LDC15F

LD C 15 F -1 -☐
① ② ③ ④ ⑤ ⑥

c**UL**us CSA TÜV Rheinland CE

RoHS

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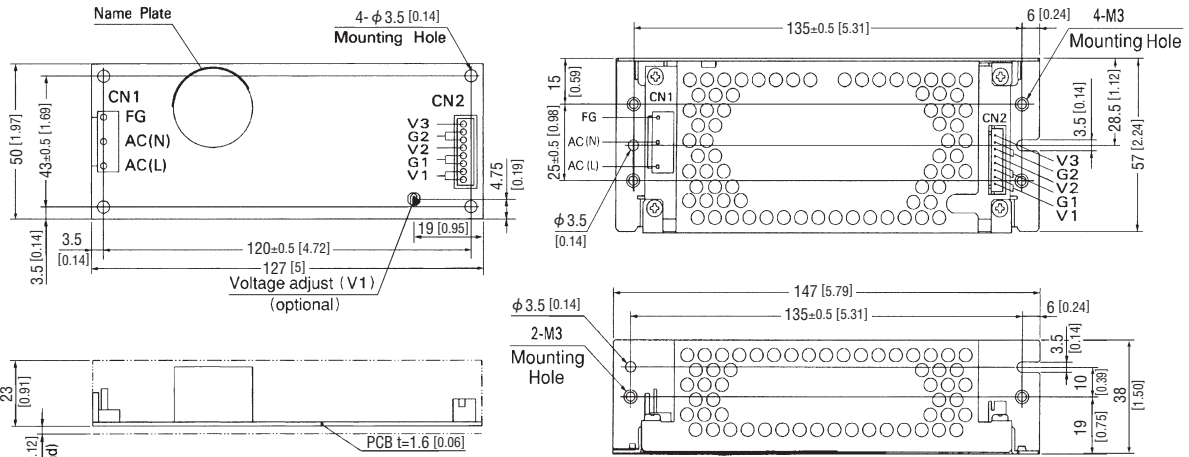 SN : with Chassis & cover
  Y : with Potentiometer

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 1φ 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℃ *2	100max	120max	120max	100max	120max	120max
	-10 - 0℃ *2	140max	160max	160max	140max	160max	160max
	RIPPLE NOISE[mVp-p] 0 to +50℃ *2	120max	150max	150max	120max	150max	150max
	-10 - 0℃ *2	160max	180max	180max	160max	180max	180max
	TEMPERATURE REGULATION[mV] 0 to +50℃	50max	350max	350max	50max	350max	350max
	-10 to +50℃	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					
	REMOTE ON/OFF	Not provided					
ISOLATION	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)					
	OUTPUT-OUTPUT(V1-V2,V3)	AC100V 1minute, Cutoff current = 100mA, DC100V 10MΩ min (At Room Temperature)					
ENVIRONMENT	OPERATING TEMP.,HUMID.AND ALTITUDE	-10 to +60℃, 20 - 90%RH (Non condensing) (Refer to DERATING CURVE), 3,000m (10,000feet)					
	STORAGE TEMP.,HUMID.AND ALTITUDE	-20 to +75℃, 20 - 90%RH (Non condensing), 9,000m (30,000feet)					
	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	UL60950-1, EN60950-1, EN50178, CSA C22.2 No.60950-1 Complies with DEN-AN and IEC60950-1					
	CONDUCTED NOISE	Complies with FCC-B, CISPR22-B, EN55022-B, VCCI-B					
OTHERS	CASE SIZE/WEIGHT	50×26×127mm [1.97×1.02×5 inches] (W×H×D) /150g max (with chassis & cover : 300g max)					
	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℃ with the input voltage held constant at the rated input/output.
*4 Please contact us about safety approvals for the model with option.
* Avoid prolonged use under over-load.
* Derating is required when operated with chassis and cover.

March 13, 2019

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	B8B-XH-A	XHP-8	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	V1
2	V1
3	G1
4	G1
5	V2
6	G2
7	G2
8	V3

※2A per pin maximum for CN2
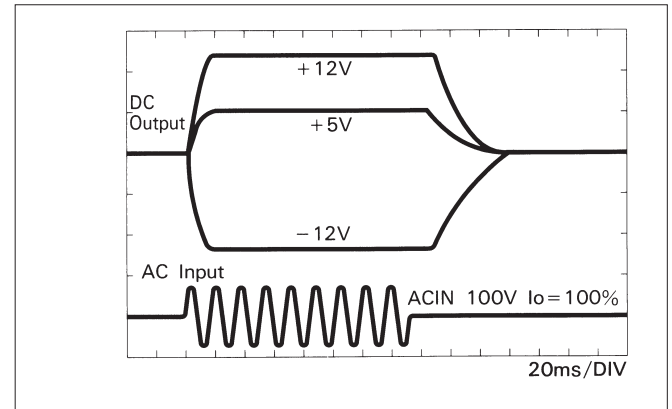
※ Weight: 150g max (with chassis & cover : 300g max)
※ Tolerance: ±1 [±0.04]
※ Dimensions in mm, [ ] =inches
※ PCB Material: Glass composite (CEM3)
※ Chassis and cover is optional.
※ Mounting torque: 0.6N·m (6.3kgf·cm) max

Performance data
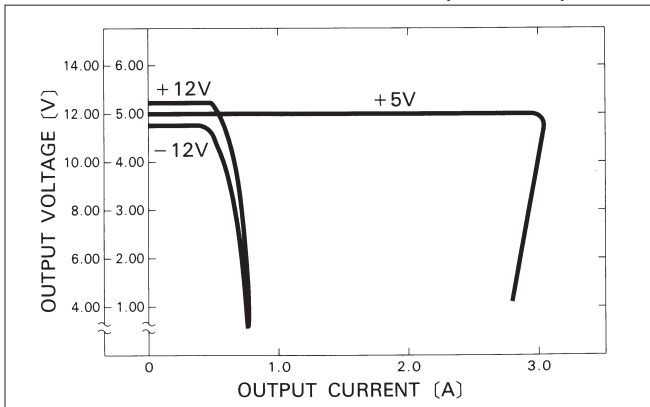
■STATIC CHARACTERISTICS （LDC15F-1)
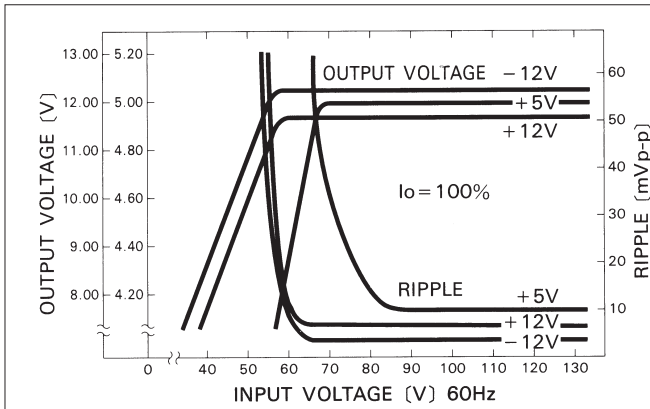
■RISE TIME & FALL TIME （LDC15F-1)

■OVERCURRENT CHARACTERISTICS (LDC15F-1)
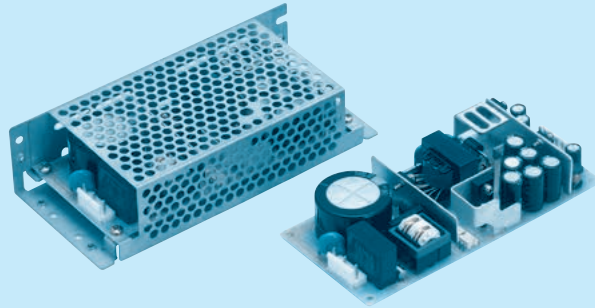

■DERATING CURVE

① Convection
② Forced Air （0.5m³/min）

LDC30F

Ordering information
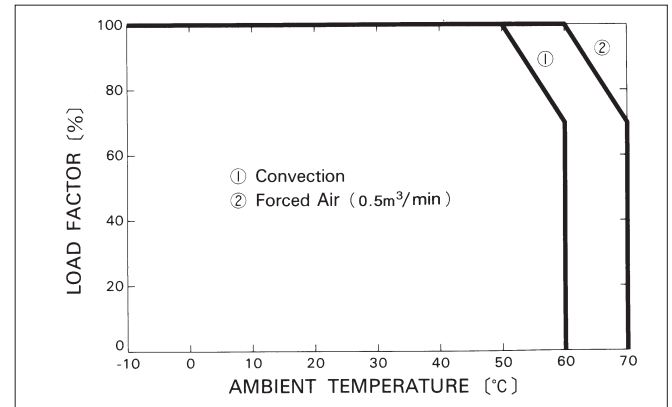
LD	C	30	F	-1	-☐
①	②	③	④	⑤	⑥

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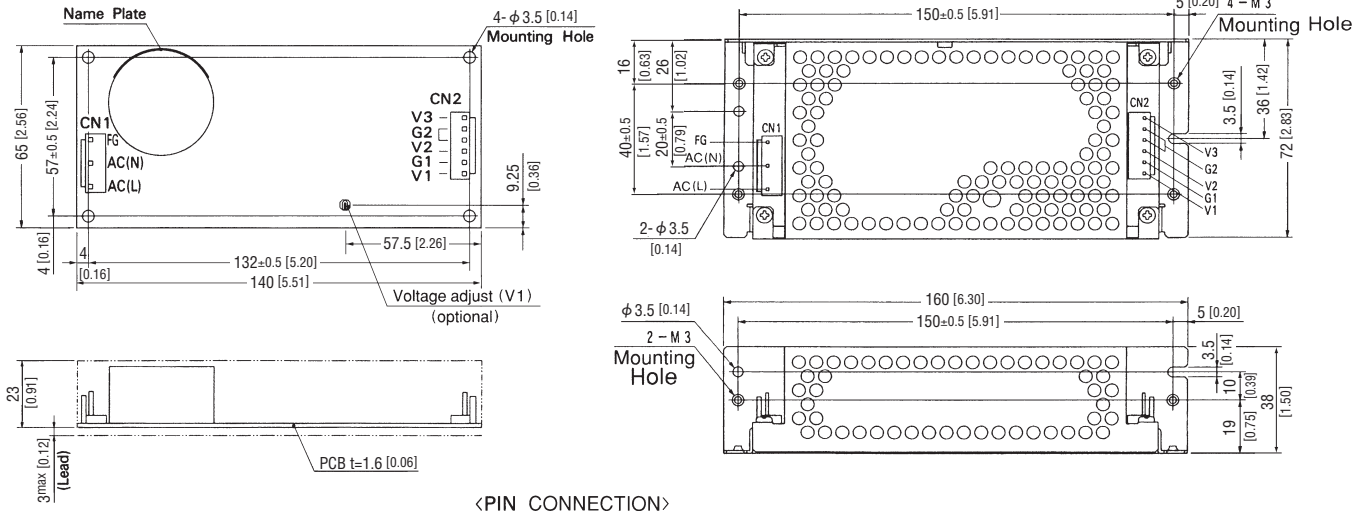 SN : with Chassis & cover
  Y : with Potentiometer

RoHS

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

SPECIFICATIONS

	MODEL	LDC30F-1			LDC30F-2		
INPUT	VOLTAGE[V]	AC85 - 264 1φ 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℃ ＊2	100max	120max	120max	100max	120max	120max
	-10 - 0℃ ＊2	150max	160max	160max	150max	160max	160max
	RIPPLE NOISE[mVp-p] 0 to +50℃ ＊2	120max	150max	150max	120max	150max	150max
	-10 - 0℃ ＊2	170max	180max	180max	170max	180max	180max
	TEMPERATURE REGULATION[mV] 0 to +50℃	50max	350max	350max	50max	350max	350max
	-10 to +50℃	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					
	REMOTE ON/OFF	Not provided					
ISOLATION	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)					
	OUTPUT-OUTPUT(V1-V2,V3)	AC100V 1minute, Cutoff current = 100mA, DC100V 10MΩ min (At Room Temperature)					
ENVIRONMENT	OPERATING TEMP.,HUMID.AND ALTITUDE	-10 to +60℃, 20 - 90%RH (Non condensing) (Refer to DERATING CURVE), 3,000m (10,000feet)					
	STORAGE TEMP.,HUMID.AND ALTITUDE	-20 to +75℃, 20 - 90%RH (Non condensing), 9,000m (30,000feet)					
	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	UL60950-1, EN60950-1, EN50178, CSA C22.2 No.60950-1 Complies with DEN-AN and IEC60950-1					
	CONDUCTED NOISE	Complies with FCC-B, CISPR22-B, EN55022-B, VCCI-B					
OTHERS	CASE SIZE/WEIGHT	65×26×140mm [2.56×1.02×5.51 inches] (W×H×D) / 220g max (with chassis & cover : 400g max)					
	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℃ with the input voltage held constant at the rated input/output.
＊4 Please contact us about safety approvals for the model with option.
＊ Avoid prolonged use under over-load.
＊ Derating is required when operated with chassis and cover.

March 13, 2019

External view

Name Plate

4-φ3.5 [0.14] Mounting Hole

65 [2.56]
57±0.5 [2.24]

CN1
FG
AC(N)
AC(L)

CN2
V3
G2
V2
G1
V1

9.25 [0.36]

4 [0.16]
4 [0.16]
132±0.5 [5.20]
140 [5.51]
57.5 [2.26]

Voltage adjust (V1) (optional)

23 [0.91]
3 max [0.12] (Lead)
PCB t=1.6 [0.06]

150±0.5 [5.91]
16 [0.63]
26 [1.02]
40±0.5 [1.57]
20±0.5 [0.79]
FG
AC(N)
AC(L)
2-φ3.5 [0.14]
CN1
CN2
V3
G2
V2
G1
V1

5 [0.20] 4-M3 Mounting Hole
3.5 [0.14]
36 [1.42]
72 [2.83]

φ3.5 [0.14]
2-M3 Mounting Hole
160 [6.30]
150±0.5 [5.91]
5 [0.20]
3.5 [0.14]
10 [0.39]
38 [1.50]
19 [0.75]

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 CONNECTION⟩

CN1

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

CN2

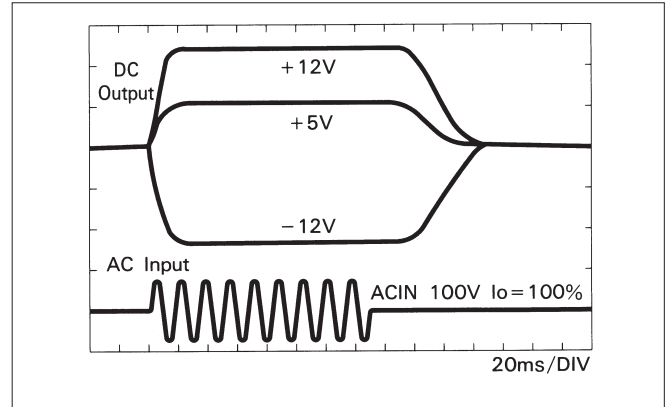| Pin No.	Output
1	V3
2	G2
3	G2
4	V2
5	G1
6	V1

※ Weight: 220g max (with chassis & cover : 400g max)
※ Tolerance: ±1 [±0.04]
※ Dimensions in mm, [ ] =inches
※ PCB Material: Glass composite (CEM3)
※ Chassis and cover is optional.
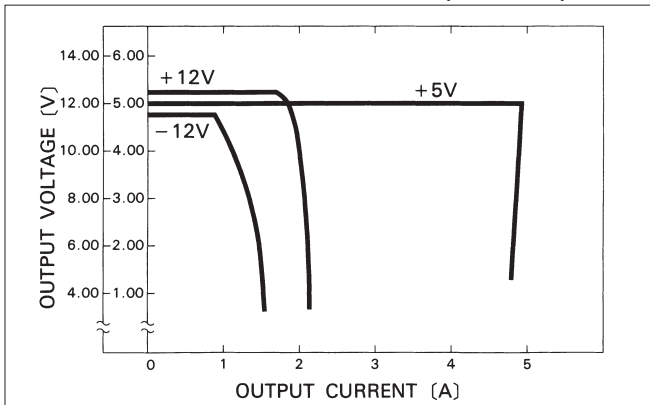※ Mounting torque: 0.6N·m (6.3kgf·cm) max

Performance data

■STATIC CHARACTERISTICS (LDC30F-1)

OUTPUT VOLTAGE −12V
+5V
+12V
Io = 100%
RIPPLE +5V
+12V
−12V

OUTPUT VOLTAGE (V)
RIPPLE (mVp-p)
INPUT VOLTAGE (V) 60Hz

■RISE TIME & FALL TIME (LDC30F-1)

DC Output
+12V
+5V
−12V
AC Input
ACIN 100V Io=100%
20ms/DIV

■OVERCURRENT CHARACTERISTICS (LDC30F-1)

+12V
−12V
+5V
OUTPUT VOLTAGE (V)
OUTPUT CURRENT (A)

■DERATING CURVE

① Convection
② Forced Air (0.5m³/min)
LOAD FACTOR (%)
AMBIENT TEMPERATURE (℃)

COSEL

LDC60F

Ordering information

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 *4
  C : with Coating
  G : Low leakage current
  S : with Chassis
  SN : with Chassis & cover
  Y : with Potentiometer
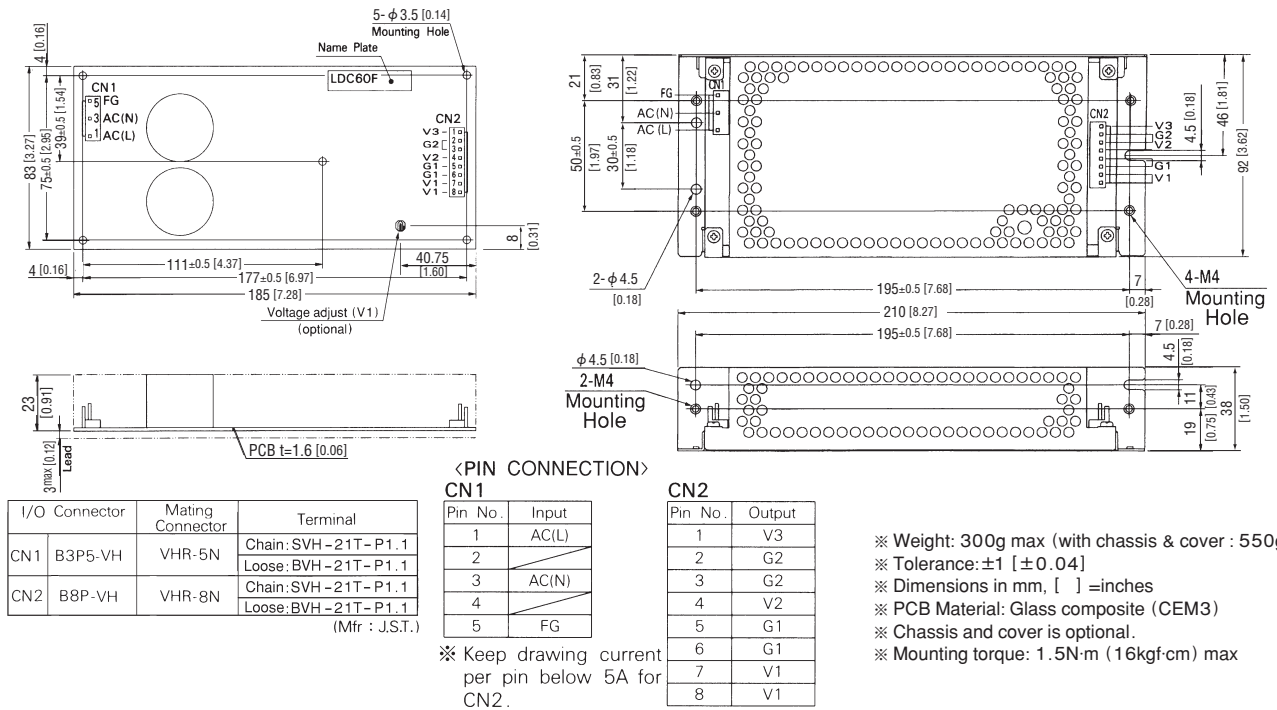
c ℞ us CSA TÜV Rheinland CE

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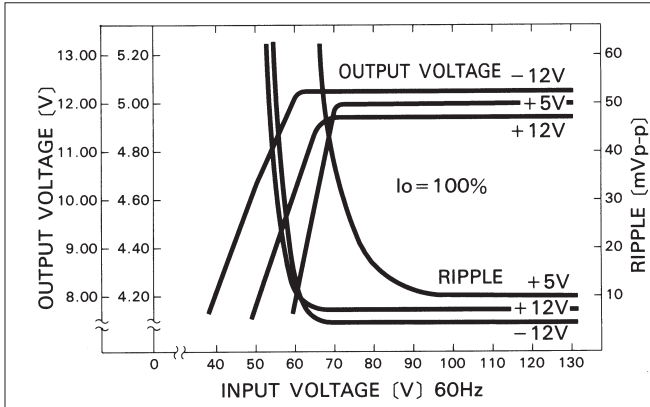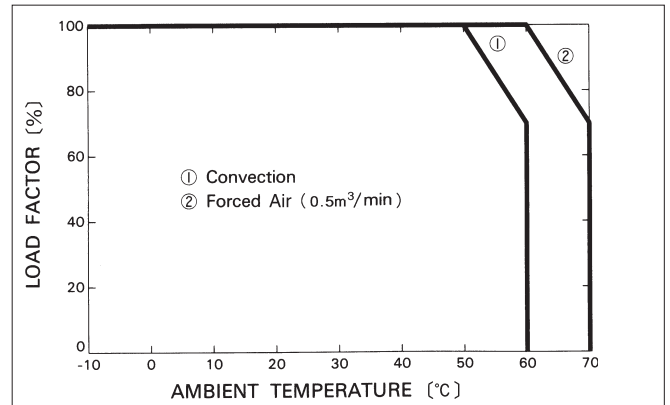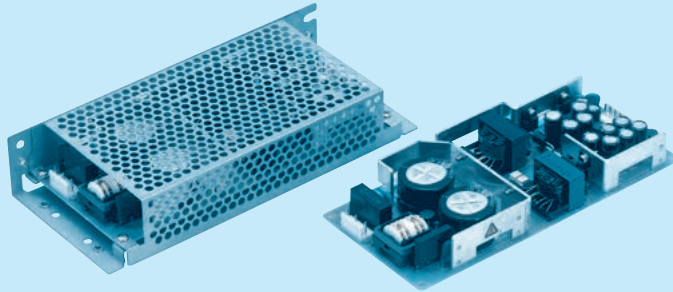
MODEL		LDC60F-1	LDC60F-2
DC OUTPUT	V1	+5V 5.0(Peak 7.0)A	+5V 5.0(Peak 7.0)A
	V2	+12V 2.5(Peak 3.5)A	+15V 2.0(Peak 3.5)A
	V3	-12V 0.5(Peak 0.7)A	-15V 0.5(Peak 0.7)A

SPECIFICATIONS

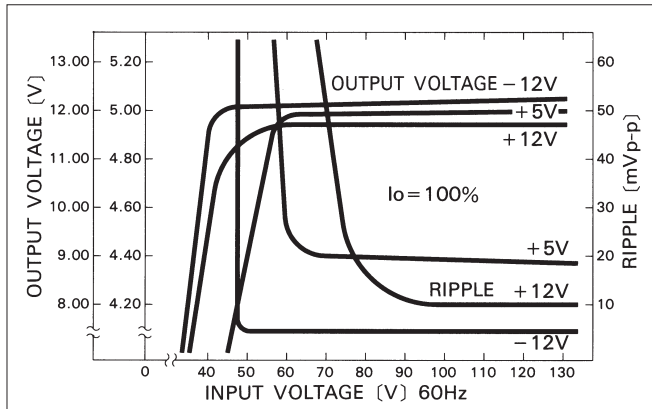|	MODEL	LDC60F-1			LDC60F-2		
INPUT	VOLTAGE[V]	AC85 - 264 1φ or DC110 - 370					
	CURRENT[A] ACIN 100V	1.4typ (Io=100%)					
	FREQUENCY[Hz]	47 - 440 or DC					
	EFFICIENCY[%] ACIN 100V	72typ (Io=100%)					
	INRUSH CURRENT[A] ACIN 100V	30typ (Io=100%) (At cold start)					
	ACIN 200V	60typ (Io=100%) (At 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℃ *2	100max	120max	120max	100max	120max	120max
	-10 - 0℃ *2	150max	160max	160max	150max	160max	160max
	RIPPLE NOISE[mVp-p] 0 to +50℃ *2	120max	150max	150max	120max	150max	150max
	-10 - 0℃ *2	170max	180max	180max	170max	180max	180max
	TEMPERATURE REGULATION[mV] 0 to +50℃	50max	350max	350max	50max	350max	350max
	-10 to +50℃	60max	420max	420max	60max	420max	420max
	DRIFT[mV] *3	20max	——	——	20max	——	——
	START-UP TIME[ms]	200max (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 (only available with V1, V2)					
	OPERATING INDICATION	Not provided					
	REMOTE SENSING	Not provided					
	REMOTE ON/OFF	Not provided					
ISOLATION	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)					
	OUTPUT-OUTPUT(V1-V2,V3)	AC100V 1minute, Cutoff current = 100mA, DC100V 10MΩ min (At Room Temperature)					
ENVIRONMENT	OPERATING TEMP.,HUMID.AND ALTITUDE	-10 to +60℃, 20 - 90%RH (Non condensing) (Refer to DERATING CURVE), 3,000m (10,000feet)					
	STORAGE TEMP.,HUMID.AND ALTITUDE	-20 to +75℃, 20 - 90%RH (Non condensing), 9,000m (30,000feet)					
	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	UL60950-1, EN60950-1, EN50178, CSA C22.2 No.60950-1 Complies with DEN-AN and IEC60950-1					
	CONDUCTED NOISE	Complies with FCC-B, CISPR22-B, EN55022-B, VCCI-B					
OTHERS	CASE SIZE/WEIGHT	83×26×185mm [3.27×1.02×7.28 inches] (W×H×D) / 300g max (with chassis & cover : 550g max)					
	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℃ with the input voltage held constant at the rated input/output.
*4 Please contact us about safety approvals for the model with option.
* Avoid prolonged use under over-load.
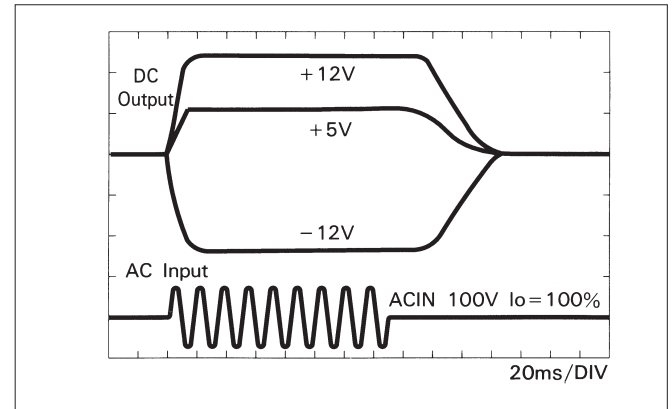* Derating is required when operated with chassis and cover.

March 13, 2019

External view

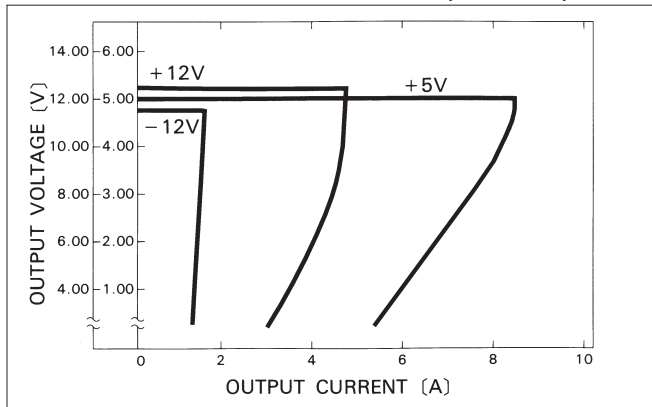**〈PIN CONNECTION〉**

CN1

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

CN2

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.

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.)

※ Weight: 300g max (with chassis & cover : 550g max)
※ Tolerance:±1 [±0.04]
※ Dimensions in mm, [ ] =inches
※ 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）

ACIN 100V Io＝100%

20ms/DIV

■OVERCURRENT CHARACTERISTICS (LDC60F-1)

■DERATING CURVE

① Convection
② Forced Air（0.5m³/min）