AC-DC Power Supplies Enclosed Type









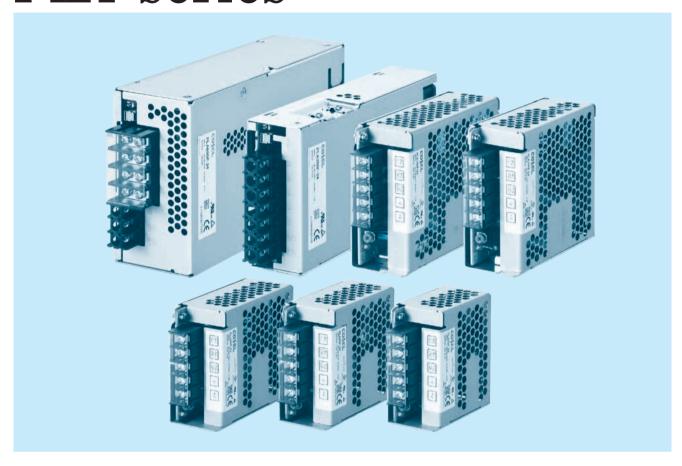








PLA-series



Feature

Low Profile (15, 30, 50, 100, 150, 300W : 1U size.

600W : 2U size)

Wide temperature range (-20 $^{\circ}$ C to +70 $^{\circ}$ C, Derating is required) Harmonic attenuator (Complies with IEC61000-3-2 class A)

Universal input (AC85 - 264V, Derating is required)

Low power consumption at no load

Screw hold type terminal block (Only PLA300F and PLA600F)
Complies with SEMI F-47 (Option -U : Refer to instruction manual)

Many optional functions

Safety agency approvals

UL60950-1, C-UL (CSA60950-1), EN62368-1 UL508 (PLA15F-150F) approved Complies with DEN-AN

5-year warranty (See Instruction Manual)

CE marking

Low Voltage Directive

UKCA marking

Electrical Equipment Safety Regulations RoHS Regulations

EMI

Complies with FCC-B, CISPR22-B, EN55011-B, EN55022-B, VCCI-B

EMS Compliance : EN61204-3, EN61000-6-2

EN61000-4-2

EN61000-4-3

EN61000-4-4

EN61000-4-5

EN61000-4-6

EN61000-4-8

EN61000-4-11

PLA15F

A 15









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

*A higher current rating EMI/EMC filter may be recommended in view of the other devices that could be connected in parallel with the power supply.

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

- ⑤Output voltage
- ®Optional *7
 C: with Coating
 J: Connector interface
- T : Vertical terminal block
- -N

 : with DIN rail

See 5.1 in Instruction Manual.

*Make sure necessary tests will be carried out on your end equipment with the power supply installed in accordance with any required EMC/EMI regulations.

	MODEL		PLA15F-5	PLA15F-12	PLA15F-15	PLA15F-24		
	VOLTAGE[V]		AC85 - 264 1 φ (Output de	erating is required at AC85V	- 115V. See 1.1 and 3.2 in Inst	ruction Manual) *3		
		ACIN 100V	0.4typ (lo=90%)					
	CURRENT[A] ACIN 115V ACIN 230V		0.4typ (lo=100%)					
	FREQUENCY[Hz]	•	50 / 60 (47 - 63)					
IDIIT		ACIN 100V	72.5typ (lo=90%)	75.5typ (lo=90%)	77.0typ (Io=90%)	78.0typ (Io=90%)		
IPUT	EFFICIENCY[%]	ACIN 115V	73.5typ (lo=100%)	77.0typ (Io=100%)	78.5typ (Io=100%)	79.0typ (Io=100%)		
		ACIN 230V	75.5typ (lo=100%)	78.5typ (Io=100%)	79.5typ (lo=100%)	80.0typ (lo=100%)		
		ACIN 100V	16typ (lo=90%) Ta=25℃ a	t cold start				
	INRUSH CURRENT[A]	ACIN 115V	16typ (Io=100%) Ta=25℃	at cold start				
		ACIN 230V	32typ (lo=100%) Ta=25℃	at cold start				
	LEAKAGE CURRENT	[mA]	0.30max (ACIN 115V / 240	OV, 60Hz, Io=100%, According	ng to IEC62368-1 and DEN-AN	1)		
	VOLTAGE[V]		5	12	15	24		
	CURRENT[A]		3	1.3	1	0.7		
	WATTAGERAG	ACIN 85-115V	Output derating is required	at ACIN 115V or less (refer	to instruction manual 3.2)			
	WATTAGE[W]	ACIN 115V-264V	15.0	15.6	15.0	16.8		
	LINE REGULATION[n	nV] *4	20max	48max	60max	96max		
	LOAD REGULATION[mV] *4	40max	100max	120max	150max		
		0 to +50°C	80max	120max	120max	120max		
	RIPPLE[mVp-p] *1	-10 to 0°C	140max	160max	160max	160max		
		lo=0 to 35%	160max	240max	240max	280max		
UTPUT	RIPPLE NOISE[mVp-p] *1	0 to +50°C	120max	150max	150max	150max		
		-10 to 0°C	160max	180max	180max	180max		
		lo=0 to 35%	240max	300max	300max	320max		
		0 to +50°C	50max	120max	150max	240max		
	TEMPERATURE REGULATION[mV]	-10 to +50°C	60max	150max	180max	290max		
	DRIFT[mV]	*2	20max	48max	60max	96max		
	START-UP TIME[ms]		200typ (ACIN 115V, Io=100%) *Start-up time is 700 ms typ for less than 1 minute of applying input again from turning off the input voltage					
	HOLD-UP TIME[ms]		20typ (ACIN 115V, Io=100%)					
	OUTPUT VOLTAGE ADJUSTMEN	NT RANGE[V]	4.50 to 5.50	10.80 to 13.20	13.50 to 16.50	21.60 to 26.40		
	OUTPUT VOLTAGE SETT	ING[V]	5.00 to 5.15	12.00 to 12.48	15.00 to 15.60	24.00 to 24.96		
	OVERCURRENT PROTE	CTION	Works over 105% of rating	and recovers automatically	`			
ROTECTION	OVERVOLTAGE PROTE	CTION[V]	5.75 to 7.00	13.80 to 16.80	17.25 to 21.00	27.60 to 33.60		
RCUIT AND	OPERATING INDICAT	ION	LED (Green)					
THERS	REMOTE SENSING		Not provided					
	REMOTE ON/OFF		Not provided					
	INPUT-OUTPUT		AC3,000V 1minute, Cutoff current = 10mA, DC500V 50M Ω min (At room temperature)					
OLATION	INPUT-FG		AC2,000V 1minute, Cutoff current = 10mA, DC500V 50M Ω min (At room temperature)					
	OUTPUT-FG		AC500V 1minute, Cutoff current = 25mA, DC500V 50M Ω min (At room temperature)					
	OPERATING TEMP., HUMID. AND	ALTITUDE *5						
	STORAGE TEMP., HUMID. AND			(Non condensing), 9,000m (· · · · · · · · · · · · · · · · · · ·	,		
NVIRONMENT	VIBRATION		· ·		,			
	IMPACT		10 - 55Hz, 19.6m/s² (2G), 3minutes period, 60minutes each along X, Y and Z axes 196.1m/s² (20G), 11ms, once each X, Y and Z axes					
AFETY AND	AGENCY APPROVAL	s	, ,,		Except option -J) Complies wi	th DEN-AN		
OISE	CONDUCTED NOISE		' '	CI-B, CISPR22-B, EN55011-	· · · · · · · · · · · · · · · · · · ·			
EGULATIONS	HARMONIC ATTENUA		Complies with IEC61000-3-2 class A					

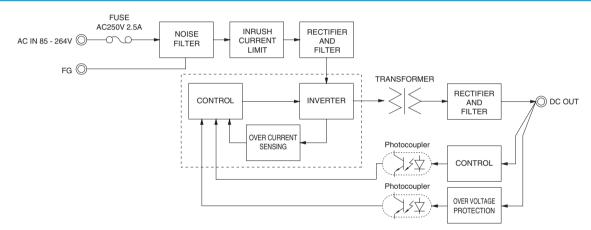
OTHERS	CASE SIZE/WEIGHT	38×80×73mm [1.50×3.15×2.87 inches] (Excluding terminal block and screw) (W×H×D) / 250g max			
OTHERS	COOLING METHOD	Convection			
WARRANTY	WARRANTY *6	5 years (subject to the operating conditions)			

- *1 This is the result of measurement of the testing board with capacitors of 22 µ F and 0.1 µ F placed at 150 mm from the output terminals by a 20 MHz oscilloscope or a ripple-noise meter equivalent to Keisoku-Giken RM103.
 - See 1.6 of Instruction Manual for more details.
 - When the load factor is 0 35%, the switching power loss is reduced by burst operation, which will cause ripple and ripple noise to go beyond the specifications.
- *2 Drift is the change in DC output for an eight hour period after a half-hour warm-up at 25°C.
- *3 As for DC input, consult us for advice.
- *4 Consult us about dynamic load and input response. Measure the output voltage by using the average mode of the tester to deal with the burst operation at 35% load or less.
- *5 Output power derating is required. See 3.2 in Instruction Manual.
 *6 See 3.3 in Instruction Manual for more details.
- *7 Consult us about safety agency approvals for the models with optional functions
- *8 Consult us about other classes.
- Do not use the power supply in overcurrent conditions or in unspecified input voltage ranges. Otherwise the internal components may be damaged.
- Parallel operation is not possible with this mode.
- Sound noise may be heard from the power supply when used for pulse load.

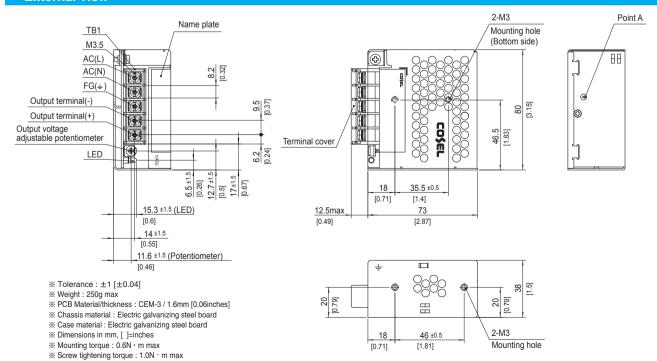
Features

- · Compact design (Depth: 73mm 2.87inches)
- · Low power consumption (1.0W typ AC240Vin, no load at standard model)
- · UL508 approved (Except option -J), and complies with SEMI F47
- · Various connection interface options (vertical terminal [-T], AMP connector [-J])

Block diagram



External view



PLA30F

30







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

*A higher current rating EMI/EMC filter may be recommended in view of the other devices that could be connected in parallel with the power supply.



- ①Series name ②Single output ③Output wattage ④Universal input
- ⑤Output voltage
- ®Optional *7
 C: with Coating
 J: Connector interface
- T : Vertical terminal block
- -N

 : with DIN rail

See 5.1 in Instruction Manual.

*Make sure necessary tests will be carried out on your end equipment with the power supply installed in accordance with any required EMC/EMI regulations.

	MODEL		PLA30F-5	PLA30F-12	PLA30F-15	PLA30F-24		
	VOLTAGE[V]		AC85 - 264 1 φ (Output dera	ating is required at AC85V -	115V. See 1.1 and 3.2 in Insti	ruction Manual) *3		
Γ		ACIN 100V	0.7typ (lo=90%)					
	CURRENT[A]	ACIN 115V	0.7typ (Io=100%)					
		ACIN 230V	0.4typ (lo=100%)					
	FREQUENCY[Hz]		50 / 60 (47 - 63)					
INPUT	ACIN		73.0typ (Io=90%)	80.0typ (Io=90%)	81.0typ (lo=90%)	82.5typ (lo=90%)		
NPUI	EFFICIENCY[%]	ACIN 115V	74.0typ (lo=100%)	80.5typ (lo=100%)	81.5typ (lo=100%)	83.0typ (lo=100%)		
		ACIN 230V	77.0typ (Io=100%)	81.0typ (Io=100%)	82.0typ (lo=100%)	83.5typ (lo=100%)		
		ACIN 100V	16typ (lo=90%) Ta=25℃ at c	cold start				
	INRUSH CURRENT[A]	ACIN 115V	16typ (lo=100%) Ta=25°C at	cold start				
		ACIN 230V	32typ (lo=100%) Ta=25℃ at	cold start				
	LEAKAGE CURRENT	[mA]	0.65max (ACIN 115V / 240V	, 60Hz, lo=100%, According	to IEC62368-1 and DEN-AN)		
	VOLTAGE[V]		5	12	15	24		
	CURRENT[A]		6	2.5	2	1.3		
Γ.	WATTAGEIWI	ACIN 85-115V	Output derating is required a	t ACIN 115V or less (refer to	instruction manual 3.2)			
	WATTAGE[W]	ACIN 115V-264V	30.0	30.0	30.0	31.2		
	LINE REGULATION[m	1V] *4	20max	48max	60max	96max		
	LOAD REGULATION[mV] *4		40max	100max	120max	150max		
	RIPPLE[mVp-p] *1	0 to +50°C	80max	120max	120max	120max		
		-10 to 0℃	140max	160max	160max	160max		
OUTPUT	RIPPLE NOISE[mVp-p] *1	0 to +50°C	120max	150max	150max	150max		
		-10 to 0℃	160max	180max	180max	180max		
Γ,	TEMPERATURE REQUILATIONS	0 to +50°C	50max	120max	150max	240max		
	TEMPERATURE REGULATION[mV]	-10 to +50°C	60max	150max	180max	290max		
	DRIFT[mV]	*2	20max	48max	60max	96max		
	START-UP TIME[ms]		150typ (ACIN 115V, Io=100%)					
	HOLD-UP TIME[ms]		20typ (ACIN 115V, Io=100%)					
	OUTPUT VOLTAGE ADJUSTMEN	IT RANGE[V]	4.50 to 5.50	10.80 to 13.20	13.50 to 16.50	21.60 to 26.40		
	OUTPUT VOLTAGE SETT	ING[V]	5.00 to 5.15	12.00 to 12.48	15.00 to 15.60	24.00 to 24.96		
	OVERCURRENT PROTE	CTION	Works over 105% of rating a	nd recovers automatically				
PROTECTION	OVERVOLTAGE PROTE	CTION[V]	5.75 to 7.00	13.80 to 16.80	17.25 to 21.00	27.60 to 33.60		
	OPERATING INDICAT	ION	LED (Green)					
OTHERS	REMOTE SENSING		Not provided					
	REMOTE ON/OFF		Not provided					
	INPUT-OUTPUT		AC3,000V 1minute, Cutoff co	urrent = 10mA, DC500V 50N	$M\Omega$ min (At room temperature	e)		
SOLATION	INPUT-FG		AC2,000V 1minute, Cutoff co	urrent = 10mA, DC500V 50N	$M\Omega$ min (At room temperature	e)		
	OUTPUT-FG		AC500V 1minute, Cutoff cur	rent = 25mA, DC500V 50MQ	2 min (At room temperature)			
	OPERATING TEMP., HUMID. AND	ALTITUDE *5	-20 to +70°C, 20 - 90%RH (N	Non condensing), 3,000m (1	0,000 feet) max			
ENVIRONMENT	STORAGE TEMP.,HUMID.AND	ALTITUDE	-20 to +75°C, 20 - 90%RH (N	Non condensing), 9,000m (3	0,000 feet) max			
TIANUOUMEIAI	VIBRATION		10 - 55Hz, 19.6m/s² (2G), 3n	ninutes period, 60minutes ea	ach along X, Y and Z axes			
	IMPACT		196.1m/s² (20G), 11ms, once	e each X, Y and Z axes				
SAFETY AND	AGENCY APPROVAL	S	UL60950-1, C-UL (CSA6095	60-1), EN62368-1, UL508 (E	xcept option -J) Complies wit	th DEN-AN		
	CONDUCTED NOISE		Complies with FCC-B, VCCI	-B, CISPR22-B, EN55011-B	, EN55022-B			
REGULATIONS	HARMONIC ATTENUA	ATOR *8	Complies with IEC61000-3-2	class A				





OTHERS	CASE SIZE/WEIGHT	38×80×88mm [1.50×3.15×3.46 inches] (Excluding terminal block and screw) (W×H×D) / 330g max			
OTHERS	COOLING METHOD	Convection			
WARRANTY	WARRANTY *6	5 years (subject to the operating conditions)			

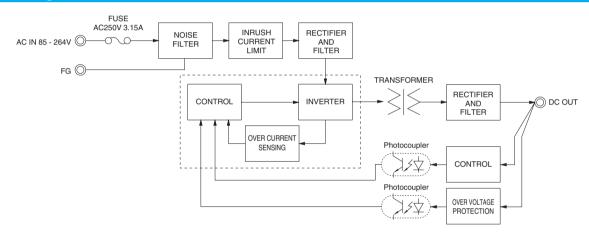
- This is the result of measurement of the testing board with capacitors of 22 μ F and 0.1 μ F placed at 150 mm from the output terminals by a 20 MHz oscilloscope or a ripple-noise meter equivalent to Keisoku Giken RM103.
 - See 1.6 of Instruction Manual for more details.
- *2 Drift is the change in DC output for an eight hour period after a half-hour warm-up at 25°C.
 *3 As for DC input, consult us for advice.
- Consult us about dynamic load and input response.
- Output power derating is required. See 3.2 in Instruction Manual.
- *6 See 3.3 in Instruction Manual for more details.

- *7 Consult us about safety agency approvals for the models with optional functions. Consult us about other classes
- Do not use the power supply in overcurrent conditions or in unspecified input voltage ranges. Otherwise the internal components may be damaged.
- Parallel operation is not possible with this mode.
- Sound noise may be heard from the power supply when used for pulse load.

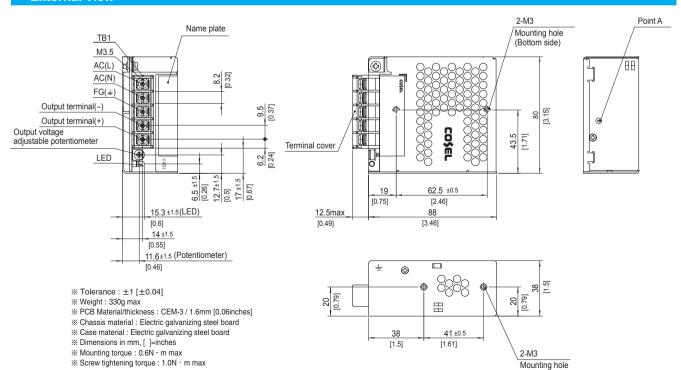
Features

- · Compact design (Depth: 88mm 3.46inches)
- · UL508 approved (Except option -J), and complies with SEMI F47
- · Various connection interface options (vertical terminal [-T], AMP connector [-J])

Block diagram



External view



PLA50F

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Example recommended EMI/EMC filter NAC-04-472



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

*A higher current rating EMI/EMC filter may be recommended in view of the other devices that could be connected in parallel with the power supply.

- ①Series name ②Single output ③Output wattage ④Universal input
- ⑤Output voltage
- ®Optional *7
 C: with Coating
 J: Connector interface
- T : Vertical terminal block
- -N

 : with DIN rail

See 5.1 in Instruction Manual.

*Make sure necessary tests will be carried out on your end equipment with the power supply installed in accordance with any required EMC/EMI regulations.

	MODEL		PLA50F-5	PLA50F-12	PLA50F-15	PLA50F-24		
	VOLTAGE[V]		AC85 - 264 1 φ (Output dera	ting is required at AC85V - 115	V. See 1.1 and 3.2 in Instruction	on Manual) *3		
	ACIN 100V		0.6typ (lo=90%) 0.7typ (lo=90%)					
	CURRENT[A]	ACIN 115V	0.6typ (lo=100%)					
	ACIN 230V		0.3typ (lo=100%)					
	FREQUENCY[Hz]		50 / 60 (47 - 63)					
		ACIN 100V	74.5typ (Io=90%)	80.0typ (lo=90%)	80.0typ (Io=90%)	81.5typ (lo=90%)		
	EFFICIENCY[%]	ACIN 115V	75.0typ (lo=100%)	80.5typ (lo=100%)	80.5typ (Io=100%)	82.0typ (lo=100%)		
INPUT		ACIN 230V	76.5typ (lo=100%)	82.0typ (lo=100%)	82.0typ (lo=100%)	84.0typ (lo=100%)		
		ACIN 100V	0.97typ (lo=90%)	0.98typ (10=90%)				
	POWER FACTOR	ACIN 115V	0.97typ (lo=100%)	0.98typ (lo=100%)				
		ACIN 230V	0.85typ (lo=100%)	0.87typ (lo=100%)				
		ACIN 100V	16typ (lo=90%) Ta=25℃ at co					
	INRUSH CURRENT[A]	ACIN 115V	16typ (lo=100%) Ta=25℃ at o					
		ACIN 230V	32typ (Io=100%) Ta=25°C at cold start					
	LEAKAGE CURRENT		* ' '	60Hz, lo=100%, According to	IEC62368-1 and DEN-AN)			
	VOLTAGE[V]		5	12	15	24		
-	CURRENT[A]		8	4.3	3.5	2.2		
		ACIN 85-115V		t ACIN 115V or less (refer to in				
	WATTAGE[W]	ACIN 115V-264V		51.6	52.5	52.8		
-	LINE REGULATION[m		20max	48max	60max	96max		
	LOAD REGULATION		40max	100max	120max	150max		
-	LOAD REGULATION[I	0 to +45℃	80max	120max	120max	120max		
	RIPPLE[mVp-p] *1	-10 to 0°C	140max	160max	160max	160max		
OUTPUT		0 to +45°C	120max	150max	150max	150max		
JUIPUI	RIPPLE NOISE[mVp-p] *1	-10 to 0°C	160max	180max	180max	180max		
-		0 to +45℃	50max	120max	150max	240max		
	TEMPERATURE REGULATION[mV]	-10 to +45℃	60max	150max	180max	290max		
-	DDIET[\/]	*2	20max			+		
	DRIFT[mV]	*2		48max	60max	96max		
-	START-UP TIME[ms]		350typ (ACIN 115V, Io=100%)					
	HOLD-UP TIME[ms]	T DANOERO	20typ (ACIN 115V, Io=100%)	10.00 1- 10.00	10.50 +- 10.50	04.00.100.40		
-	OUTPUT VOLTAGE ADJUSTMEN			10.80 to 13.20	13.50 to 16.50	21.60 to 26.40		
	OUTPUT VOLTAGE SETT		5.00 to 5.15	12.00 to 12.48	15.00 to 15.60	24.00 to 24.96		
H	OVERCURRENT PROTE		Works over 105% of rating ar	· · · · · · · · · · · · · · · · · · ·	17.05 04.05	07.00 . 00.00		
	OVERVOLTAGE PROTE		5.75 to 7.00	13.80 to 16.80	17.25 to 21.00	27.60 to 33.60		
H	OPERATING INDICAT	ION	LED (Green)					
H	REMOTE SENSING		Not provided					
	REMOTE ON/OFF		Not provided					
	INPUT-OUTPUT		<u>'</u>	$rrent = 10mA, DC500V 50M\Omega$				
F	INPUT-FG			$rrent = 10mA, DC500V 50M\Omega$				
	OUTPUT-FG		AC500V 1minute, Cutoff current = 25mA, DC500V 50M Ω min (At room temperature)					
	OPERATING TEMP., HUMID. AND	ALTITUDE *5	· · · · · · · · · · · · · · · · · · ·	on condensing), 3,000m (10,0				
=NVIRONMENT ⊢	STORAGE TEMP., HUMID. AND	ALTITUDE	,	on condensing), 9,000m (30,0				
-14411OHMENT	VIBRATION		10 - 55Hz, 19.6m/s² (2G), 3minutes period, 60minutes each along X, Y and Z axes					
	IMPACT		196.1m/s² (20G), 11ms, once					
SAFETY AND	AGENCY APPROVAL	S	UL60950-1, C-UL (CSA6095	0-1), EN62368-1, UL508 (Exce	ept option -J) Complies with DI	EN-AN		
NOISE	CONDUCTED NOISE		Complies with FCC-B, VCCI-	B, CISPR22-B, EN55011-B, EI	N55022-B			
	HARMONIC ATTENUA							



OTHERS	CASE SIZE/WEIGHT	38×80×99mm [1.50×3.15×3.90 inches] (Excluding terminal block and screw) (W×H×D) / 400g max
OTHERS	COOLING METHOD	Convection
WARRANTY	WARRANTY *6	5 years (subject to the operating conditions)

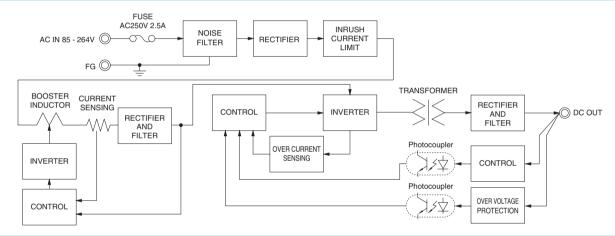
- This is the result of measurement of the testing board with capacitors of 22 μ F and 0.1 μ F placed at 150 mm from the output terminals by a 20 MHz oscilloscope or a ripple-noise meter equivalent to Keisoku-Giken RM103.
 - See 1.6 of Instruction Manual for more details.
- *2 Drift is the change in DC output for an eight hour period after a half-hour warm-up at 25°C.
- *3 As for DC input, consult us for advice.
- Consult us about dynamic load and input response.
- Output power derating is required. See 3.2 in Instruction Manual.
- *6 See 3.3 in Instruction Manual for more details.

- Consult us about safety agency approvals for the models with optional functions. Consult us about other classes
- Do not use the power supply in overcurrent conditions or in unspecified input voltage ranges. Otherwise the internal components may be damaged.
- Parallel operation is not possible with this mode.
- Sound noise may be heard from the power supply when used for pulse load.

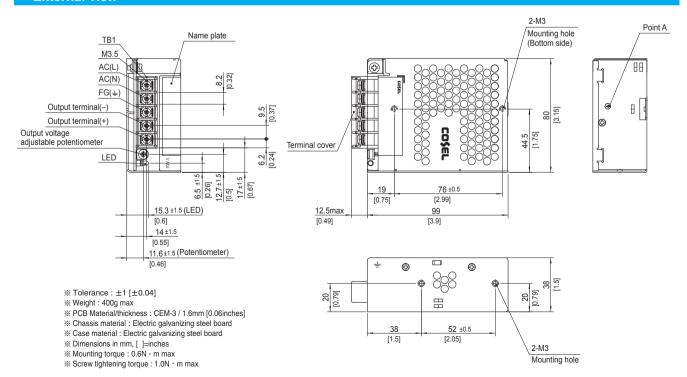
Features

- · Compact design (Depth: 99mm 3.90inches)
- · UL508 approved (Except option -J), and complies with SEMI F47
- · Various connection interface options (vertical terminal [-T], AMP connector [-J])

Block diagram



External view



PLA100F

100







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

*A higher current rating EMI/EMC filter may be recommended in view of the other devices that could be connected in parallel with the power supply.

- ①Series name ②Single output ③Output wattage ④Universal input
- ⑤Output voltage ®Optional *7
 C: with Coating
 R: Remote on/off
 - (Required external power source)
 J : Connector interface
- T : Vertical terminal block
 -N□ : with DIN rail

See 5.1 in Instruction Manual.

*Make sure necessary tests will be carried out on your end equipment with the power supply installed in accordance with any required EMC/EMI regulations.

SPECIFICATIONS

* Please consider "PBA100F-5-N" about 5V output with case cover.

l l				·	ut with case cover.					
	MODEL		PLA100F-12	PLA100F-15	PLA100F-24	PLA100F-36	PLA100F-48			
ŀ	VOLTAGE[V]		AC85 - 264 1 φ (Outpu	t derating is required at	AC85V - 115V. See 1.1 a	and 3.2 in Instruction Ma	anual) *3			
ŀ		ACIN 100V	1.2typ (lo=90%)							
ŀ	CURRENT[A] ACIN 11		1.1typ (lo=100%)							
ŀ		ACIN 230V	0.6typ (lo=100%)							
ļ	FREQUENCY[Hz]		50 / 60 (47 - 63)	,						
ŀ		ACIN 100V	82typ (lo=90%)	83typ (lo=90%)	85typ (Io=90%)	86typ (Io=90%)	86typ (lo=90%)			
ŀ	EFFICIENCY[%]	ACIN 115V	82typ (lo=100%)	83typ (lo=100%)	85typ (lo=100%)	86typ (lo=100%)	86typ (lo=100%)			
NPUT		ACIN 230V	85typ (lo=100%)	86typ (lo=100%)	88typ (Io=100%)	89typ (lo=100%)	89typ (lo=100%)			
		ACIN 100V	0.98typ (lo=90%)							
ŀ	POWER FACTOR	ACIN 115V	0.98typ (lo=100%)							
ŀ		ACIN 230V	0.95typ (lo=100%) * F	Power factor correction is	stopped at AC250V or	more.				
		ACIN 100V	16typ (lo=90%) Ta=25°	C at cold start						
	INRUSH CURRENT[A]	ACIN 115V	16typ (lo=100%) Ta=25	°C at cold start						
ŀ		ACIN 230V	32typ (lo=100%) Ta=25	°C at cold start						
	LEAKAGE CURRENT	[mA]		240V, 60Hz, Io=100%, A	According to IEC62368-1	I and DEN-AN)				
	VOLTAGE[V]		12	15	24	36	48			
		ACIN 85-115V	Output derating is regu	ired at ACIN 115V or les	s (refer to instruction ma	anual 3.2)				
	CURRENT[A]	ACIN 115V-264V	8.4	6.7	4.3	2.8	2.1			
		ACIN 85-115V	Output derating is regu	ired at ACIN 115V or les	s (refer to instruction ma					
ŀ	WATTAGE[W]	ACIN 115V-264V	100.8	100.5	103.2	100.8	100.8			
ŀ	LINE REGULATION[m		48max	60max	96max	144max	192max			
	LOAD REGULATION	lo=30 to 100%		120max	150max	150max	300max			
ŀ	[mV] *4	lo=0 to 30%		contact us about detail						
ОИТРИТ	RIPPLE[mVp-p] *1 lo: load factor	0 to +40℃		120max	120max	150max	150max			
		-10 to 0℃	160max	160max	160max	200max	400max			
		lo=0 to 30%	500max	500max	500max	500max	500max			
	RIPPLE NOISE[mVp-p]	0 to +40℃		150max	150max	200max	200max			
ŀ	*1	-10 to 0°C	180max	180max	180max	240max	500max			
ŀ	lo: load factor	lo=0 to 30%		600max	600max	600max	600max			
ŀ		0 to +40°C	120max	150max	240max	360max	480max			
ŀ	TEMPERATURE REGULATION[mV]	-10 to +40℃	180max	180max	290max	440max	600max			
ŀ	DRIFT[mV]	*2	48max	60max	96max	144max	192max			
ŀ	START-UP TIME[ms]		500typ (ACIN 115V, Io=		Comux	TTIMOX	TOZITICA			
ŀ	HOLD-UP TIME[ms]		20typ (ACIN 115V, Io=1							
,										
l		IT RANGE[V]	** *	· '	21.60 to 26.40	32.40 to 39.60	43.20 to 52.80			
	OUTPUT VOLTAGE ADJUSTMEN		10.80 to 13.20	13.50 to 16.50	21.60 to 26.40 24.00 to 24.96	32.40 to 39.60 36.00 to 37.44	43.20 to 52.80 48.00 to 49.92			
	OUTPUT VOLTAGE ADJUSTMEN OUTPUT VOLTAGE SETT	ING[V]	10.80 to 13.20 12.00 to 12.48	13.50 to 16.50 15.00 to 15.60	24.00 to 24.96	32.40 to 39.60 36.00 to 37.44	43.20 to 52.80 48.00 to 49.92			
ROTECTION	OUTPUT VOLTAGE ADJUSTMEN OUTPUT VOLTAGE SETTI OVERCURRENT PROTE	ING[V]	10.80 to 13.20 12.00 to 12.48 Works over 105% of ra	13.50 to 16.50 15.00 to 15.60 ting and recovers autom	24.00 to 24.96 atically	36.00 to 37.44	48.00 to 49.92			
	OUTPUT VOLTAGE ADJUSTMEN OUTPUT VOLTAGE SETTI OVERCURRENT PROTE OVERVOLTAGE PROTECT	ING[V] ECTION CTION[V]	10.80 to 13.20 12.00 to 12.48 Works over 105% of ra 13.80 to 16.80	13.50 to 16.50 15.00 to 15.60	24.00 to 24.96	+	_			
IRCUIT AND	OUTPUT VOLTAGE ADJUSTMEN OUTPUT VOLTAGE SETTI OVERCURRENT PROTE OVERVOLTAGE PROTE OPERATING INDICAT	ING[V] ECTION CTION[V]	10.80 to 13.20 12.00 to 12.48 Works over 105% of ra 13.80 to 16.80 LED (Green)	13.50 to 16.50 15.00 to 15.60 ting and recovers autom	24.00 to 24.96 atically	36.00 to 37.44	48.00 to 49.92			
IRCUIT AND	OUTPUT VOLTAGE ADJUSTMEN OUTPUT VOLTAGE SETTI OVERCURRENT PROTE OVERVOLTAGE PROTE OPERATING INDICAT REMOTE SENSING	ING[V] ECTION CTION[V]	10.80 to 13.20 12.00 to 12.48 Works over 105% of ra 13.80 to 16.80 LED (Green) Not provided	13.50 to 16.50 15.00 to 15.60 ting and recovers autom 17.25 to 21.00	24.00 to 24.96 atically 27.60 to 33.60	36.00 to 37.44	48.00 to 49.92			
IRCUIT AND	OUTPUT VOLTAGE ADJUSTMEN OUTPUT VOLTAGE SETTI OVERCURRENT PROTE OVERVOLTAGE PROTE OPERATING INDICAT REMOTE SENSING REMOTE ON/OFF	ING[V] ECTION CTION[V]	10.80 to 13.20 12.00 to 12.48 Works over 105% of ra 13.80 to 16.80 LED (Green) Not provided Optional (Required exte	13.50 to 16.50 15.00 to 15.60 ting and recovers autom 17.25 to 21.00 ernal power source. Opti	24.00 to 24.96 atically 27.60 to 33.60 on -R)	36.00 to 37.44 41.40 to 50.40	48.00 to 49.92			
EIRCUIT AND OTHERS	OUTPUT VOLTAGE ADJUSTMEN OUTPUT VOLTAGE SETTI OVERCURRENT PROTE OVERVOLTAGE PROTE OPERATING INDICAT REMOTE SENSING REMOTE ON/OFF INPUT-OUTPUT • RC	ING[V] ECTION CTION[V] TON	10.80 to 13.20 12.00 to 12.48 Works over 105% of ra 13.80 to 16.80 LED (Green) Not provided Optional (Required external Company of the Compan	13.50 to 16.50 15.00 to 15.60 ting and recovers autom 17.25 to 21.00 ernal power source. Optitoff current = 10mA, DC	24.00 to 24.96 atically 27.60 to 33.60 on -R) 500V 50ΜΩ min (At roo	36.00 to 37.44 41.40 to 50.40 m temperature)	48.00 to 49.92			
IRCUIT AND ITHERS	OUTPUT VOLTAGE ADJUSTMEN OUTPUT VOLTAGE SETTI OVERCURRENT PROTE OVERVOLTAGE PROTE OPERATING INDICAT REMOTE SENSING REMOTE ON/OFF INPUT-OUTPUT • RC INPUT-FG	ING[V] ECTION CTION[V] TON	10.80 to 13.20 12.00 to 12.48 Works over 105% of ra 13.80 to 16.80 LED (Green) Not provided Optional (Required exte AC3,000V 1minute, Cu AC2,000V 1minute, Cu	13.50 to 16.50 15.00 to 15.60 ting and recovers autom 17.25 to 21.00 ernal power source. Optitoff current = 10mA, DC toff current = 10mA, DC		36.00 to 37.44 41.40 to 50.40 m temperature) m temperature)	48.00 to 49.92			
IRCUIT AND THERS	OUTPUT VOLTAGE ADJUSTMEN OUTPUT VOLTAGE SETTI OVERCURRENT PROTE OVERVOLTAGE PROTE OPERATING INDICAT REMOTE SENSING REMOTE ON/OFF INPUT-OUTPUT · RC INPUT-FG OUTPUT · RC-FG	ECTION CTION[V] ION	10.80 to 13.20 12.00 to 12.48 Works over 105% of ra 13.80 to 16.80 LED (Green) Not provided Optional (Required exte AC3,000V 1minute, Cu AC2,000V 1minute, Cut	13.50 to 16.50 15.00 to 15.60 ting and recovers autom 17.25 to 21.00 ernal power source. Optitoff current = 10mA, DC ff current = 100mA,		36.00 to 37.44 41.40 to 50.40 In temperature) In temperature) In temperature)	48.00 to 49.92			
IRCUIT AND THERS	OUTPUT VOLTAGE ADJUSTMEN OUTPUT VOLTAGE SETTI OVERCURRENT PROTE OVERVOLTAGE PROTE OPERATING INDICAT REMOTE SENSING REMOTE ON/OFF INPUT-OUTPUT · RC INPUT-FG OUTPUT-RC	ECTION CTION[V] ION *9	10.80 to 13.20 12.00 to 12.48 Works over 105% of ra 13.80 to 16.80 LED (Green) Not provided Optional (Required exte AC3,000V 1minute, Cu AC2,000V 1minute, Cuto AC500V 1minute, Cuto	13.50 to 16.50 15.00 to 15.60 ting and recovers autom 17.25 to 21.00 ernal power source. Opti toff current = 10mA, DC ff current = 10mA, DC ff current = 100mA, DC ff current = 100mA, DC ff current = 100mA, DC	24.00 to 24.96 atically 27.60 to 33.60 on -R) 500V 50M Ω min (At roo 500V 5	36.00 to 37.44 41.40 to 50.40 In temperature)	48.00 to 49.92 54.00 to 67.20			
THERS SOLATION	OUTPUT VOLTAGE ADJUSTMEN OUTPUT VOLTAGE SETTI OVERCURRENT PROTE OVERVOLTAGE PROTE OPERATING INDICAT REMOTE SENSING REMOTE ON/OFF INPUT-OUTPUT • RC INPUT-FG OUTPUT-RC OPERATING TEMP, HUMID.AND	ING[V] ECTION CTION[V] ION *9 *9 ALTITUDE *5	10.80 to 13.20 12.00 to 12.48 Works over 105% of ra 13.80 to 16.80 LED (Green) Not provided Optional (Required exte AC3,000V 1minute, Cu AC2,000V 1minute, Cuto AC500V 1minute, Cuto Coto +70°C (Output de	13.50 to 16.50 15.00 to 15.60 ting and recovers autom 17.25 to 21.00 ernal power source. Optitoff current = 10mA, DC ff current = 10mA, DC ff current = 100mA, DC ff current = 100m	$ \begin{array}{c c} 24.00 \text{ to } 24.96 \\ \text{atically} \\ \hline 27.60 \text{ to } 33.60 \\ \hline \\ \text{on -R)} \\ \hline 500V 50M\Omega \text{ min (At roots)} \\ 500V 50M\Omega \text{ min (At roots)} \\ 500V 50M\Omega \text{ min (At roots)} \\ \hline 500V 50M\Omega \text{ min (At roots)} \\ \hline \\ 90\% \text{RH (Non condensir)} \\ \end{array} $	an temperature) m temperature)	48.00 to 49.92 54.00 to 67.20			
CIRCUIT AND OTHERS	OUTPUT VOLTAGE ADJUSTMEN OUTPUT VOLTAGE SETTI OVERCURRENT PROTE OVERVOLTAGE PROTE OPERATING INDICAT REMOTE SENSING REMOTE ON/OFF INPUT-OUTPUT • RC INPUT-FG OUTPUT-RC OPERATING TEMP, HUMID.AND STORAGE TEMP, HUMID.AND	ING[V] ECTION CTION[V] ION *9 *9 ALTITUDE *5	10.80 to 13.20 12.00 to 12.48 Works over 105% of ra 13.80 to 16.80 LED (Green) Not provided Optional (Required exte AC3,000V 1minute, Cu AC2,000V 1minute, Cuto AC500V 1minute, Cuto Coto +70°C (Output de 20 to +75°C, 20 - 90%	13.50 to 16.50 15.00 to 15.60 ting and recovers autom 17.25 to 21.00 ernal power source. Opti toff current = 10mA, DC toff current = 10mA, DC ff current = 100mA, DC ff current = 100mA, DC erating is required), 20 - RH (Non condensing), 9	24.00 to 24.96 atically 27.60 to 33.60 on -R) 500V 50M Ω min (At roo 500V 50M Ω min (At roo 500V 50M Ω min (At roo 600V 50M Ω min (At roo 90%RH (Non condensin ,000m (30,000 feet) max	and temperature) m temperature)	48.00 to 49.92 54.00 to 67.20			
CIRCUIT AND OTHERS SOLATION	OUTPUT VOLTAGE ADJUSTMEN OUTPUT VOLTAGE SETTI OVERCURRENT PROTE OVERVOLTAGE PROTE OPERATING INDICAT REMOTE SENSING REMOTE ON/OFF INPUT-OUTPUT • RC INPUT-FG OUTPUT-RC OPERATING TEMP, HUMID. AND VIBRATION	ING[V] ECTION CTION[V] ION *9 *9 ALTITUDE *5	10.80 to 13.20 12.00 to 12.48 Works over 105% of ra 13.80 to 16.80 LED (Green) Not provided Optional (Required exte AC3,000V 1minute, Cu AC2,000V 1minute, Cuto AC500V 1minute, Cuto Coto +70°C (Output de 20 to +75°C, 20 - 90% 10 - 55Hz, 19.6m/s² (20	13.50 to 16.50 15.00 to 15.60 ting and recovers autom 17.25 to 21.00 ernal power source. Opti toff current = 10mA, DC ff current = 10mA, DC ff current = 100mA, DC ff current = 100mA, DC erating is required), 20 - RH (Non condensing), 9 G), 3minutes period, 60n	$\begin{array}{c c} 24.00 \text{ to } 24.96 \\ \text{atically} \\ \hline 27.60 \text{ to } 33.60 \\ \hline \\ 001 \text{ -R)} \\ \hline 500V 50M\Omega \text{ min (At roots)} \\ 500V 50M\Omega \text{ min (At roots)} \\ 500V 50M\Omega \text{ min (At roots)} \\ \hline 500V 50M\Omega m$	and temperature) m temperature)	48.00 to 49.92 54.00 to 67.20			
PROTECTION CIRCUIT AND DTHERS SOLATION	OUTPUT VOLTAGE ADJUSTMEN OUTPUT VOLTAGE SETTI OVERCURRENT PROTE OVERVOLTAGE PROTE OPERATING INDICAT REMOTE SENSING REMOTE ON/OFF INPUT-OUTPUT • RC INPUT-FG OUTPUT • RC-FG OUTPUT-RC OPERATINGTEMP,,HUMID.AND VIBRATION IMPACT	SCTION CTION[V] ION *9 *9 *ALTITUDE	10.80 to 13.20 12.00 to 12.48 Works over 105% of rai 13.80 to 16.80 LED (Green) Not provided Optional (Required exte AC3,000V 1minute, Cut AC2,000V 1minute, Cuto AC500V 1minute, Cuto -20 to +70°C (Output de -20 to +75°C, 20 - 90% 10 - 55Hz, 19.6m/s² (206), 11ms² (206), 11ms²	13.50 to 16.50 15.00 to 15.60 ting and recovers autom 17.25 to 21.00 ernal power source. Opti toff current = 10mA, DC ff current = 100mA, DC ff current = 100mA, DC ff current = 100mA, DC erating is required), 20 - RH (Non condensing), 9 G), 3minutes period, 60m h, once each X, Y and Z a	24.00 to 24.96 atically 27.60 to 33.60 on -R) 500V 50M Ω min (At roo 500V 50M Ω min (At roo 500V 50M Ω min (At roo 600V 50M Ω min (At roo 90%RH (Non condensir ,000m (30,000 feet) maxininutes each along X, Y axes	and Z axes	48.00 to 49.92 54.00 to 67.20 b) max			
CIRCUIT AND OTHERS SOLATION	OUTPUT VOLTAGE ADJUSTMEN OUTPUT VOLTAGE SETTI OVERCURRENT PROTE OVERVOLTAGE PROTE OPERATING INDICAT REMOTE SENSING REMOTE ON/OFF INPUT-OUTPUT • RC INPUT-FG OUTPUT-RC OPERATING TEMP, HUMID. AND VIBRATION	SCTION CTION[V] ION *9 *9 *ALTITUDE	10.80 to 13.20 12.00 to 12.48 Works over 105% of rai 13.80 to 16.80 LED (Green) Not provided Optional (Required exte AC3,000V 1minute, Cut AC2,000V 1minute, Cuto AC500V 1minute, Cuto -20 to +70°C (Output de -20 to +75°C, 20 - 90% 10 - 55Hz, 19.6m/s² (206), 11ms UL60950-1, C-UL (CS/	13.50 to 16.50 15.00 to 15.60 ting and recovers autom 17.25 to 21.00 ernal power source. Opti toff current = 10mA, DC ff current = 10mA, DC ff current = 100mA, DC ff current = 100mA, DC erating is required), 20 - RH (Non condensing), 9 G), 3minutes period, 60n	24.00 to 24.96 atically 27.60 to 33.60 on -R) 500V 50MΩ min (At roo 90%RH (Non condensin ,000m (30,000 feet) manutes each along X, Y axes UL508 (Except option -J	and Z axes	48.00 to 49.92 54.00 to 67.20 b) max			





OTHERS	CASE SIZE/WEIGHT	41×97×109mm [1.61×3.82×4.29 inches] (Excluding terminal block and screw) (W×H×D) / 500g max
OTHERS	COOLING METHOD	Convection
WARRANTY	WARRANTY *6	5 years (subject to the operating conditions)

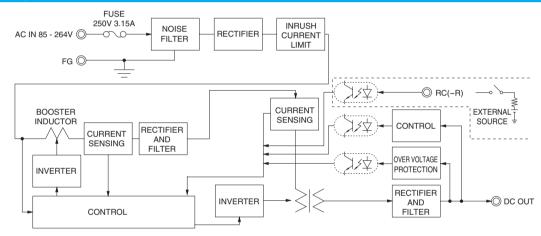
- *1 This is the result of measurement of the testing board with canacitors of 22 U.F. and 0.1 U.F. placed at 150 mm from the output terminals by a 20 MHz oscilloscope or a ripple-noise meter equivalent to Keisoku-Giken RM103. See 1.6 of Instruction Manual for more details.
 - When the load factor is 0 30%, the switching power loss is reduced by burst operation, which will cause ripple and ripple noise to go beyond the specifications.
- Drift is the change in DC output for an eight hour period after a half-
- hour warm-up at 25℃.
- *3 As for DC input, consult us for advice. Consult us about dynamic load and input response. Measure the output
- voltage by using the average mode of the tester to deal with the burst operation at 30% load or less.
- Output power derating is required. See 3.2 in Instruction Manual.
- See 3.3 in Instruction Manual for more details. Consult us about safety agency approvals for the models with optional functions.
- Consult us about other classes.

- The RC terminal is added to option -R models. The RC terminal is isolated from input, output, and FG.
- Do not use the power supply in overcurrent conditions or in unspecified input voltage ranges. Otherwise the internal components may be damaged.
- Parallel operation is not possible with this mode
- Sound noise may be heard from the power supply when used for pulse load.

Features

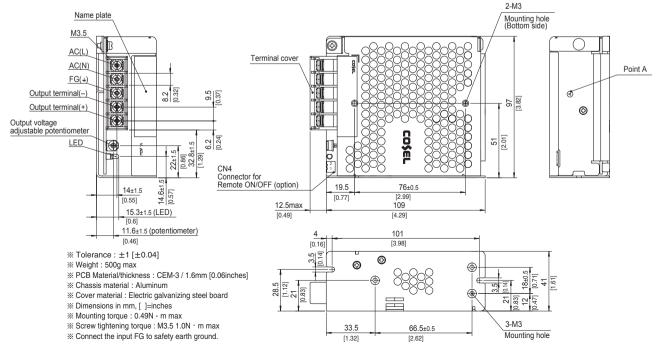
- · Compact design (Depth: 109mm 4.29inches)
- · High efficiency (88%typ PLA100F-24, AC230Vin, 100% load)
- · Low power consumption (1.5W typ AC240Vin, no load at standard model)
- · UL508 approved (Except option -J), and complies with SEMI F47 (see instruction manual 1.1)
- · Various connection interface options (vertical terminal [-T], AMP connector [-J])

Block diagram



External view

The external size of -R option, -J option, -N1 option and -T option models is different from the standard model. See "5. Options and Others" in Instruction Manual for more details.



PLA150F

150





Example recommended EMI/EMC filter NAC-04-472



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

*A higher current rating EMI/EMC filter may be recommended in view of the other devices that could be connected in parallel with the power supply.

- ①Series name ②Single output ③Output wattage ④Universal input
- ⑤Output voltage
- ®Optional *7
 C: with Coating
 R: Remote on/off
 - (Required external
- power source)
 J : Connector interface
- T : Vertical terminal block
 -N□ : with DIN rail

See 5.1 in Instruction Manual.

*Make sure necessary tests will be carried out on your end equipment with the power supply installed in accordance with any required EMC/EMI regulations.

SPECIFICATIONS

★ Please consider "PRA150F-5-N" about 5V output with case cover

or Lon I	CATIONS		* Please consider "PBA	150F-5-N" about 5V outpu	ut with case cover.				
	MODEL		PLA150F-12	PLA150F-15	PLA150F-24	PLA150F-36	PLA150F-48		
	VOLTAGE[V]		AC85 - 264 1 φ (Outpu	ut derating is required at	AC85V - 115V. See 1.1	and 3.2 in Instruction M	anual) *3		
	ACIN 100V CURRENT[A] ACIN 115V		1.7typ (lo=90%)						
			1.6typ (lo=100%)						
		ACIN 230V	0.8typ (lo=100%)						
	FREQUENCY[Hz]		50 / 60 (47 - 63)						
		ACIN 100V	84typ (lo=90%)	84typ (lo=90%)	87typ (lo=90%)	87typ (lo=90%)	87typ (Io=90%)		
	EFFICIENCY[%]	ACIN 115V	84typ (lo=100%)	84typ (lo=100%)	87typ (lo=100%)	87typ (lo=100%)	87typ (Io=100%)		
NPUT		ACIN 230V	87typ (lo=100%)	87typ (lo=100%)	90typ (lo=100%)	90typ (lo=100%)	90typ (lo=100%)		
		ACIN 100V	0.98typ (lo=90%)						
	POWER FACTOR	ACIN 115V	0.98typ (lo=100%)						
		ACIN 230V	0.95typ (lo=100%) *	Power factor correction is	s stopped at AC250V or	more.			
		ACIN 100V	16typ (lo=90%) Ta=25						
	INRUSH CURRENT[A]	ACIN 115V	16typ (lo=100%) Ta=2						
		ACIN 230V	32typ (lo=100%) Ta=2						
	LEAKAGE CURRENT		** '	240V, 60Hz, lo=100%, A	According to IEC62368-	1 and DEN-AN)			
	VOLTAGE[V]		12	15	24	36	48		
		ACIN 85-115V		uired at ACIN 115V or les	1				
	CURRENT[A]	ACIN 115V-264V	12.5	10	6.4	4.2	3.2		
		ACIN 85-115V		uired at ACIN 115V or les	1 -		0.2		
	WATTAGE[W]	ACIN 115V-264V	150.0	150.0	153.6	151.2	153.6		
	LINE REGULATION[m		48max	60max	96max	144max	192max		
-	LOAD REGULATION	lo=30 to 100%		120max	150max	150max	300max		
I	[mV] *4	ļ	100max 120max 150max 150max 300max 300						
	• •	0 to +40°C		120max	120max	150max	150max		
DUTPUT	RIPPLE[mVp-p]	-10 to 0°C	160max	160max	160max	200max	400max		
	lo: load factor	lo=0 to 30%		500max	500max	500max	500max		
-		0 to +40°C	150max	150max	150max	200max	200max		
	RIPPLE NOISE[mVp-p]	-10 to 0°C		180max	180max		500max		
	lo: load factor	lo=0 to 30%	600max	600max	600max	240max 600max	600max		
-	10. 1044 140101								
	TEMPERATURE REGULATION[mV]	0 to +40°C -10 to +40°C	120max	150max	240max	360max	480max		
	DDIETE VO		180max	180max	290max	440max	600max		
	DRIFT[mV]	*2	48max	60max	96max	144max	192max		
F	START-UP TIME[ms]		500typ (ACIN 115V, Io						
	HOLD-UP TIME[ms]	T DAMAERO	20typ (ACIN 115V, lo=		24 22 4 22 42	Tag. 40 1 00 00	10.00: 50.00		
F	OUTPUT VOLTAGE ADJUSTMEN			13.50 to 16.50	21.60 to 26.40	32.40 to 39.60	43.20 to 52.80		
	OUTPUT VOLTAGE SETTI		12.00 to 12.48	15.00 to 15.60	24.00 to 24.96	36.00 to 37.44	48.00 to 49.92		
H	OVERCURRENT PROTE			ating and recovers autom		144 40 4 55 45	E4.00 / 2= 2=		
	OVERVOLTAGE PROTEC		13.80 to 16.80	17.25 to 21.00	27.60 to 33.60	41.40 to 50.40	54.00 to 67.20		
· · · · · · · · · · · · · · · · · · ·	OPERATING INDICAT	ION	LED (Green)						
	REMOTE SENSING		Not provided						
	REMOTE ON/OFF		Optional (Required external power source. Option -R) AC3,000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (At room temperature)						
	INPUT-OUTPUT • RC	*9							
SOLATION -	INPUT-FG			utoff current = 10mA, DC					
	OUTPUT • RC-FG	*9		off current = 100mA, DC5					
	OUTPUT-RC	*9		off current = 100mA, DC5					
-	OPERATING TEMP., HUMID. AND A		· ·	lerating is required), 20 -	,	37	et) max		
·NVIRONMENI 🗕	STORAGE TEMP.,HUMID.AND	ALTITUDE		RH (Non condensing), 9					
	VIBRATION			G), 3minutes period, 60r		and Z axes			
	IMPACT		1 /-	s, once each X, Y and Z		,			
	AGENCY APPROVALS	S	UL60950-1, C-UL (CS	A60950-1), EN62368-1,	UL508 (Except option -	J) Complies with DEN-A	N		
–	CONDUCTED NOISE		•	VCCI-B, CISPR22-B, EN	N55011-B, EN55022-B				
REGULATIONS	HARMONIC ATTENUA	ATOR *8	Complies with IEC610	00-3-2 class A					



OTHERS	CASE SIZE/WEIGHT	41×97×129mm [1.61×3.82×5.08 inches] (Excluding terminal block and screw) (W×H×D) / 600g max
OTHERS	COOLING METHOD	Convection
WARRANTY	WARRANTY *6	5 years (subject to the operating conditions)

This is the result of measurement of the testing board with capacitors of 22 U.F. and 0.1 U.F. placed at 150 mm from the output terminals by a 20. MHz oscilloscope or a ripple-noise meter equivalent to Keisoku-Giken

See 1.6 of Instruction Manual for more details.

When the load factor is 0 - 30%, the switching power loss is reduced by burst operation, which will cause ripple and ripple noise to go beyond the specifications

*2 Drift is the change in DC output for an eight hour period after a half-

hour warm-up at 25℃.

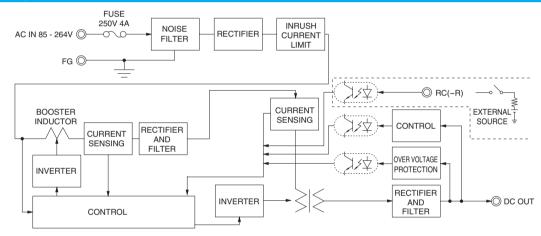
- As for DC input, consult us for advice Consult us about dynamic load and input response. Measure the output
- voltage by using the average mode of the tester to deal with the burst operation at 30% load or less.
- Output power derating is required. See 3.2 in Instruction Manual.
- See 3.3 in Instruction Manual for more details. Consult us about safety agency approvals for the models with optional functions.
- Consult us about other classes

- The RC terminal is added to option -R models. The RC terminal is isolated from input, output, and FG.
- Do not use the power supply in overcurrent conditions or in unspecified input voltage ranges. Otherwise the internal components may be damaged.
- Parallel operation is not possible with this mode
- Sound noise may be heard from the power supply when used for pulse load.

Features

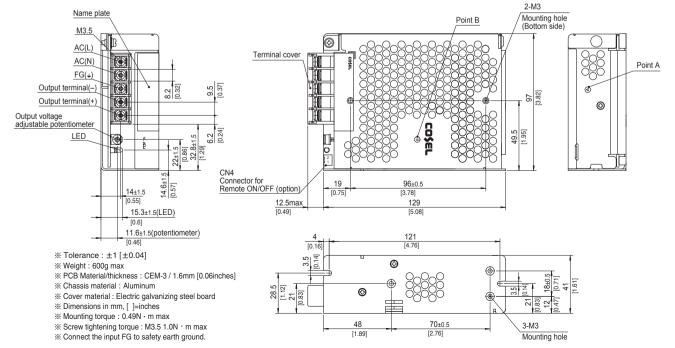
- · Compact design (Depth: 129mm 5.08inches)
- · High efficiency (90%typ PLA150F-24, AC230Vin, 100% load)
- · Low power consumption (1.5W typ AC240Vin, no load at standard model)
- · UL508 approved (Except option -J), and complies with SEMI F47 (see instruction manual 1.1)
- · Various connection interface options (vertical terminal [-T], AMP connector [-J])

Block diagram



External view

The external size of -R option, -J option, -N1 option and -T option models is different from the standard model. See "5. Options and Others" in Instruction Manual for more details.



PLA300F

300



- ①Series name ②Single output ③Output wattage ④Universal input
- ⑤Output voltage
- (a) Output voltage
 (b) Optional *7
 C: with Coating
 G: Low leakage current
 V: External potentiometer for output voltage adjustment
 - U: Low input voltage stop (Complies with SEMI F-47) R: Remote on/off

 - (Required external power source)
 - F4: Low speed fan
- T2: Horizontal terminal block (non-screw-hold type)

See 5.1 in Instruction Manual.

	MODEL		PLA300F-5	PLA300F-12	PLA300F-15	PLA300F-24	PLA300F-36	PLA300F-48		
	VOLTAGE[V]		AC85 - 264 1 φ (Οι	utput derating is requ	uired at AC85V - 115	V. See 1.1 and 3.2 ir	Instruction Manual)	*3		
		ACIN 100V	3.1typ (lo=90%)	3.4typ (lo=90%)						
	CURRENT[A]	ACIN 115V	3.0typ (lo=100%) 3.3typ (lo=100%)							
	ACIN 230V		1.5typ (lo=100%)	1.7typ (lo=100%)						
	FREQUENCY[Hz]		50 / 60 (47 - 63)							
		ACIN 100V	73typ (lo=90%)	78typ (lo=90%)	79typ (lo=90%)	81typ (lo=90%)	81typ (lo=90%)	82typ (lo=90%)		
	EFFICIENCY[%]	ACIN 115V	74typ (lo=100%)	78typ (lo=100%)	80typ (lo=100%)	82typ (lo=100%)	82typ (lo=100%)	83typ (lo=100%)		
INPUT		ACIN 230V	77typ (lo=100%)	81typ (lo=100%)	83typ (lo=100%)	86typ (lo=100%)	86typ (lo=100%)	86typ (lo=100%)		
		ACIN 100V	0.98typ (lo=90%)							
	POWER FACTOR	ACIN 115V	0.98typ (lo=100%)							
		ACIN 230V	0.95typ (lo=100%)							
		ACIN 100V	20typ (lo=90%) Ta=	=25℃ at cold start						
	INRUSH CURRENT[A]	ACIN 115V	20typ (Io=100%) Ta	=25℃ at cold start						
		ACIN 230V	40typ (lo=100%) Ta	=25℃ at cold start						
	LEAKAGE CURRENT	[mA]	0.75max (ACIN 115	5V / 240V, 60Hz, lo=	100%, According to I	EC62368-1 and DE	N-AN)			
	VOLTAGE[V]		5	12	15	24	36	48		
	CURRENT[A]	ACIN 85-115V	Output derating is r	equired at ACIN 115	V or less (refer to ins	struction manual 3.2)			
	CORNENT[A]	ACIN 115V-264V	50	25	20	12.5	8.4	6.3		
	WATTA CEIMI	ACIN 85-115V	Output derating is r	equired at ACIN 115	V or less (refer to ins	struction manual 3.2)			
	WATTAGE[W]	ACIN 115V-264V	250	300	300	300	302.4	302.4		
	LINE REGULATION[mV] *4		20max	48max	60max	96max	144max	192max		
	LOAD REGULATION	mV] *4	40max	100max	120max	150max	150max	300max		
	RIPPLE[mVp-p]	0 to +50°C	80max	120max	120max	120max	150max	150max		
OUTPUT		-10 to 0°C	140max	160max	160max	160max	160max	400max		
OUIPUI	RIPPLE NOISE[mVp-p]	0 to +50°C	120max	150max	150max	150max	200max	200max		
	*1	-10 to 0°C	160max	180max	180max	180max	240max	500max		
	TEMPERATURE REGULATION[mV]	0 to +50°C	50max	120max	150max	240max	360max	480max		
	TEMPERATURE REGULATION[MV]	-10 to +50°C	75max	180max	180max	290max	440max	600max		
	DRIFT[mV]	*2	20max	48max	60max	96max	144max	192max		
	START-UP TIME[ms]		300typ (ACIN 115V	, lo=100%)						
	HOLD-UP TIME[ms]		20typ (ACIN 115V,	lo=100%)						
	OUTPUT VOLTAGE ADJUSTMEN	NT RANGE[V]	4.50 to 5.50	10.80 to 13.20	13.50 to 16.50	21.60 to 26.40	32.40 to 39.60	43.20 to 52.80		
	OUTPUT VOLTAGE SETT	ING[V]	5.00 to 5.15	12.00 to 12.48	15.00 to 15.60	24.00 to 24.96	36.00 to 37.44	48.00 to 49.92		
	OVERCURRENT PROTE	ECTION	Works over 105% of	of rating and recovers	s automatically					
PROTECTION	OVERVOLTAGE PROTE	CTION[V]	5.75 to 7.00	13.80 to 16.80	17.25 to 21.00	27.60 to 33.60	41.40 to 50.40	55.20 to 67.20		
CIRCUIT AND	OPERATING INDICAT	TION	LED (Green)							
OTHERS	REMOTE SENSING		Not provided							
	REMOTE ON/OFF		Optional (Required	external power sour	ce. Option -R)					
	INPUT-OUTPUT • RC	*10	AC3,000V 1minute	Cutoff current = 10	mA, DC500V 50M Ω	min (At room tempe	rature)			
ISOLATION	INPUT-FG		AC2,000V 1minute, Cutoff current = 10mA, DC500V 50M Ω min (At room temperature)							
ISOLATION	OUTPUT • RC-FG	*10	AC500V 1minute, Cutoff current = 100mA, DC500V 50MΩ min (At room temperature)							
	OUTPUT-RC	*10	AC500V 1minute, Cutoff current = 100mA, DC500V 50M Ω min (At room temperature)							
	OPERATING TEMP., HUMID. AND	ALTITUDE *5	` '		d), 20 - 90%RH (Nor		m (10,000 feet) max			
ENVIRONMENT	STORAGE TEMP., HUMID. AND	ALTITUDE	-20 to +75°C, 20 - 9	00%RH (Non conder	nsing), 9,000m (30,00	00 feet) max				
LITTIIONWENT	VIBRATION				iod, 60minutes each	along X, Y and Z ax	es			
	IMPACT		196.1m/s ² (20G), 1	1ms, once each X, Y	and Z axes					
SAFETY AND	AGENCY APPROVAL	s	UL60950-1, C-UL (CSA60950-1), EN62	368-1 Complies with	DEN-AN				
NOISE	CONDUCTED NOISE		Complies with FCC	-B, VCCI-B, CISPR2	22-B, EN55011-B, EN	N55022-B				
REGULATIONS	HARMONIC ATTENUA	ATOR *9	Complies with IEC6	61000-3-2 class A						

^{*}Make sure necessary tests will be carried out on your end equipment with the power supply installed in accordance with any required EMC/EMI regulations.



OTHERS	CASE SIZE/WEIGHT	102×41×190mm [4.02×1.61×7.48 inches] (Excluding terminal block and screw) (W×H×D) / 1.0kg max			
OTHERS	COOLING METHOD *8	Forced cooling (internal fan)			
WARRANTY	WARRANTY *6	5 years (subject to the operating conditions)			

- *1 This is the result of measurement of the testing board with capacitors of 22 U.F. and 0.1 U.F. placed at 150 mm from the output terminals by a 20. MHz oscilloscope or a ripple-noise meter equivalent to Keisoku-Giken See 1.6 of Instruction Manual for more details.
- *2 Drift is the change in DC output for an eight hour period after a half-hour
- See 3.2 in Instruction Manual
- See 3.3 in Instruction Manual for more details
- Consult us about safety agency approvals for the models with optional functions.
- The fan speed slows down at no load. Consult us about other classes.
 - *10 The RC terminal is added to option -R models. The RC terminal is isolated from input, output, and FG.
- Do not use the power supply in overcurrent conditions or in unspecified input voltage ranges. Otherwise the internal components may be damaged.
- Parallel operation is not possible with this mode.
- Sound noise may be heard from the power supply when used for pulse load.

Features

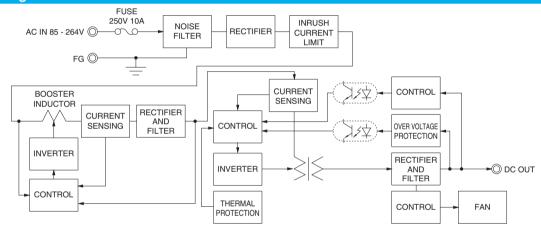
arm-up at 25°C

- · Cost-effective
- · Longer life (see Instruction Manual)

Output power derating is required. As for DC input, consult us for advice.

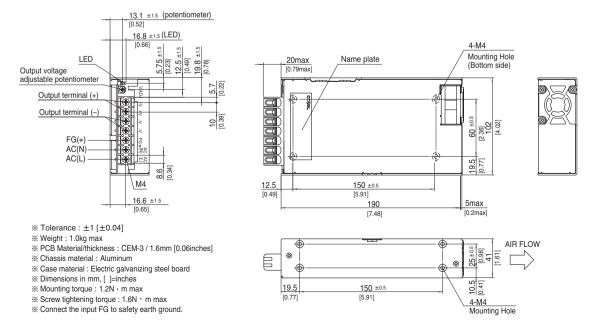
- · Low profile (meets 1U height = 41 mm or 1.61 inches)
- ·Wide operating temperature range (-20°C to +70°C see instruction manual)
- · Screw hold type terminal block
- · Slow fan speed at no load
- · Many optional functions
- · Complies with SEMI F-47 (-U option, see Instruction Manual for details)

Block diagram



External view

The external size of -V option, -R option, and -T2 option models is different from the standard model. See "5. Options and Others" in Instruction Manual for more details.



PLA600F

PL A 600 F - - -



*Make sure necessary tests will be carried out on your end equipment with the power supply installed in accordance with any required EMC/EMI regulations.

*Please consider "PJA600F-5" about 5V output.

N	MODEL		PLA600F-12	PLA600F-15	PLA600F-24	PLA600F-36	PLA600F-48	
\	VOLTAGE[V]		AC85 - 264 1 φ (Outpu	ut derating is required at	AC85V - 115V. See 1.1	and 3.2 in Instruction Ma	nual) *4	
	ACIN 100V		, , , , , , , , , , , , , , , , , , , ,					
0	CURRENT[A]	ACIN 115V	6.5typ (lo=100%)					
		ACIN 230V						
F	FREQUENCY[Hz]		50 / 60 (47 - 63)					
		ACIN 100V	81typ (lo=90%)	81typ (lo=90%)	84typ (lo=90%)	85typ (lo=90%)	85typ (Io=90%)	
E	EFFICIENCY[%]	ACIN 115V	81typ (lo=100%)	81typ (lo=100%)	84typ (lo=100%)	85typ (lo=100%)	85typ (Io=100%)	
NPUT		ACIN 230V	84typ (lo=100%)	84typ (lo=100%)	88typ (lo=100%)	88typ (lo=100%)	88typ (lo=100%)	
		ACIN 100V	0.98typ (lo=90%)	, , ,	, , ,	, , ,	, , ,	
F	POWER FACTOR	ACIN 115V						
		ACIN 230V						
		ACIN 100V						
l I	INRUSH CURRENT[A]	ACIN 115V						
		ACIN 230V	40/40typ (Io=100%) (Primary inrush current /Secondary inrush current) (More than 3sec to re-start)					
	LEAKAGE CURRENT[mA]		1.5max (ACIN 115V / 240V, 60Hz, Io=100%, According to IEC62368-1 and DEN-AN)					
	VOLTAGE[V]	1	12	15	24	36	48	
		ACIN 85-115V	Output derating is regu	ired at ACIN 115V or le		1	1.0	
0	CURRENT[A]	ACIN 115V-264V	50	40	25	16.7	12.5	
	WATTAGE[W]	ACIN 85-115V		ired at ACIN 115V or le	1 = -		12.0	
١		ACIN 115V-264V	600	600	600	601.2	600	
	LINE REGULATION[mV] *8			60max	96max	144max	192max	
H	LOAD REGULATION[mV] *8		100max	120max	150max	150max	300max	
H		0 to +50°C		120max	120max	150max	150max	
'	RIPPLE[mVp-p]		160max	160max	160max	160max	400max	
UTPUT	RIPPLE NOISE[mVp-p] *1 TEMPERATURE REGULATION[mV] DRIFT[mV]	0 to +50°C	150max	150max	150max	200max	200max	
-		-20 to 0°C	180max	180max	180max	240max	500max	
-		0 to +50°C	120max	150max	240max	360max	480max	
Т		-20 to +50°C	180max	180max	290max	440max	600max	
-		*2	48max	60max	96max	144max	192max	
	START-UP TIME[ms]							
_	HOLD-UP TIME[ms]		300typ (ACIN 115V, Io=100%) 20typ (ACIN 115V, Io=100%)					
-	OUTPUT VOLTAGE ADJUSTMENT RANGE[V]		, ,	13.50 to 16.50	21.60 to 26.40	32.40 to 39.60	43.20 to 52.80	
_			12.00 to 12.48	15.00 to 15.60	24.00 to 24.96	36.00 to 37.44	48.00 to 49.92	
	OUTPUT VOLTAGE SETTING[V] OVERCURRENT PROTECTION			ting and recovers auton		30.00 to 37.44	+0.00 10 49.92	
_	OVERVOLTAGE PROTECTION[V]			17.25 to 21.00		41 40 to E0 40	EE 20 to 67 00	
· · · ·	OPERATING INDICATION		13.80 to 16.80 LED (Green)	17.20 10 21.00	27.60 to 33.60	41.40 to 50.40	55.20 to 67.20	
<u> </u>	REMOTE SENSING		Optional (Option -W)					
	REMOTE ON/OFF		Optional (Required external power source. Option -R)					
<u> </u>	INPUT-OUTPUT • RC *3		, , , , , , , , , , , , , , , , , , , ,					
COLATION ⊢	INPUT-FG		AC2,000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (At room temperature)					
<u> </u>	OUTPUT • RC-FG *3		, = = = = (= = = =)					
	OUTPUT-RC *3		Aleger America, Caten Garrent Tooling, 2 2000 Community (Aleger temperature)					
	OPERATING TEMP.,HUMID.AND ALTITUDE *5							
NVIRONMENT ⊢	STORAGE TEMP., HUMID. AND ALTITUDE		-20 to +75°C, 20 - 90%RH (Non condensing), 9,000m (30,000 feet) max					
	VIBRATION		10 - 55Hz, 19.6m/s² (2G), 3minutes period, 60minutes each along X, Y and Z axes					
	IMPACT		196.1m/s² (20G), 11ms, once each X, Y and Z axes					
	AGENCY APPROVALS		UL60950-1, C-UL (CSA60950-1), EN62368-1 Complies with DEN-AN					
	CONDUCTED NOISE		Complies with FCC-B, VCCI-B, CISPR22-B, EN55011-B, EN55022-B					
EGULATIONS F	HARMONIC ATTENUATOR *10		Complies with IEC61000-3-2 class A					





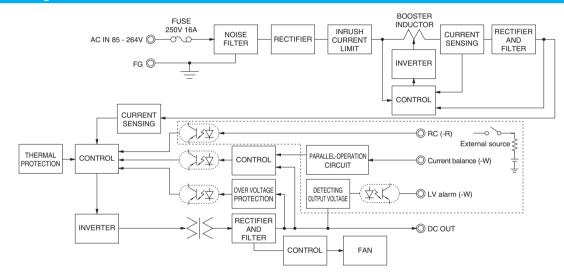
OTHERS	CASE SIZE/WEIGHT	120×61×215mm [4.72×2.40×8.46 inches] (Excluding terminal block and screw) (W×H×D) / 2.0kg max				
	COOLING METHOD *	Forced cooling (internal fan)				
WARRANTY	WARRANTY *	5 years (subject to the operating conditions)				

- This is the result of measurement of the testing board with capacitors of 22 μ F and 0.1 μ F placed at 150 mm from the output terminals by a 20 MHz oscilloscope or a ripple-noise meter equivalent to Keisoku-Giken RM103
- See 1.6 of Instruction Manual for more details. Drift is the change in DC output for an eight hour period after a half-hour warm-up at 25 °C.
- The BC terminal is added to option -R models. The BC terminal is
- isolated from input, output, and FG.
- As for DC input, consult us for advice Output power derating is required. See 3.2 in Instruction Manual
- See 3.3 in Instruction Manual for more details. Consult us about safety agency approvals for the models with optional functions
- *8 Consult us about dynamic load and input response
- The fan speed slows down at no load
- *10 Consult us about other classes.
- Do not use the power supply in overcurrent conditions or in unspecified input voltage ranges. Otherwise the internal components may be damaged. Parallel operation is allowed for PLA600F models with the –W option only.
- Sound noise may be heard from the power supply when used for pulse load.

Features

- · Cost-effective
- · Longer life (see Instruction Manual)
- · Low profile (meets 2U height = 61 mm or 2.40 inches)
- · Wide operating temperature range (-20°C to +70°C see instruction manual)
- · Screw hold type terminal block
- · Slow fan speed at no load
- · Many optional functions
- · Complies with SEMI F-47 (-U option, see Instruction Manual for details)

Block diagram



External view

26.6±1.

The external size of -V option, -W option, -R option, and -T2 option is different from the standard model. See "5. Options and Others" in Instruction Manual for more details.

