COSEL AC-DC Power Supplies Enclosed type

PLA100F

Ordering information

PL	A	100	F	-□	-□
①	②	③	④	⑤	⑥

Recommended EMI/EMC Filter
NAC-04-472

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

✻The EMI/EMC Filter is recommended to connect with several devices.

①Series name
②Single output
③Output wattage
④Universal input
⑤Output voltage
⑥Optional ✻7
C : with Coating
R : Remote on/off (Required external power source)
J : Connector interface
T : Vertical terminal block
L : Lower power consumption (0.5W max at AC240Vin, no load, ErP-compliant)
N1: with DIN rail

See 5.1 in Instruction Manual.

SPECIFICATIONS

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

	MODEL		PLA100F-12	PLA100F-15	PLA100F-24	PLA100F-36	PLA100F-48
INPUT	VOLTAGE[V]		AC85 - 264 1φ (Output derating is required at AC85V - 115V. See 1.1 and 3.2 in Instruction Manual) ✻3 (DC input ✻3)				
	CURRENT[A]	ACIN 100V	1.2typ (Io=90%)				
		ACIN 115V	1.1typ (Io=100%)				
		ACIN 230V	0.6typ (Io=100%)				
	FREQUENCY[Hz]		50 / 60 (47 - 63) (DC input and 440Hz ✻3)				
	EFFICIENCY[%]	ACIN 100V	82typ (Io=90%)	83typ (Io=90%)	85typ (Io=90%)	86typ (Io=90%)	86typ (Io=90%)
		ACIN 115V	82typ (Io=100%)	83typ (Io=100%)	85typ (Io=100%)	86typ (Io=100%)	86typ (Io=100%)
		ACIN 230V	85typ (Io=100%)	86typ (Io=100%)	88typ (Io=100%)	89typ (Io=100%)	89typ (Io=100%)
	POWER FACTOR	ACIN 100V	0.98typ (Io=90%)				
		ACIN 115V	0.98typ (Io=100%)				
		ACIN 230V	0.95typ (Io=100%) ✻ Power factor correction is stopped at AC250V or more.				
	INRUSH CURRENT[A]	ACIN 100V	16typ (Io=90%) Ta=25℃ at cold start				
		ACIN 115V	16typ (Io=100%) Ta=25℃ at cold start				
		ACIN 230V	32typ (Io=100%) Ta=25℃ at cold start				
	LEAKAGE CURRENT[mA]		0.75max (ACIN 115V / 240V, 60Hz, Io=100%, According to IEC60950-1 and DEN-AN)				
OUTPUT	VOLTAGE[V]		12	15	24	36	48
	CURRENT[A]	ACIN 85-115V	Output derating is required at ACIN 115V or less (refer to instruction manual 3.2)				
		ACIN 115V-264V	8.4	6.7	4.3	2.8	2.1
	WATTAGE[W]	ACIN 85-115V	Output derating is required at ACIN 115V or less (refer to instruction manual 3.2)				
		ACIN 115V-264V	100.8	100.5	103.2	100.8	100.8
	LINE REGULATION[mV] ✻4		48max	60max	96max	144max	192max
	LOAD REGULATION [mV] ✻4	Io=30 to 100%	100max	120max	150max	150max	300max
		Io=0 to 30%	Burst operation (Please contact us about detail)				
	RIPPLE[mVp-p] ✻1 Io: load factor	0 to +40℃	120max	120max	120max	150max	150max
		-10 to 0℃	160max	160max	160max	200max	400max
		Io=0 to 30%	500max	500max	500max	500max	500max
	RIPPLE NOISE[mVp-p] ✻1 Io: load factor	0 to +40℃	150max	150max	150max	200max	200max
		-10 to 0℃	180max	180max	180max	240max	500max
		Io=0 to 30%	600max	600max	600max	600max	600max
	TEMPERATURE REGULATION[mV]	0 to +40℃	120max	150max	240max	360max	480max
		-10 to +40℃	180max	180max	290max	440max	600max
	DRIFT[mV] ✻2		48max	60max	96max	144max	192max
	START-UP TIME[ms]		500typ (ACIN 115V, Io=100%) Ta=25℃				
	HOLD-UP TIME[ms]		20typ (ACIN 115V, Io=100%)				
	OUTPUT VOLTAGE ADJUSTMENT RANGE[V]		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 SETTING[V]		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
PROTECTION CIRCUIT AND OTHERS	OVERCURRENT PROTECTION		Works over 105% of rating and recovers automatically				
	OVERVOLTAGE PROTECTION[V]		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 INDICATION		LED (Green)				
	REMOTE SENSING		Not provided				
	REMOTE ON/OFF		Optional (Required external power source. Option -R)				
ISOLATION	INPUT-OUTPUT • RC ✻9		AC3,000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (At room temperature)				
	INPUT-FG		AC2,000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (At room temperature)				
	OUTPUT • RC-FG ✻9		AC500V 1minute, Cutoff current = 100mA, DC500V 50MΩ min (At room temperature)				
	OUTPUT-RC ✻9		AC500V 1minute, Cutoff current = 100mA, DC500V 50MΩ min (At room temperature)				
ENVIRONMENT	OPERATING TEMP.,HUMID.AND ALTITUDE ✻5		-20 to +70℃ (Output derating is required), 20 - 90%RH (Non condensing), 3,000m (10,000 feet) max				
	STORAGE TEMP.,HUMID.AND ALTITUDE		-20 to +75℃, 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				
SAFETY AND NOISE REGULATIONS	AGENCY APPROVALS		UL60950-1, C-UL (CSA60950-1), EN60950-1, EN50178, UL508 (Except option -J) Complies with DEN-AN				
	CONDUCTED NOISE		Complies with FCC-B, VCCI-B, CISPR22-B, EN55011-B, EN55022-B				
	HARMONIC ATTENUATOR ✻8		Complies with IEC61000-3-2 class A				

SPECIFICATIONS

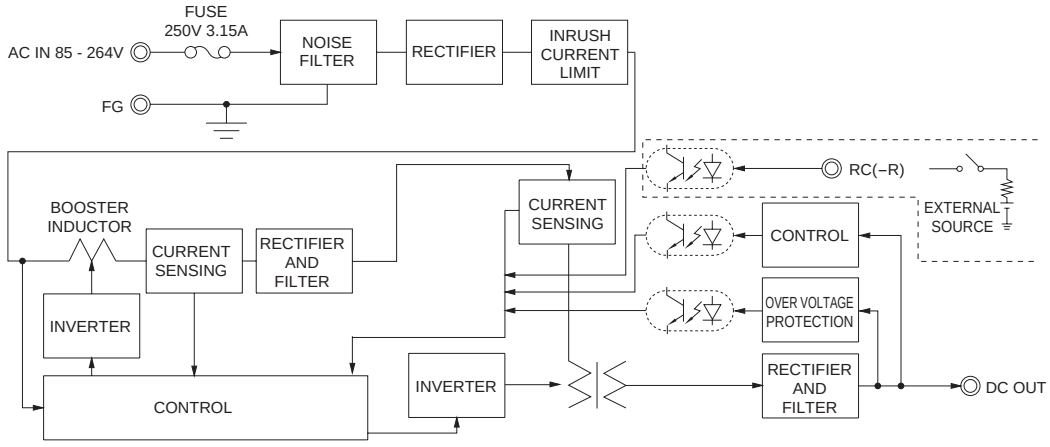
OTHERS	CASE SIZE/WEIGHT	41×97×109mm [1.61×3.82×4.29 inches] (Excluding terminal block and screw) (W×H×D) / 500g max
	COOLING METHOD	Convection
WARRANTY	WARRANTY ✻6	5 years (subject to the operating conditions)

✻1 This is the result of measurement of the testing board with capacitors of 22μF and 0.1μF 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.
✻2 Drift is the change in DC output for an eight hour period after a half-hour warm-up at 25℃.
✻3 Output power derating is required. 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 30% 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.
✻9 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

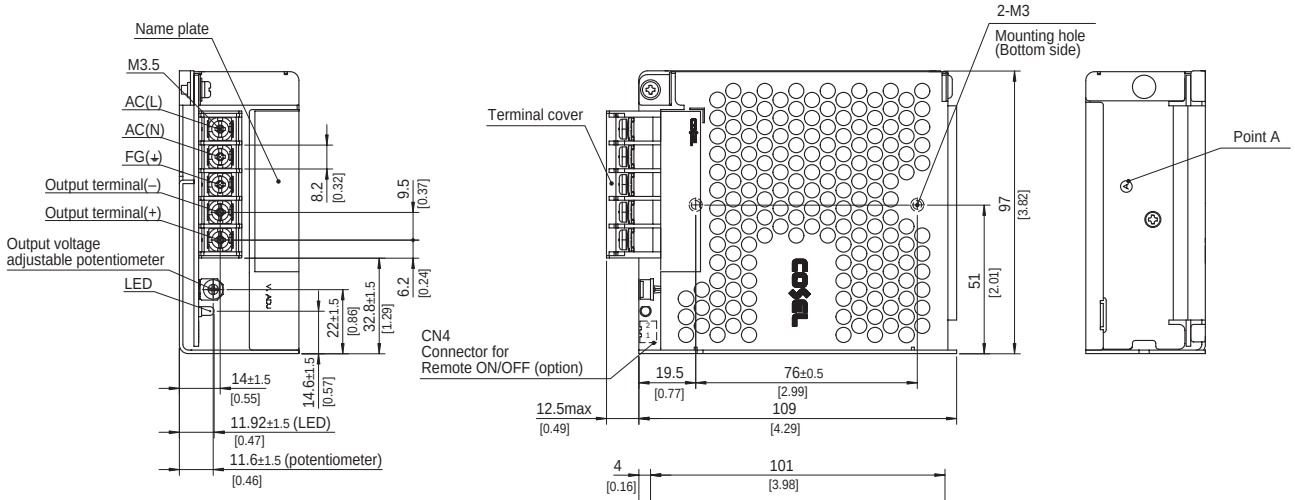
- **Compact design (Depth: 109mm 4.29inches)**
- **High efficiency (88%typ PLA100F-24, AC230Vin, 100% load)**
- **Low power consumption (1.5W typ AC240Vin, no load at standard model)**
- **Lower power consumption (0.5Wmax AC240Vin, no load at option -L: see instruction manual)**
- **UL508 approved (Except 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.



※ Tolerance : ±1 [±0.04]
※ Weight : 500g max
※ PCB Material/thickness : CEM-3 / 1.6mm [0.06inches]
※ Chassis material : Aluminum
※ Cover material : Electric galvanizing steel board
※ Dimensions in mm, [ ]=inches
※ Mounting torque : 0.49N・m max
※ Screw tightening torque : M3.5 1.0N・m max
※ Connect the input FG to safety earth ground.

COSEL AC-DC Power Supplies Enclosed type

PLA150F

Ordering information

PL	A	150	F	-□	-□
①	②	③	④	⑤	⑥

Recommended EMI/EMC Filter
NAC-04-472

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

✻The EMI/EMC Filter is recommended to connect with several devices.

①Series name
②Single output
③Output wattage
④Universal input
⑤Output voltage
⑥Optional ✻7
C : with Coating
R : Remote on/off (Required external power source)
J : Connector interface
T : Vertical terminal block
L : Lower power consumption (0.5W max at AC240Vin, no load, ErP-compliant)
N1: with DIN rail

See 5.1 in Instruction Manual.

SPECIFICATIONS

✻ Please consider "PBA150F-5-N" about 5V output with case cover.

	MODEL		PLA150F-12	PLA150F-15	PLA150F-24	PLA150F-36	PLA150F-48
INPUT	VOLTAGE[V]		AC85 - 264 1φ (Output derating is required at AC85V - 115V. See 1.1 and 3.2 in Instruction Manual) ✻3 (DC input ✻3)				
	CURRENT[A]	ACIN 100V	1.7typ (Io=90%)				
		ACIN 115V	1.6typ (Io=100%)				
		ACIN 230V	0.8typ (Io=100%)				
	FREQUENCY[Hz]		50 / 60 (47 - 63) (DC input and 440Hz ✻3)				
	EFFICIENCY[%]	ACIN 100V	84typ (Io=90%)	84typ (Io=90%)	87typ (Io=90%)	87typ (Io=90%)	87typ (Io=90%)
		ACIN 115V	84typ (Io=100%)	84typ (Io=100%)	87typ (Io=100%)	87typ (Io=100%)	87typ (Io=100%)
		ACIN 230V	87typ (Io=100%)	87typ (Io=100%)	90typ (Io=100%)	90typ (Io=100%)	90typ (Io=100%)
	POWER FACTOR	ACIN 100V	0.98typ (Io=90%)				
		ACIN 115V	0.98typ (Io=100%)				
		ACIN 230V	0.95typ (Io=100%) ✻ Power factor correction is stopped at AC250V or more.				
	INRUSH CURRENT[A]	ACIN 100V	16typ (Io=90%) Ta=25℃ at cold start				
		ACIN 115V	16typ (Io=100%) Ta=25℃ at cold start				
		ACIN 230V	32typ (Io=100%) Ta=25℃ at cold start				
	LEAKAGE CURRENT[mA]		0.75max (ACIN 115V / 240V, 60Hz, Io=100%, According to IEC60950-1 and DEN-AN)				
OUTPUT	VOLTAGE[V]		12	15	24	36	48
	CURRENT[A]	ACIN 85-115V	Output derating is required at ACIN 115V or less (refer to instruction manual 3.2)				
		ACIN 115V-264V	12.5	10	6.4	4.2	3.2
	WATTAGE[W]	ACIN 85-115V	Output derating is required at ACIN 115V or less (refer to instruction manual 3.2)				
		ACIN 115V-264V	150.0	150.0	153.6	151.2	153.6
	LINE REGULATION[mV] ✻4		48max	60max	96max	144max	192max
	LOAD REGULATION [mV] ✻4	Io=30 to 100%	100max	120max	150max	150max	300max
		Io=0 to 30%	Burst operation (Please contact us about detail)				
	RIPPLE[mVp-p] ✻1 Io: load factor	0 to +40℃	120max	120max	120max	150max	150max
		-10 to 0℃	160max	160max	160max	200max	400max
		Io=0 to 30%	500max	500max	500max	500max	500max
	RIPPLE NOISE[mVp-p] ✻1 Io: load factor	0 to +40℃	150max	150max	150max	200max	200max
		-10 to 0℃	180max	180max	180max	240max	500max
		Io=0 to 30%	600max	600max	600max	600max	600max
	TEMPERATURE REGULATION[mV]	0 to +40℃	120max	150max	240max	360max	480max
		-10 to +40℃	180max	180max	290max	440max	600max
	DRIFT[mV] ✻2		48max	60max	96max	144max	192max
	START-UP TIME[ms]		500typ (ACIN 115V, Io=100%) Ta=25℃				
	HOLD-UP TIME[ms]		20typ (ACIN 115V, Io=100%)				
	OUTPUT VOLTAGE ADJUSTMENT RANGE[V]		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 SETTING[V]		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
PROTECTION CIRCUIT AND OTHERS	OVERCURRENT PROTECTION		Works over 105% of rating and recovers automatically				
	OVERVOLTAGE PROTECTION[V]		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 INDICATION		LED (Green)				
	REMOTE SENSING		Not provided				
	REMOTE ON/OFF		Optional (Required external power source. Option -R)				
ISOLATION	INPUT-OUTPUT • C ✻9		AC3,000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (At room temperature)				
	INPUT-FG		AC2,000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (At room temperature)				
	OUTPUT • RC-FG ✻9		AC500V 1minute, Cutoff current = 100mA, DC500V 50MΩ min (At room temperature)				
	OUTPUT-RC ✻9		AC500V 1minute, Cutoff current = 100mA, DC500V 50MΩ min (At room temperature)				
ENVIRONMENT	OPERATING TEMP.,HUMID.AND ALTITUDE ✻5		-20 to +70℃ (Output derating is required), 20 - 90%RH (Non condensing), 3,000m (10,000 feet) max				
	STORAGE TEMP.,HUMID.AND ALTITUDE		-20 to +75℃, 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				
SAFETY AND NOISE REGULATIONS	AGENCY APPROVALS		UL60950-1, C-UL (CSA60950-1), EN60950-1, EN50178, UL508 (Except option -J) Complies with DEN-AN				
	CONDUCTED NOISE		Complies with FCC-B, VCCI-B, CISPR22-B, EN55011-B, EN55022-B				
	HARMONIC ATTENUATOR ✻8		Complies with IEC61000-3-2 class A				

SPECIFICATIONS

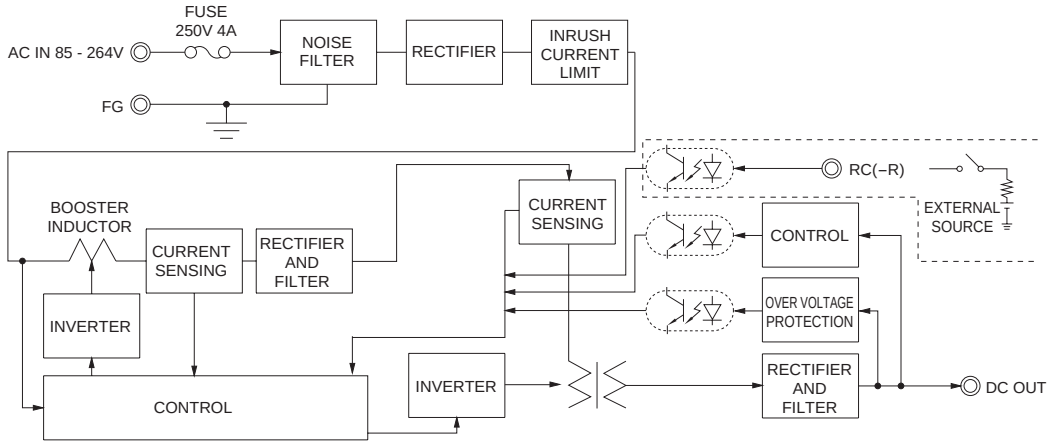
OTHERS	CASE SIZE/WEIGHT	41×97×129mm [1.61×3.82×5.08 inches] (Excluding terminal block and screw) (W×H×D) / 600g max
	COOLING METHOD	Convection
WARRANTY	WARRANTY ✻6	5 years (subject to the operating conditions)

✻1 This is the result of measurement of the testing board with capacitors of 22μF and 0.1μF 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.
✻2 Drift is the change in DC output for an eight hour period after a half-hour warm-up at 25℃.
✻3 Output power derating is required. 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 30% 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.
✻9 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

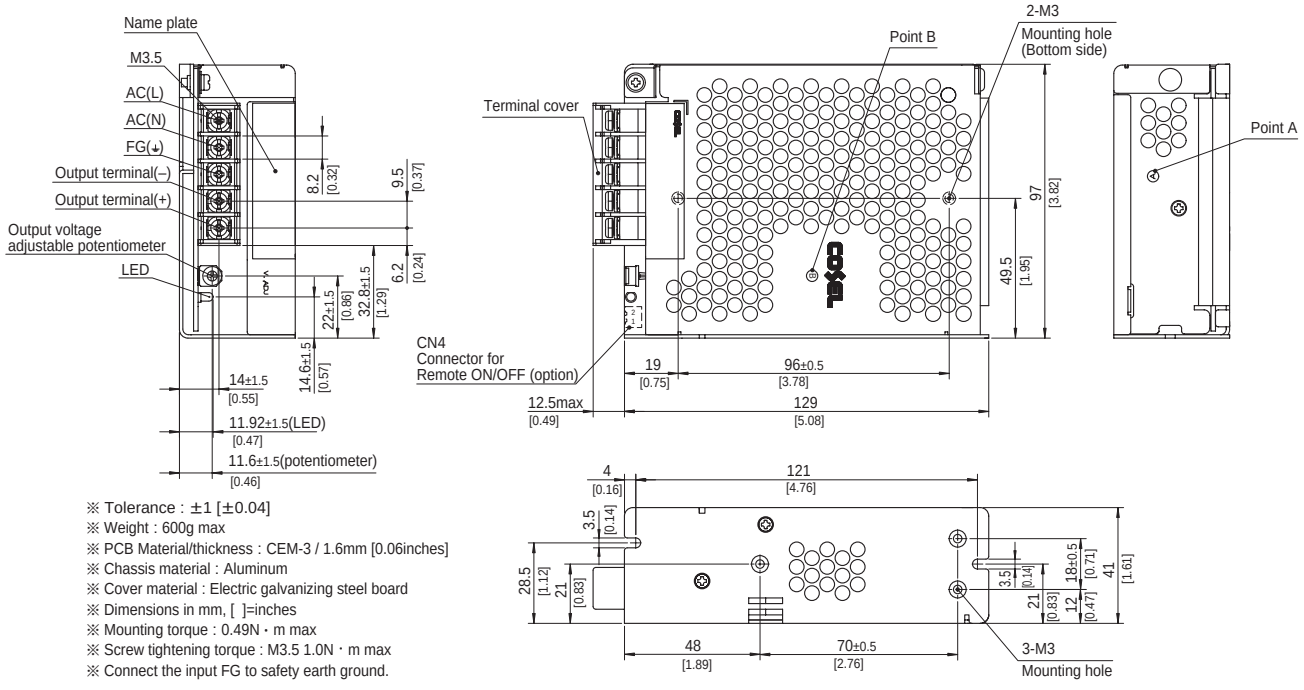
- **Compact design (Depth: 129mm 5.08inches)**
- **High efficiency (90%typ PLA150F-24, AC230Vin, 100% load)**
- **Low power consumption (1.5W typ AC240Vin, no load at standard model)**
- **Lower power consumption (0.5Wmax AC240Vin, no load at option -L: see instruction manual)**
- **UL508 approved (Except 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.



※ Tolerance : ±1 [±0.04]
※ Weight : 600g max
※ PCB Material/thickness : CEM-3 / 1.6mm [0.06inches]
※ Chassis material : Aluminum
※ Cover material : Electric galvanizing steel board
※ Dimensions in mm, [ ]=inches
※ Mounting torque : 0.49N・m max
※ Screw tightening torque : M3.5 1.0N・m max
※ Connect the input FG to safety earth ground.