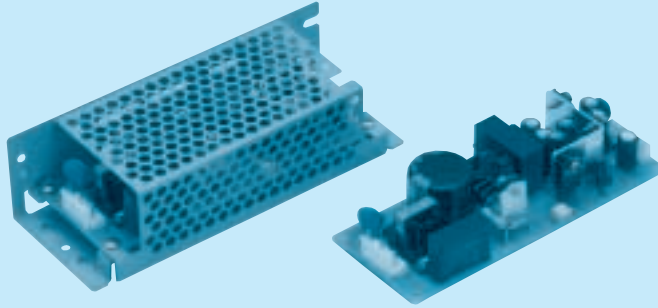


LDC1

LD C 15 F -1 -

① ② ③ ④ ⑤ ⑥



- ① Series name
- ② Multiple output
- ③ Output wattage
- ④ Universal input
- ⑤ Output voltage combination
- ⑥ Optional
- C :with Coating
- G :Low leakage current
- S :with Chassis
- SN:with Chassis & cover
- Y :with Potentiometer

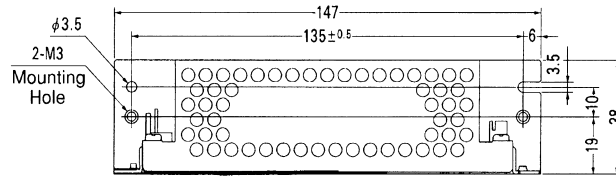
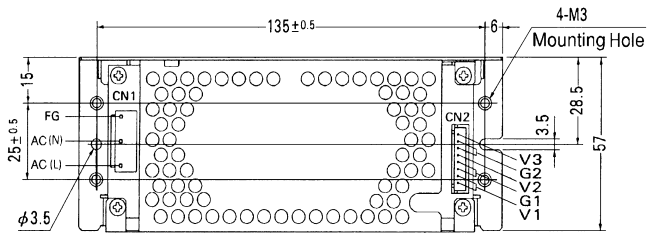
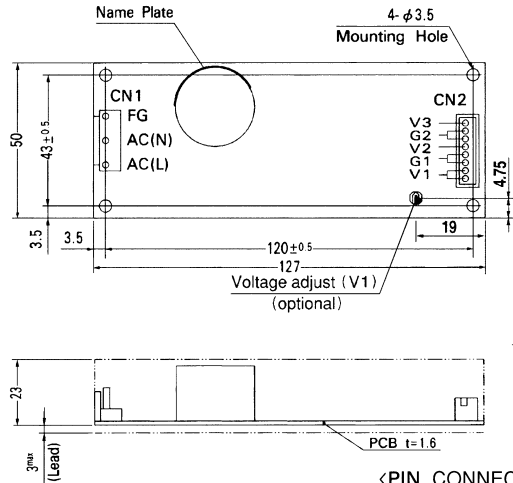
MODEL	LDC15F-1		LDC15F-2	
DC OUTPUT	V1	+5V 2.0(Peak 3.0)A	+5V 2.0(Peak 3.0)A	
	V2	+12V 0.3(Peak 0.6)A	+15V 0.3(Peak 0.6)A	
	V3	-12V 0.2(Peak 0.3)A	-15V 0.2(Peak 0.3)A	

SPECIFICATIONS

	MODEL	LDC15F-1			LDC15F-2			
INPUT	VOLTAGE[V]	AC85 - 264 1 φ or DC110 - 370						
	CURRENT[A]	ACIN 100V	0.4typ (Io=100%)					
	FREQUENCY[Hz]	47 - 440 or DC						
	EFFICIENCY[%]	ACIN 100V	70typ (Io=100%)					
	INRUSH CURRENT[A]	ACIN 100V	25typ (Io=100%)					
		ACIN 200V	50typ (Io=100%)					
	LEAKAGE CURRENT[ma]	0.75max (60Hz, According to UL, CSA, VDE and DEN-AN)						
OUTPUT	VOLTAGE[V]	+5	+12	-12	+5	+15	-15	
	CURRENT[A]	*1 0 - 2.0 (Peak 3.0)	0 - 0.3 (Peak 0.6)	0 - 0.2 (Peak 0.3)	0 - 2.0 (Peak 3.0)	0 - 0.3 (Peak 0.6)	0 - 0.2 (Peak 0.3)	
	LINE REGULATION[mV]	20max	48max	48max	20max	60max	60max	
	LOAD REGULATION[mV]	100max	120max	120max	100max	150max	150max	
	RIPPLE[mVp-p]	0 to +50°C *2	100max	120max	120max	100max	120max	120max
		-10 - 0°C *2	140max	160max	160max	140max	160max	160max
	RIPPLE NOISE[mVp-p]	0 to +50°C *2	120max	150max	150max	120max	150max	150max
		-10 - 0°C *2	160max	180max	180max	160max	180max	180max
	TEMPERATURE REGULATION[mV]	0 to +50°C	50max	350max	350max	50max	350max	350max
		-10 to +50°C	60max	420max	420max	60max	420max	420max
	DRIFT[mV]	*3 20max	—	—	20max	—	—	
	START-UP TIME[ms]	100max (ACIN 85V, Io=100%)						
	HOLD-UP TIME[ms]	10typ (ACIN 85V, Io=100%), 20typ (ACIN 100V, Io=100%), 100typ (ACIN 200V, Io=100%)						
OUTPUT VOLTAGE ADJUSTMENT RANGE[V]	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed		
OUTPUT VOLTAGE SETTING[V]	4.9 to 5.3	11.4 to 12.6	-11.4 to -12.6	4.9 to 5.3	14.25 to 15.75	-14.25 to -15.75		
PROTECTION CIRCUIT AND OTHERS	OVERCURRENT PROTECTION	Works over 105% of rating and recovers automatically						
	OVERVOLTAGE PROTECTION	Works over 115% of rating by zener diode clamping (+5V only)						
	OPERATING INDICATION	Not provided						
	REMOTE SENSING	Not provided						
ISOLATION	REMOTE ON/OFF	Not provided						
	INPUT-OUTPUT	AC3.000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (At Room Temperature)						
	INPUT-FG	AC2.000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (At Room Temperature)						
	OUTPUT-FG	AC500V 1minute, Cutoff current = 100mA, DC500V 50MΩ min (At Room Temperature)						
ENVIRONMENT	OUTPUT-OUTPUT(V1-V2,V3)	AC100V 1minute, Cutoff current = 100mA, DC100V 10MΩ min (At Room Temperature)						
	OPERATING TEMP.,HUMID.AND ALTITUDE	-10 to +60°C, 20 - 90%RH (Non condensing) (Refer to DERATING CURVE), 3,000m (10,000feet)						
	STORAGE TEMP.,HUMID.AND ALTITUDE	-20 to +75°C, 20 - 90%RH (Non condensing), 9,000m (30,000feet)						
	VIBRATION	10 - 55Hz, 19.6m/s ² (2G), 3minutes period, 60minutes each along X, Y and Z axis						
SAFETY AND NOISE REGULATIONS	IMPACT	196.1m/s ² (20G), 11ms, once each X, Y and Z axis						
	AGENCY APPROVALS	UL1950, EN60950, VDE0160, CSA C22.2 No.234 Complies with DEN-AN and IEC60950						
	CONDUCTED NOISE	Complies with FCC-B, CISPR22-B, EN55022-B, VCCI-B						
OTHERS	CASE SIZE/WEIGHT	50 X 26 X 127mm (W X H X D) /150g max (without chassis and cover)						
	COOLING METHOD	Convection						

*1 Peak load for 10sec. or less is acceptable if the total wattage is less than the rated wattage(-1: 16W, -2: 17.5W).When the load of +5V is OA, other output can be drawn by 80% of rated current.
 *2 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.
 * Avoid prolonged use under over-load.
 * Derating is required when operated with chassis and cover.

External view



<PIN CONNECTION>

I/O Connector	Mating Connector	Terminal
CN1	B3P5-VH	VHR-5N
CN2	B8B-XH-A	XHP-8

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

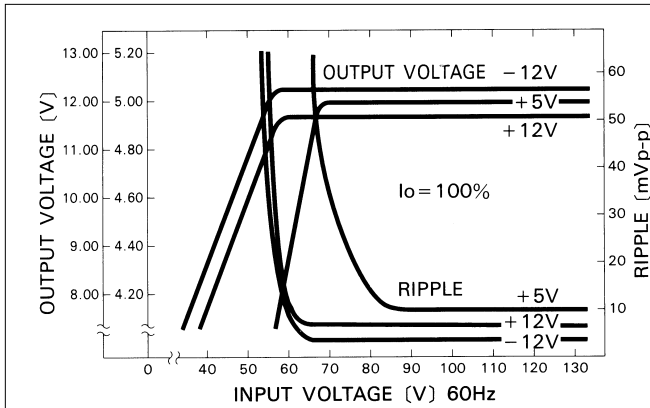
<PIN CONNECTION> CN2	
Pin No.	Output
1	V1
2	V1
3	G1
4	G1
5	V2
6	G2
7	G2
8	V3

- ※ Weight: 150g 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

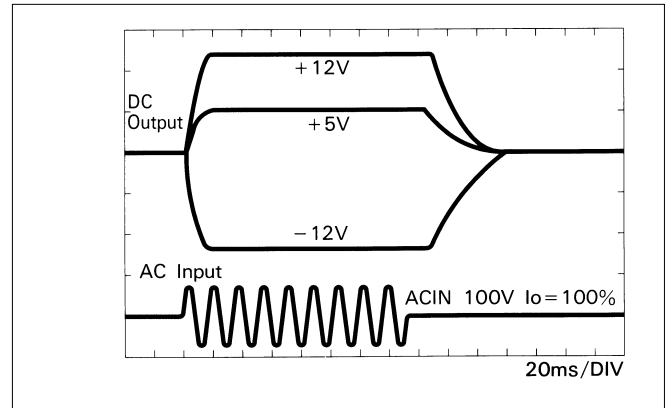
※ 2A per pin maximum for CN2

Performance data

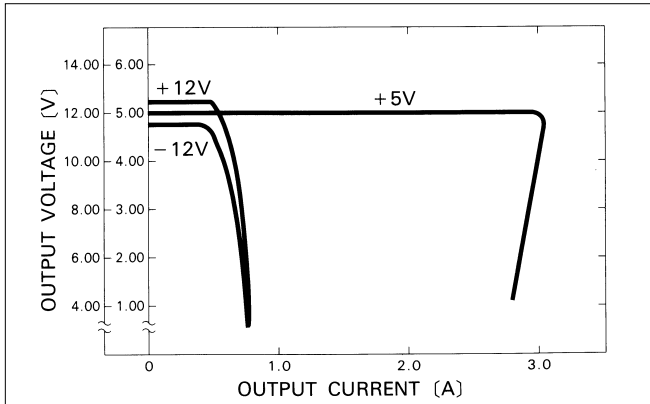
■ STATIC CHARACTERISTICS (LDC15F-1)



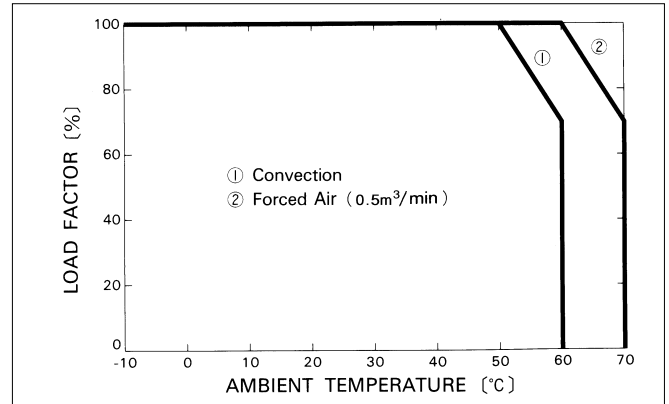
■ RISE TIME & FALL TIME (LDC15F-1)



■ OVERCURRENT CHARACTERISTICS (LDC15F-1)



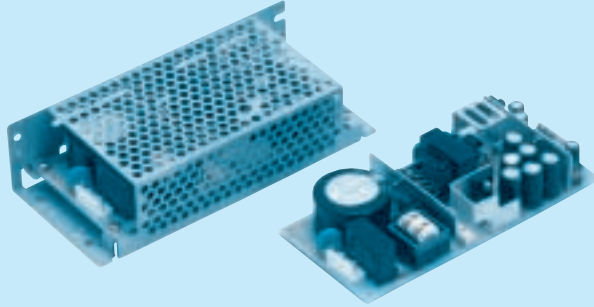
■ DERATING CURVE



LDC30

LD C 30 F -1 -□

① ② ③ ④ ⑤ ⑥



- ① Series name
- ② Multiple output
- ③ Output wattage
- ④ Universal input
- ⑤ Output voltage combination
- ⑥ Optional
- C :with Coating
- G :Low leakage current
- S :with Chassis
- SN:with Chassis & cover
- Y :with Potentiometer

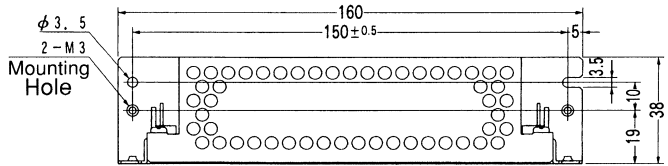
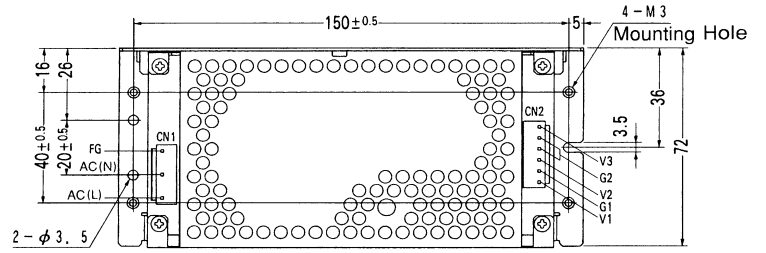
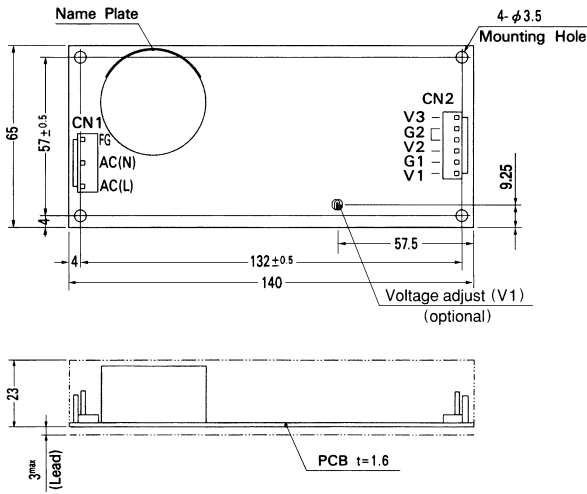
MODEL	LDC30F-1	LDC30F-2
DC OUTPUT	V1 +5V 3.0(Peak 4.5)A V2 +12V 1.2(Peak 2.0)A V3 -12V 0.3(Peak 0.45)A	+5V 3.0(Peak 4.5)A +15V 1.0(Peak 2.0)A -15V 0.3(Peak 0.45)A

SPECIFICATIONS

	MODEL	LDC30F-1	LDC30F-2					
INPUT	VOLTAGE[V]	AC85 - 264 1 φ or DC110 - 370						
	CURRENT[A]	ACIN 100V	0.8typ (Io=100%)					
	FREQUENCY[Hz]		47 - 440 or DC					
	EFFICIENCY[%]	ACIN 100V	72typ (Io=100%)					
	INRUSH CURRENT[A]	ACIN 100V	25typ (Io=100%) (At cold start)					
		ACIN 200V	50typ (Io=100%) (At cold start)					
LEAKAGE CURRENT[ma]		0.75max (60Hz, According to UL, CSA, VDE and DEN-AN)						
OUTPUT	VOLTAGE[V]	+5	+12	-12	+5	+15	-15	
	CURRENT[A]	*1	0 - 3.0 (Peak 4.5)	0 - 1.2 (Peak 2.0)	0 - 0.3 (Peak 0.45)	0 - 3.0 (Peak 4.5)	0 - 1.0 (Peak 2.0)	0 - 0.3 (Peak 0.45)
	LINE REGULATION[mV]		20max	48max	48max	20max	60max	60max
	LOAD REGULATION[mV]		100max	120max	150max	100max	120max	150max
	RIPPLE[mVp-p]	0 to +50°C *2	100max	120max	120max	100max	120max	120max
		-10 - 0°C *2	150max	160max	160max	150max	160max	160max
	RIPPLE NOISE[mVp-p]	0 to +50°C *2	120max	150max	150max	120max	150max	150max
		-10 - 0°C *2	170max	180max	180max	170max	180max	180max
	TEMPERATURE REGULATION[mV]	0 to +50°C	50max	350max	350max	50max	350max	350max
		-10 to +50°C	60max	420max	420max	60max	420max	420max
	DRIFT[mV]	*3	20max	—	—	20max	—	—
	START-UP TIME[ms]		100max (ACIN 85V, Io=100%)					
	HOLD-UP TIME[ms]		10typ (ACIN 85V, Io=100%), 20typ (ACIN 100V, Io=100%), 100typ (ACIN 200V, Io=100%)					
OUTPUT VOLTAGE ADJUSTMENT RANGE[V]		Fixed	Fixed	Fixed	Fixed	Fixed	Fixed	
OUTPUT VOLTAGE SETTING[V]		4.9 to 5.3	11.4 to 12.6	-11.4 to -12.6	4.9 to 5.3	14.25 to 15.75	-14.25 to -15.75	
PROTECTION CIRCUIT AND OTHERS	OVERCURRENT PROTECTION	Works over 105% of rating and recovers automatically						
	OVERVOLTAGE PROTECTION	Works at 115 - 140% of rating (+5V only)						
	OPERATING INDICATION	Not provided						
	REMOTE SENSING	Not provided						
ISOLATION	REMOTE ON/OFF	Not provided						
	INPUT-OUTPUT	AC3.000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (At Room Temperature)						
	INPUT-FG	AC2.000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (At Room Temperature)						
	OUTPUT-FG	AC500V 1minute, Cutoff current = 100mA, DC500V 50MΩ min (At Room Temperature)						
ENVIRONMENT	OUTPUT-OUTPUT(V1-V2,V3)	AC100V 1minute, Cutoff current = 100mA, DC100V 10MΩ min (At Room Temperature)						
	OPERATING TEMP.,HUMID.AND ALTITUDE	-10 to +60°C, 20 - 90%RH (Non condensing) (Refer to DERATING CURVE), 3,000m (10,000feet)						
	STORAGE TEMP.,HUMID.AND ALTITUDE	-20 to +75°C, 20 - 90%RH (Non condensing), 9,000m (30,000feet)						
	VIBRATION	10 - 55Hz, 19.6m/s ² (2G), 3minutes period, 60minutes each along X, Y and Z axis						
SAFETY AND NOISE REGULATIONS	IMPACT	196.1m/s ² (20G), 11ms, once each X, Y and Z axis						
	AGENCY APPROVALS	UL1950, EN60950, VDE0160, CSA C22.2 No.234 Complies with DEN-AN and IEC60950						
	CONDUCTED NOISE	Complies with FCC-B, CISPR22-B, EN55022-B, VCCI-B						
OTHERS	CASE SIZE/WEIGHT	65 X 26 X 140mm (W X H X D) / 220g max (without chassis and cover)						
	COOLING METHOD	Convection						

*1 Peak load for 10sec. or less is acceptable if the total wattage is less than the rated wattage(-1: 33W, -2: 34.5W).When the load of +5V is OA, other output can be drawn by 80% of rated current.
 *2 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.
 * Avoid prolonged use under over-load.
 * Derating is required when operated with chassis and cover.

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	B6P-VH	VHR-6N	Chain:SVH-21T-P1.1
			Loose:BVH-21T-P1.1

(Mfr : J.S.T.)

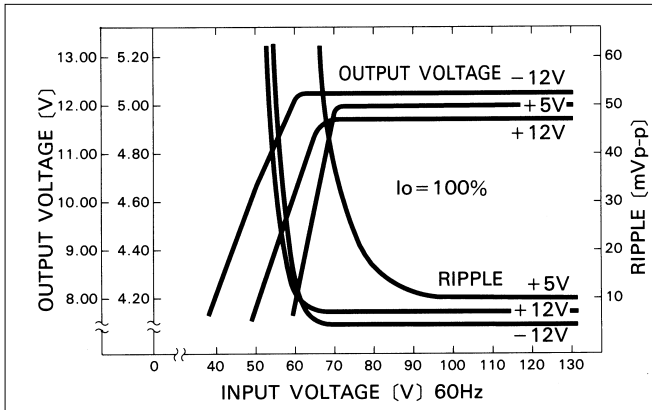
Pin No.	Input
1	AC(L)
2	
3	AC(N)
4	
5	FG

Pin No.	Output
1	V3
2	G2
3	G2
4	V2
5	G1
6	V1

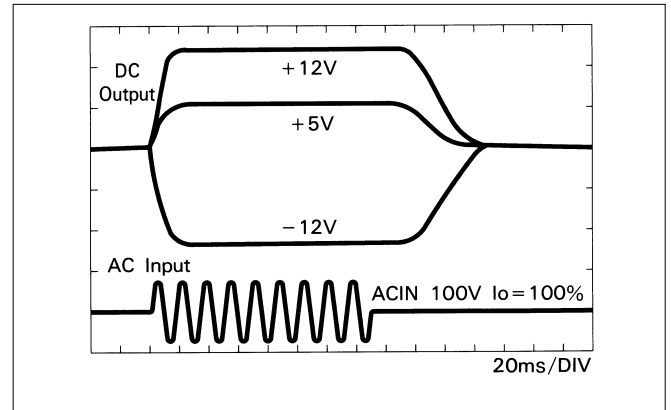
- ※ Weight: 220g or less (without chassis and cover)
- ※ Tolerance: ±1
- ※ Dimensions in mm.
- ※ PCB Material: Glass composite (CEM3)
- ※ Chassis and cover is optional.
- ※ Mounting torque: 0.6N·m (6.3kgf·cm) max

Performance data

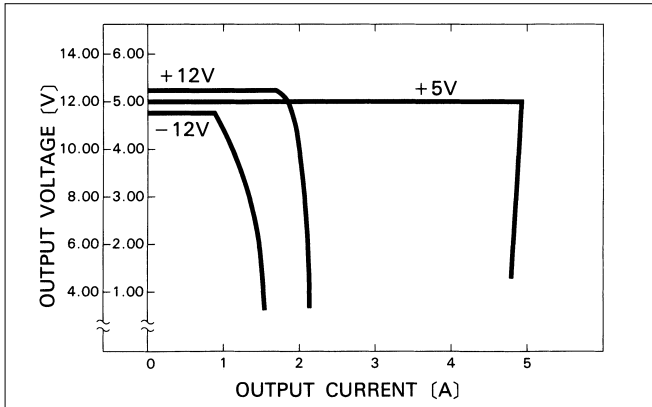
■ STATIC CHARACTERISTICS (LDC30F-1)



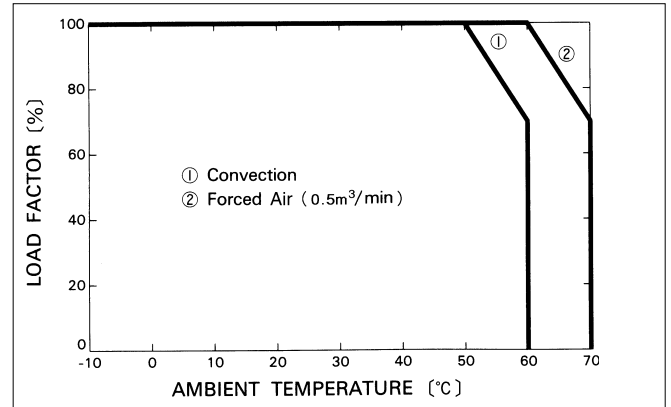
■ RISE TIME & FALL TIME (LDC30F-1)



■ OVERCURRENT CHARACTERISTICS (LDC30F-1)



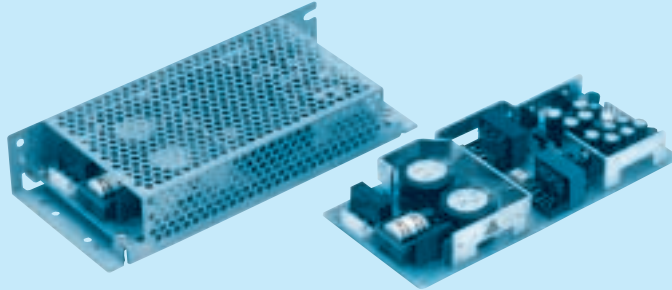
■ DERATING CURVE



LDC 0

LD C 60 F -1 -□

① ② ③ ④ ⑤ ⑥



- ① Series name
- ② Multiple output
- ③ Output wattage
- ④ Universal input
- ⑤ Output voltage combination
- ⑥ Optional
- C :with Coating
- G :Low leakage current
- S :with Chassis
- SN:with Chassis & cover
- Y :with Potentiometer

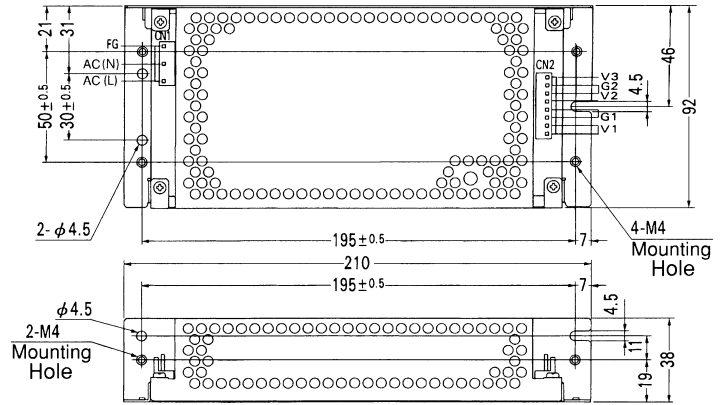
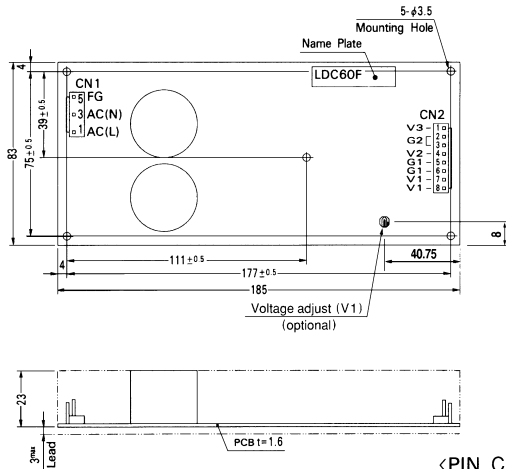
MODEL	LDC60F-1	LDC60F-2
DC OUTPUT	V1 +5V 5.0(Peak 7.0)A V2 +12V 2.5(Peak 3.5)A V3 -12V 0.5(Peak 0.7)A	+5V 5.0(Peak 7.0)A +15V 2.0(Peak 3.5)A -15V 0.5(Peak 0.7)A

SPECIFICATIONS

	MODEL	LDC60F-1	LDC60F-2					
INPUT	VOLTAGE[V]	AC85 - 264 1 φ or DC110 - 370						
	CURRENT[A]	ACIN 100V	1.4typ (Io=100%)					
	FREQUENCY[Hz]		47 - 440 or DC					
	EFFICIENCY[%]	ACIN 100V	72typ (Io=100%)					
	INRUSH CURRENT[A]	ACIN 100V	30typ (Io=100%) (At cold start)					
		ACIN 200V	60typ (Io=100%) (At cold start)					
	LEAKAGE CURRENT[ma]	0.75max (60Hz, According to UL, CSA, VDE and DEN-AN)						
OUTPUT	VOLTAGE[V]	+5	+12	-12	+5	+15	-15	
	CURRENT[A]	*1 0 - 5.0 (Peak 7.0)	0 - 2.5 (Peak 3.5)	0 - 0.5 (Peak 0.7)	0 - 5.0 (Peak 7.0)	0 - 2.0 (Peak 3.5)	0 - 0.5 (Peak 0.7)	
	LINE REGULATION[mV]	20max	48max	48max	20max	60max	60max	
	LOAD REGULATION[mV]	100max	150max	150max	100max	150max	150max	
	RIPPLE[mVp-p]	0 to +50°C *2	100max	120max	120max	100max	120max	120max
		-10 - 0°C *2	150max	160max	160max	150max	160max	160max
	RIPPLE NOISE[mVp-p]	0 to +50°C *2	120max	150max	150max	120max	150max	150max
		-10 - 0°C *2	170max	180max	180max	170max	180max	180max
	TEMPERATURE REGULATION[mV]	0 to +50°C	50max	350max	350max	50max	350max	350max
		-10 to +50°C	60max	420max	420max	60max	420max	420max
	DRIFT[mV]	*3 20max	—	—	20max	—	—	
	START-UP TIME[ms]	200max (ACIN 85V, Io=100%)			100max (ACIN 200V, Io=100%)			
	HOLD-UP TIME[ms]	10typ (ACIN 85V, Io=100%), 20typ (ACIN 100V, Io=100%), 100typ (ACIN 200V, Io=100%)						
OUTPUT VOLTAGE ADJUSTMENT RANGE[V]	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed		
OUTPUT VOLTAGE SETTING[V]	4.9 to 5.3	11.4 to 12.6	-11.4 to -12.6	4.9 to 5.3	14.25 to 15.75	-14.25 to -15.75		
PROTECTION CIRCUIT AND OTHERS	OVERCURRENT PROTECTION	Works over 105% of rating and recovers automatically						
	OVERVOLTAGE PROTECTION	Works over 115% of rating by zener diode clamping (only available with V1, V2)						
	OPERATING INDICATION	Not provided						
	REMOTE SENSING	Not provided						
ISOLATION	REMOTE ON/OFF	Not provided						
	INPUT-OUTPUT	AC3.000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (At Room Temperature)						
	INPUT-FG	AC2.000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (At Room Temperature)						
	OUTPUT-FG	AC500V 1minute, Cutoff current = 100mA, DC500V 50MΩ min (At Room Temperature)						
ENVIRONMENT	OUTPUT-OUTPUT(V1-V2,V3)	AC100V 1minute, Cutoff current = 100mA, DC100V 10MΩ min (At Room Temperature)						
	OPERATING TEMP.,HUMID.AND ALTITUDE	-10 to +60°C, 20 - 90%RH (Non condensing) (Refer to DERATING CURVE), 3,000m (10,000feet)						
	STORAGE TEMP.,HUMID.AND ALTITUDE	-20 to +75°C, 20 - 90%RH (Non condensing), 9,000m (30,000feet)						
	VIBRATION	10 - 55Hz, 19.6m/s ² (2G), 3minutes period, 60minutes each along X, Y and Z axis						
SAFETY AND NOISE REGULATIONS	IMPACT	196.1m/s ² (20G), 11ms, once each X, Y and Z axis						
	AGENCY APPROVALS	UL1950, EN60950, VDE0160, CSA C22.2 No.234 Complies with DEN-AN and IEC60950						
	CONDUCTED NOISE	Complies with FCC-B, CISPR22-B, EN55022-B, VCCI-B						
OTHERS	CASE SIZE/WEIGHT	83X26X185mm (WxHxD) / 300g max (without chassis and cover)						
	COOLING METHOD	Convection						

*1 Peak load for 10sec. or less is acceptable if the total wattage is less than the rated wattage(-1: 61W, -2: 62.5W).When the load of +5V is OA, other output can be drawn by 80% of rated current.
 *2 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.
 * Avoid prolonged use under over-load.
 * Derating is required when operated with chassis and cover.

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

(Mfr: J.S.T.)

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

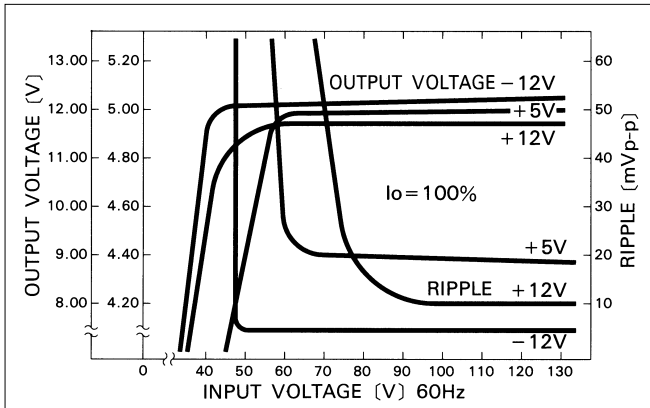
Pin No.	Output
1	V3
2	G2
3	G2
4	V2
5	G1
6	G1
7	V1
8	V1

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

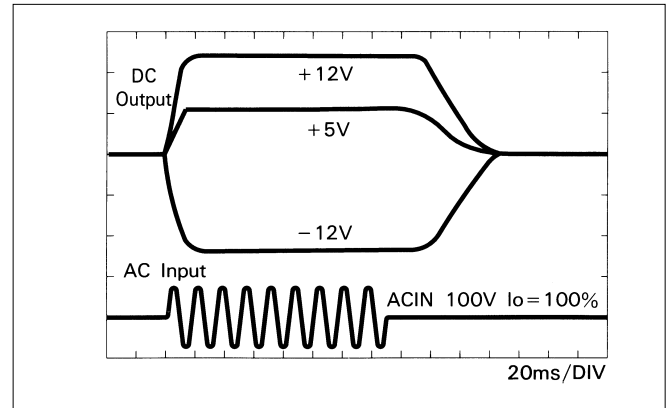
- ※ Weight: 300g or less (without chassis and cover)
- ※ Tolerance: ±1
- ※ Dimensions in mm.
- ※ PCB Material: Glass composite (CEM3)
- ※ Chassis and cover is optional.
- ※ Mounting torque: 1.5N·m (16kgf·cm) max

Performance data

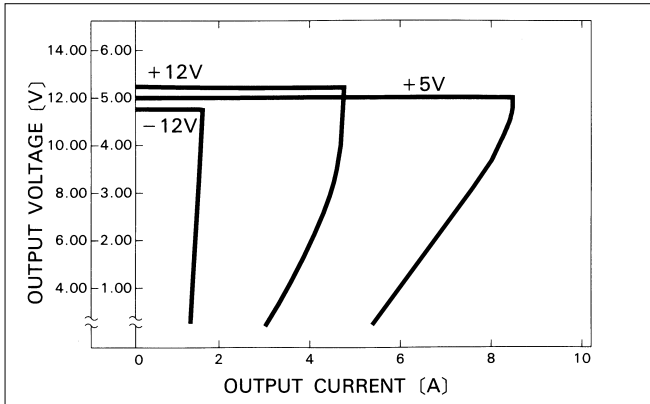
■ STATIC CHARACTERISTICS (LDC60F-1)



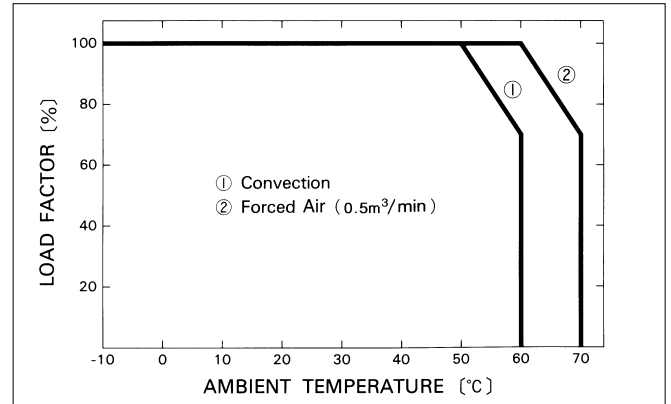
■ RISE TIME & FALL TIME (LDC60F-1)



■ OVERCURRENT CHARACTERISTICS (LDC60F-1)



■ DERATING CURVE



Basic Characteristics Data

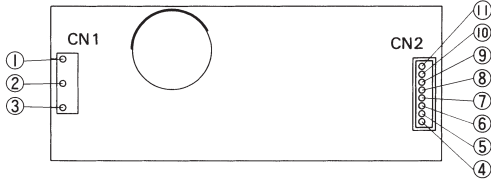
Model	Circuit method	Switching frequency [kHz]	Input current [A]	Fuse [A]	Inrush current protection	PCB/Pattern			Series/Parallel operation availability	
						Material	Single sided	Double sided	Series operation	Parallel operation
LDC15F	Flyback converter	40 - 350	0.4	2	Resistance of line filter	CEM-3	Yes		*1	No
LDC30F	Flyback converter	40 - 400	0.8	3	Thermistor	CEM-3	Yes		*1	No
LDC60F	Flyback converter	30 - 500	1.4	3	Thermistor	CEM-3	Yes		*1	No

- *1 Refer to Instruction Manual.
- * The value of input current shown is at AC IN 100V and rated load.
- * Switching frequency of flyback converter depends on input voltage and load factor.

1	Terminal Block	E-10
2	Function	E-10
2.1	Input voltage range	E-10
2.2	Inrush current limiting	E-10
2.3	Overcurrent protection	E-10
2.4	Overvoltage protection	E-11
2.5	Output voltage adjustment range	E-11
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3	Series Operation and Parallel Operation	E-11
4	Assembling and Installation Method	E-11
4.1	Installation method	E-11
4.2	Derating	E-12
4.3	Mounting screw	E-12
5	Peak Loading	E-13
6	Ground	E-13
7	Others	E-13

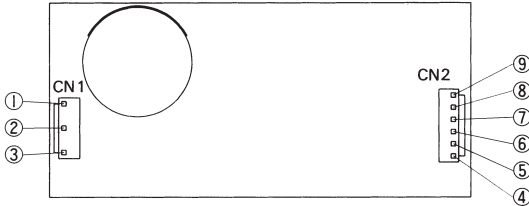
1 Terminal Block

●LDC15F



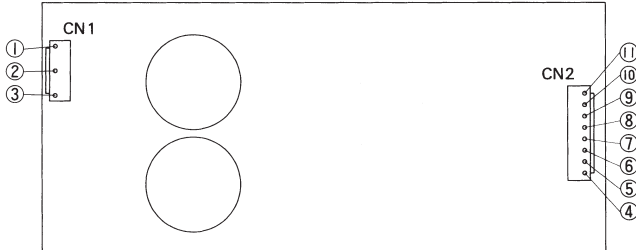
- | | |
|---------------|-----------------|
| ①Frame ground | ⑦G1(V1) GND |
| ②AC(N) | ⑧V2 Output |
| ③AC(L) | ⑨G2(V2, V3) GND |
| ④V1 Output | ⑩G2(V2, V3) GND |
| ⑤V1 Output | ⑪V3 Output |
| ⑥G1(V1) GND | |

●LDC30F



- | | |
|---------------|-----------------|
| ①Frame ground | ⑥V2 Output |
| ②AC(N) | ⑦G2(V2, V3) GND |
| ③AC(L) | ⑧G2(V2, V3) GND |
| ④V1 Output | ⑨V3 Output |
| ⑤G1(V1) GND | |

●LDC60F



- | | |
|---------------|-----------------|
| ①Frame ground | ⑦G1(V1) GND |
| ②AC(N) | ⑧V2 Output |
| ③AC(L) | ⑨G2(V2, V3) GND |
| ④V1 Output | ⑩G2(V2, V3) GND |
| ⑤V1 Output | ⑪V3 Output |
| ⑥G1(V1) GND | |

2 Function

2.1 Input voltage range

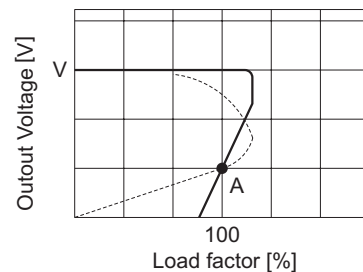
- The range is from AC85V to AC264V or DC110V to DC370V.
- AC input voltage must have a range from AC85V to AC264V or DC110V to DC370V for normal operation. If the wrong input is applied, the unit will not operate properly and/or may be damaged.

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 of less than 10 seconds. The unit automatically recovers when the fault condition is cleared.
- When the overcurrent/short circuit condition continues more than 10 seconds, it may damage devices inside the power supply.
- The power supply which has a current foldback characteristics may not start up when connected to nonlinear load such as lamp, motor or constant current load. See the characteristics below.



—: Load characteristics of power supply.
 -----: Characteristics of load (lamp, motor, constant current load, etc.).
 Note: In case of nonlinear load, the output is locked out at A point.

Fig.2.1 Current foldback characteristics

●LDC60F

- When overcurrent protection comes into effect only for V1, the output voltage of V2 & V3 will not drop.

2.4 Overvoltage protection

●LDC30F

- In V1, the overvoltage protection circuit 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 5 minutes (★).
- ★ The recovery time varies depending on input voltage.

●LDC15F · LDC60F

- Overvoltage protection circuit, clamping the output voltage by zener diode, is built-in and comes into effect at over 115% of the rated voltage (except LDC15F V₂,V₃ and LDC60F V₃). The unit in an overvoltage protection mode cannot be recovered by a user; it must be repaired at the factory. Overvoltage protection (diode) also comes into effect.

Moreover, when the overvoltage is applied to output of power supply from outside, this diode operates, please avoid applying overvoltage externally.

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.

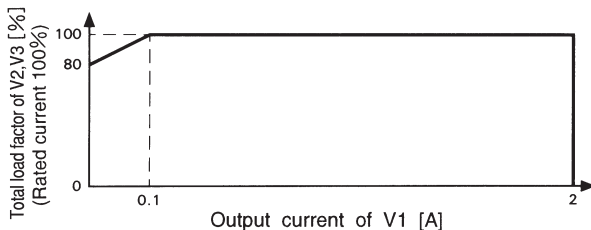
2.5 Output voltage adjustment range

- Adjustment of output voltage for V1 is possible by using potentiometer.
- Output voltage is increased by turning potentiometer clockwise and is decreased by turning potentiometer counterclockwise.
- Modified unit "-Y" is recommended which can adjust the output voltage.

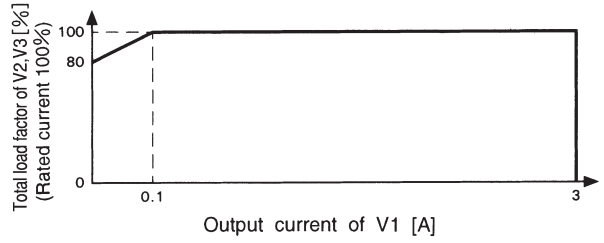
2.6 Minimum output current

- By V1 (+5V) load condition, the load factor of V2 and V3 are changed as below.

●LDC15F

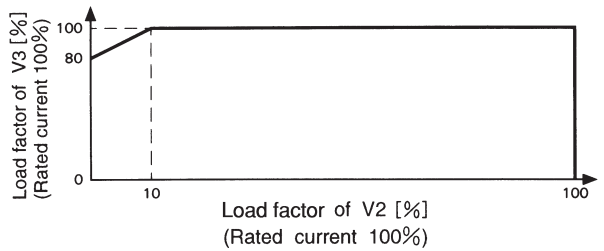


●LDC30F



- By V2 load condition, the load factor of V3 is changed as below.

●LDC60F



3 Series Operation and Parallel Operation

LDC

- Series operation with V2 and V3 is available by connecting the outputs of the unit as shown below. Output current in series connection should be lower than the lowest output current of the unit.
- Series operation with other model is not possible.
- By adding diode externally at the output side, series operation with V2 and V3 is available. For details, please contact our sales or engineering departments.
- Parallel operation is not possible.

4 Assembling and Installation Method

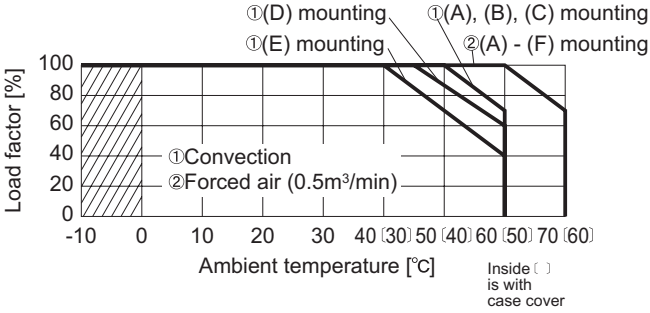
4.1 Installation method

- 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.
- 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.

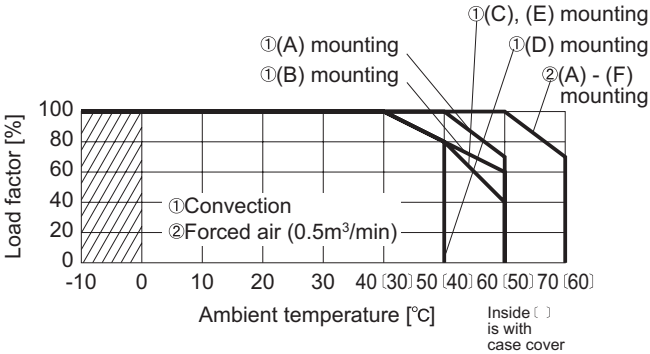
4.2 Derating

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

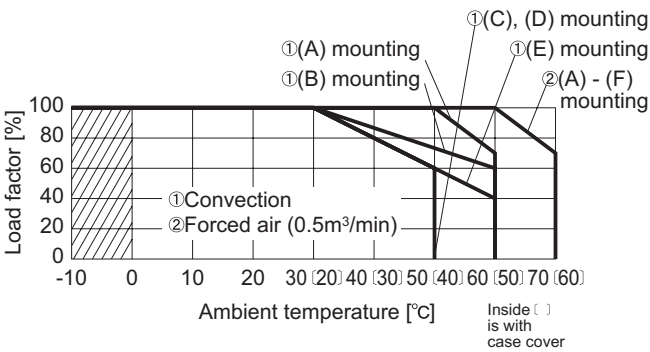
●LDC15F



●LDC30F



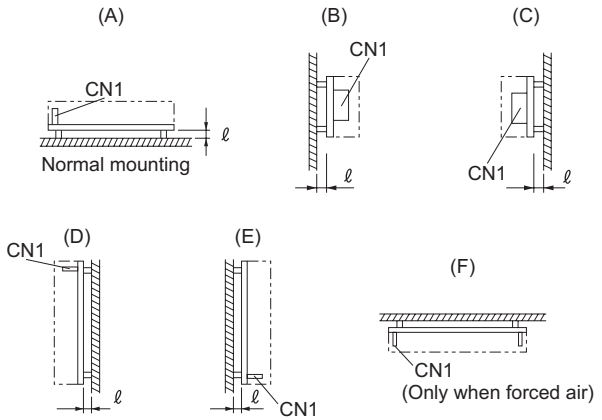
●LDC60F



Note:

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

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



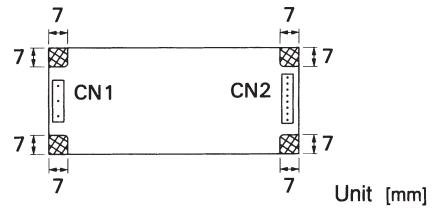
■In case of metal chassis, keep more than 8mm for the part of l to insulate between lead of component and metal chassis. If it is less than 8mm, insert the insulation sheet between power supply and metal chassis.

4.3 Mounting screw

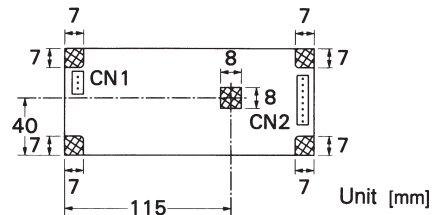
■The mounting screw should be M3. The hatched area shows the allowance of metal parts for mounting.

■Keep isolation distance between metal parts for mounting and internal components.

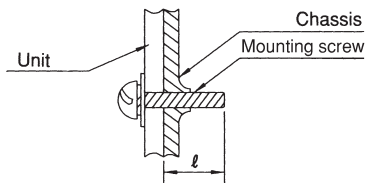
●LDC15F · LDC30F



●LDC60F



- Keep isolation distance between screw and internal components, as below chart.



Unit:[mm]

Model	l max
LDC15F-□-SN	8
LDC30F-□-SN	8
LDC60F-□-SN	8

5 Peak Loading

- Peak load current is possible to draw 10 seconds subject the average current should be less than the rated current. It will damage devices inside the power supply when the peak load current continues more than 10 seconds.

6 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.

7 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.

●LDC60F

- When overcurrent protection works at V1 only, the output voltage of V2 and V3 will not be dropped.