supply	ZTS3 4805	ZTS3 4812	ZTS3 4815	ZTW3 4812	ZTW3 4815
Notice	Output voltage in LEP series is 48[V].				

6.2 Others

■This power supply is the rugged PCB type. Do not drop conductive objects 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 PCB like twisting or bending causes the defect of the unit, so handle the unit with care.

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
LEP100F	Active filter	80	1.4	250V 5A	Thermistor	CEM-3	Yes		Yes	✻1
	Forward converter	120								
LEP150F	Active filter	80	2.0	250V 6.3A	Thermistor	CEM-3	Yes		Yes	✻1
	Forward converter	130								
LEP240F	Active filter	80	3.3	250V 10A	SCR	CEM-3	Yes		Yes	✻1
	Forward converter	120								

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