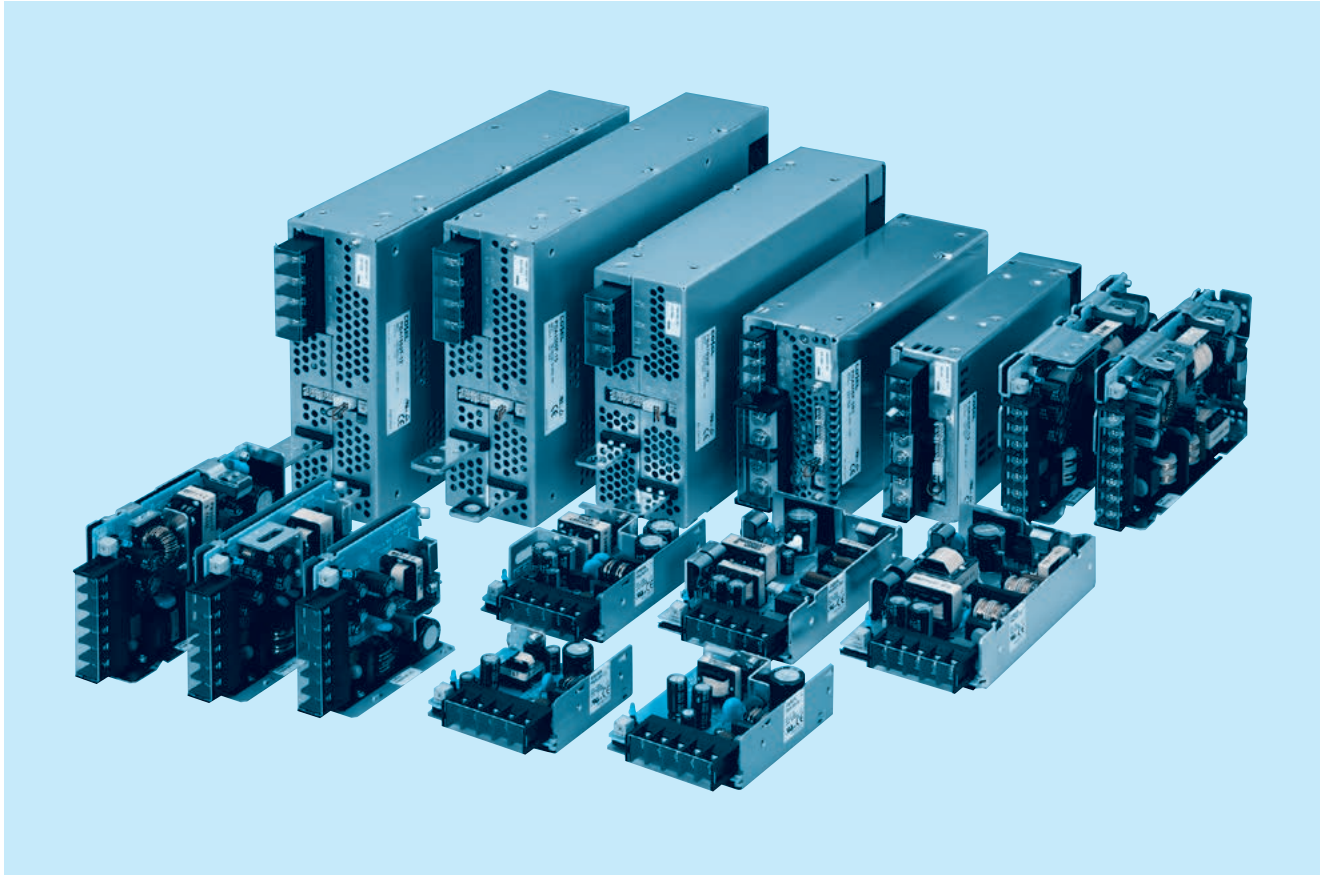




PBA, PBW-series



Feature

Small-size & light weight
 Harmonic attenuator (Complies with IEC61000-3-2) : except PBA1500T
 Universal input (AC85 - 264V) : PBA1500T(AC170 - 264V 3 ϕ)
 Efficiency increased with synchronous rectification technology (PBA50F - 150F)
 Variety of option (PBA10F - 150F, PBW15F - 50F)
 Parallel operation and Parallel redundancy operation (PBA300F - 1500F, PBA1500T)
 Fan alarm, Remote ON/OFF and other functions (PBA300F - 1500F, PBA1500T)

Safety agency approvals

UL60950-1, C-UL(CSA60950-1), EN60950-1, EN50178
 UL508 (PBA10F - 150F, -24, with cover)
 Complies with DEN-AN

EMI

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

5-year warranty (refer to Instruction Manual)

CE marking

Low Voltage Directive
 RoHS Directive

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

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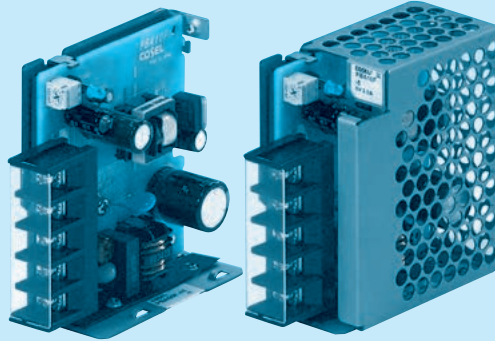
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Example recommended EMI/EMC filter
NAC-06-472

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.

Cover is optional

- ① Series name
- ② Single output
- ③ Output wattage
- ④ Universal input
- ⑤ Output voltage
- ⑥ Optional *5
- C : with Coating
- G : Low leakage current
- E : Low leakage current and EMI class A
- T : Vertical terminal block
- J1 : VH (J.S.T.) connector type
- N : with Cover (UL508 is acquired)
- N1 : with DIN rail and Cover
- V : Output voltage setting potentiometer externally

* 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	PBA10F-5	PBA10F-12	PBA10F-24
MAX OUTPUT WATTAGE[W]	10	10.8	12
DC OUTPUT	5V 2A	12V 0.9A	24V 0.5A

SPECIFICATIONS

	MODEL	PBA10F-5	PBA10F-12	PBA10F-24
INPUT	VOLTAGE[V]	AC85 - 264 1 ϕ or DC110 - 370 (AC50 or DC70 Please refer to the instruction manual 1.1 Input voltage *3)		
	CURRENT[A]	ACIN 100V	0.30typ (Io=100%)	
		ACIN 200V	0.20typ (Io=100%)	
	FREQUENCY[Hz]	50/60 (47 - 440) or DC		
	EFFICIENCY[%]	ACIN 100V	74typ	77typ
		ACIN 200V	74typ	77typ
	INRUSH CURRENT[A]	ACIN 100V	15typ (Io=100%)	
OUTPUT		ACIN 200V	30typ (Io=100%)	
	LEAKAGE CURRENT[ma]	0.15/0.30max (ACIN 100V/240V 60Hz, Io=100%, According to IEC60950-1.DENAN)		
	VOLTAGE[V]	5	12	24
	CURRENT[A]	2	0.9	0.5
	LINE REGULATION[mV] *6	20max	48max	96max
	LOAD REGULATION[mV] *6	40max	100max	150max
	RIPPLE[mVp-p]	0 to +50°C *1	80max	120max
		-10 - 0°C *1	140max	160max
	RIPPLE NOISE[mVp-p]	0 to +50°C *1	120max	150max
		-10 - 0°C *1	160max	180max
	TEMPERATURE REGULATION[mV]	0 to +50°C	50max	120max
		-10 to +50°C	60max	240max
	DRIFT[mV] *2	20max	48max	96max
	START-UP TIME[ms]	200typ (ACIN 100V, Io=100%) *Start-up time is 700ms typ for less than 1minute of applying input again from turning off the input voltage.		
	HOLD-UP TIME[ms]	20typ (ACIN 100V, Io=100%)		
	OUTPUT VOLTAGE ADJUSTMENT RANGE[V]	4.50 - 5.50	10.0 - 13.2	19.2 - 27.0
	OUTPUT VOLTAGE SETTING[V]	5.00 - 5.15	12.00 - 12.48	24.00 - 24.96
PROTECTION CIRCUIT AND OTHERS	OVERCURRENT PROTECTION	Works over 105% of rated current and recovers automatically		
	OVERVOLTAGE PROTECTION[V]	5.75 - 7.00	15.0 - 18.0	30.0 - 37.0
	OPERATING INDICATION	LED (Green)		
	REMOTE ON/OFF	None		
ISOLATION	INPUT-OUTPUT	AC3,000V 1minute, Cutoff current = 10mA, DC500V 50M Ω min (At Room Temperature)		
	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)		
ENVIRONMENT	OPERATING TEMP., HUMID. AND ALTITUDE	-10 to +71°C (Refer to "Derating"), 20 - 90%RH (Non condensing) 3,000m (10,000feet) max		
	STORAGE TEMP., HUMID. AND ALTITUDE	-20 to +75°C, 20 - 90%RH (Non condensing) 9,000m (30,000feet) max		
	VIBRATION	10 - 55Hz, 19.6m/s ² (2G), 3minutes period, 60minutes each along X, Y and Z axis		
	IMPACT	196.1m/s ² (20G), 11ms, once each X, Y and Z axis		
SAFETY AND NOISE REGULATIONS	AGENCY APPROVALS (At only AC input)	UL60950-1, C-UL(CSA60950-1), EN60950-1, EN50178 Complies with DEN-AN		
	CONDUCTED NOISE	Complies with FCC Part15 classB, VCCI-B, CISPR22-B, EN55011-B, EN55022-B		
	HARMONIC ATTENUATOR	Complies with IEC61000-3-2 (Not built-in to active filter *4) *7		
OTHERS	CASE SIZE/WEIGHT	31 x 78 x 68mm [1.22 x 3.07 x 2.68 inches] (without terminal block) (W x H x D) / 150g max (with cover : 180g max)		
	COOLING METHOD	Convection		

*1 Measured by 20MHz oscilloscope or Ripple-Noise meter(equivalent to KEISOKU-GIKEN :RM101).

*2 Drift is the change in DC output for an eight hour period after a half-hour warm-up at 25°C.

*3 Derating is required.

*4 When two or more units are used, they may not comply with the harmonic attenuator. Please contact us for details.

*5 Please contact us about safety approvals for the model with option.

*6 Please contact us about dynamic load and input response.

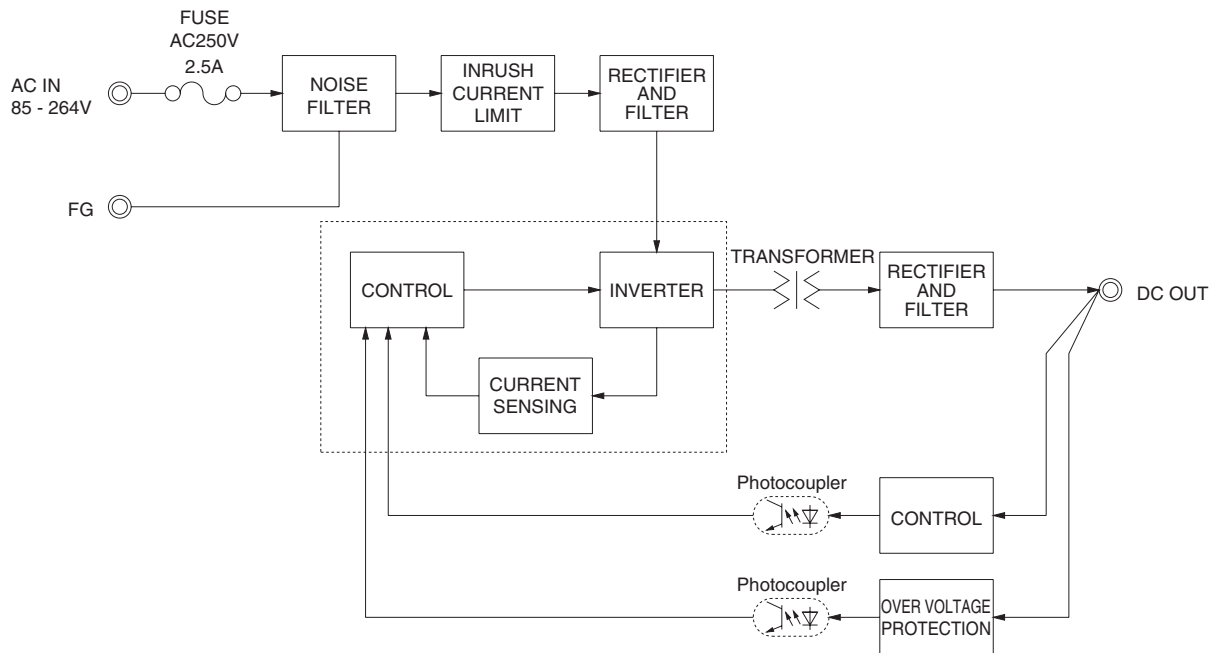
*7 Please contact us about class C.

* Parallel operation with other model is not possible.

* Derating is required when operated with cover.

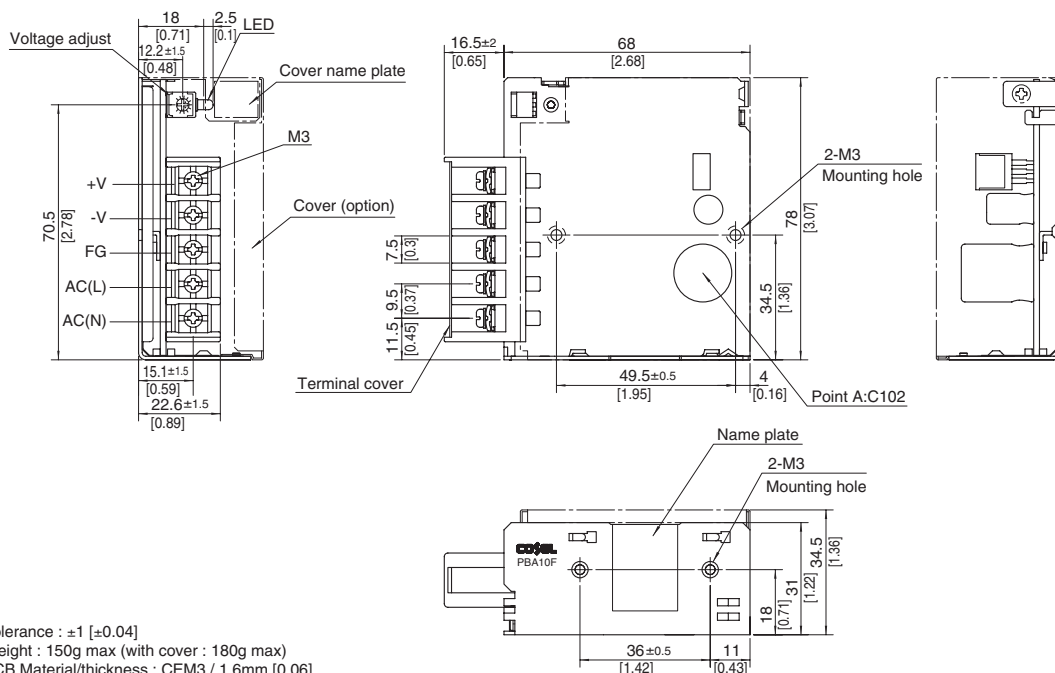
* A sound may occur from power supply at peak loading.

Block diagram



External view

※ External size of option T,J1,N1 and V is different from standard model and refer to 7 Option of instruction manual for details.



- ※ Tolerance : ± 1 [± 0.04]
- ※ Weight : 150g max (with cover : 180g max)
- ※ PCB Material/thickness : CEM3 / 1.6mm [0.06]
- ※ Chassis material : Electric galvanizing steel board
- ※ Dimensions in mm, [] = inches
- ※ Mounting torque : 0.6N • m (6.3kgf • cm) max
- ※ Screw tightening torque : M3 0.8N • m (8.5kgf • cm) max
- ※ Please connect safety ground to the unit in 2-M3 holes.

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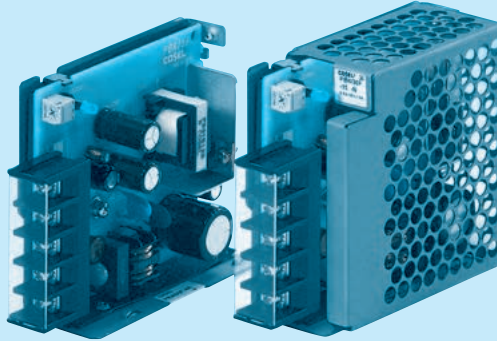
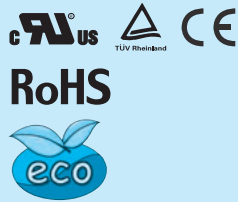
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Example recommended EMI/EMC filter
NAC-06-472



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.

Cover is optional

- ① Series name
- ② Single output
- ③ Output wattage
- ④ Universal input
- ⑤ Output voltage
- ⑥ Optional *5
- C : with Coating
- G : Low leakage current
- E : Low leakage current and EMI class A
- T : Vertical terminal block
- J1 : VH (J.S.T.) connector type
- N : with Cover (UL508 is acquired [5V, 12V, 24V])
- NI : with DIN rail and Cover
- V : Output voltage setting potentiometer external

*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	PBA15F-3R3	PBA15F-5	PBA15F-9	PBA15F-12	PBA15F-15	PBA15F-24	PBA15F-48
MAX OUTPUT WATTAGE[W]	9.9	15	15.3	15.6	15	16.8	16.8
DC OUTPUT	3.3V 3A	5V 3A	9V 1.7A	12V 1.3A	15V 1A	24V 0.7A	48V 0.35A

SPECIFICATIONS

	MODEL	PBA15F-3R3	PBA15F-5	PBA15F-9	PBA15F-12	PBA15F-15	PBA15F-24	PBA15F-48
INPUT	VOLTAGE[V]	AC85 - 264 1 φ or DC110 - 370 (AC50 or DC70 Please refer to the instruction manual 1.1 Input voltage *3)						
	CURRENT[A]	ACIN 100V	0.30typ (Io=100%)	0.4typ (Io=100%)				
		ACIN 200V	0.15typ (Io=100%)	0.2typ (Io=100%)				
	FREQUENCY[Hz]	50/60 (47 - 440) or DC						
	EFFICIENCY[%]	ACIN 100V	68typ	74typ	75typ	77typ	75typ	75typ
		ACIN 200V	68typ	75typ	77typ	80typ	78typ	78typ
	INRUSH CURRENT[A]	ACIN 100V	15typ (Io=100%) (At cold start)					
OUTPUT		ACIN 200V	30typ (Io=100%) (At cold start)					
	LEAKAGE CURRENT[ma]	0.15/0.30max (ACIN 100V/240V 60Hz, Io=100%, According to IEC60950-1.DENAN)						
	VOLTAGE[V]	3.3	5	9	12	15	24	48
	CURRENT[A]	3	3	1.7	1.3	1	0.7	0.35
	LINE REGULATION[mV] *6	20max	20max	36max	48max	60max	96max	192max
	LOAD REGULATION[mV] *6	40max	40max	100max	100max	120max	150max	240max
	RIPPLE[mVp-p]	0 to +50℃ *1	80max	80max	120max	120max	120max	150max
		-10 - 0℃ *1	140max	140max	160max	160max	160max	200max
	RIPPLE NOISE[mVp-p]	0 to +50℃ *1	120max	120max	150max	150max	150max	250max
		-10 - 0℃ *1	160max	160max	180max	180max	180max	300max
	TEMPERATURE REGULATION[mV]	0 to +50℃	50max	50max	90max	120max	150max	240max
		-10 to +50℃	60max	60max	120max	150max	180max	290max
	DRIFT[mV] *2	20max	20max	36max	48max	60max	96max	192max
	START-UP TIME[ms]	200typ (ACIN 100V, Io=100%) *Start-up time is 700ms typ for less than 1minute of applying input again from turning off the input voltage.						
	HOLD-UP TIME[ms]	20typ (ACIN 100V, Io=100%)						
	OUTPUT VOLTAGE ADJUSTMENT RANGE[V]	2.85 - 3.60	4.50 - 5.50	7.50 - 10.0	10.0 - 13.2	13.2 - 18.0	19.2 - 27.0	39.0 - 53.0
	OUTPUT VOLTAGE SETTING[V]	3.30 - 3.40	5.00 - 5.15	9.00 - 9.36	12.00 - 12.48	15.00 - 15.60	24.00 - 24.96	48.00 - 49.92
PROTECTION CIRCUIT AND OTHERS	OVERCURRENT PROTECTION	Works over 105% of rated current and recovers automatically						
	OVERVOLTAGE PROTECTION[V]	4.00 - 5.25	5.75 - 7.00	11.5 - 14.0	15.0 - 18.0	20.0 - 25.0	30.0 - 37.0	58.0 - 65.0
	OPERATING INDICATION	LED (Green)						
	REMOTE ON/OFF	None						
ISOLATION	INPUT-OUTPUT	AC3,000V 1minute, Cutoff current = 10mA, DC500V 50MΩmin (At Room Temperature)						
	INPUT-FG	AC2,000V 1minute, Cutoff current = 10mA, DC500V 50MΩmin (At Room Temperature)						
	OUTPUT-FG	AC500V 1minute, Cutoff current = 25mA, DC500V 50MΩmin (At Room Temperature)						
ENVIRONMENT	OPERATING TEMP.,HUMID.AND ALTITUDE	-10 to +71℃ (Refer to "Derating"), 20 - 90%RH (Non condensing) 3,000m (10,000feet) max						
	STORAGE TEMP.,HUMID.AND ALTITUDE	-20 to +75℃, 20 - 90%RH (Non condensing) 9,000m (30,000feet) max						
	VIBRATION	10 - 55Hz, 19.6m/s ² (2G), 3minutes period, 60minutes each along X, Y and Z axis						
	IMPACT	196.1m/s ² (20G), 11ms, once each X, Y and Z axis						
SAFETY AND NOISE REGULATIONS	AGENCY APPROVALS (At only AC input)	UL60950-1, C-UL(CSA60950-1), EN60950-1, EN50178 Complies with DEN-AN						
	CONDUCTED NOISE	Complies with FCC Part15 classB, VCCI-B, CISPR22-B, EN55011-B, EN55022-B						
	HARMONIC ATTENUATOR	Complies with IEC61000-3-2 (Not built-in to active filter *4) *7						
OTHERS	CASE SIZE/WEIGHT	31 x 78 x 85mm [1.22 x 3.07 x 3.35 inches] (without terminal block) (W x H x D) / 200g max (with cover : 235g max)						
	COOLING METHOD	Convection						

*1 Measured by 20MHz oscilloscope or Ripple-Noise meter(equivalent to KEISOKU-GIKEN :RM101).

*2 Drift is the change in DC output for an eight hour period after a half-hour warm-up at 25℃.

*3 Derating is required.

*4 When two or more units are used,they may not comply with the harmonic attenuator. Please contact us for details.

*5 Please contact us about safety approvals for the model with option.

*6 Please contact us about dynamic load and input response.

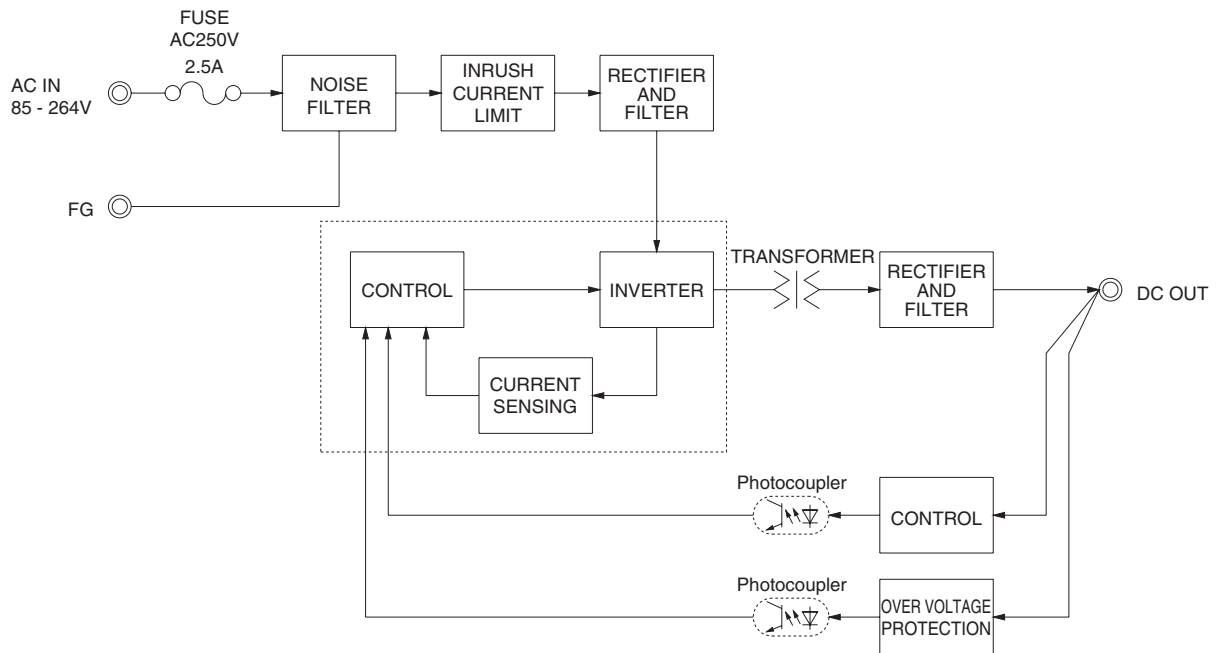
*7 Please contact us about class C.

* Parallel operation with other model is not possible.

* Derating is required when operated with cover.

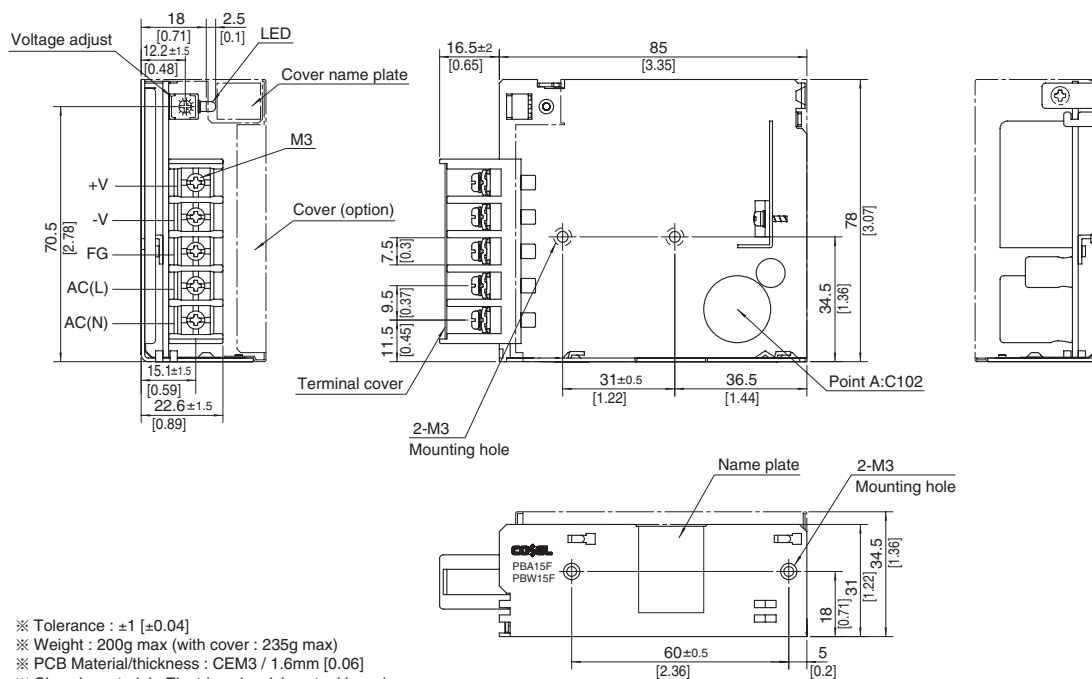
* A sound may occur from power supply at peak loading.

Block diagram



External view

※ External size of option T,J1,N1 and V is different from standard model and refer to 7 Option of instruction manual for details.



- ※ Tolerance : ± 1 [± 0.04]
- ※ Weight : 200g max (with cover : 235g max)
- ※ PCB Material/thickness : CEM3 / 1.6mm [0.06]
- ※ Chassis material : Electric galvanizing steel board
- ※ Dimensions in mm, [] = inches
- ※ Mounting torque : 0.6N • m (6.3kgf • cm) max
- ※ Screw tightening torque : M3 0.8N • m (8.5kgf • cm) max
- ※ Please connect safety ground to the unit in 2-M3 holes.

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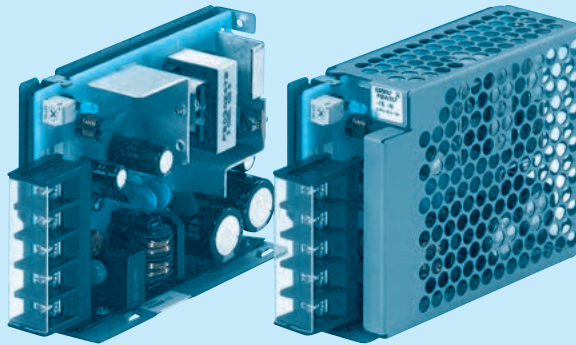
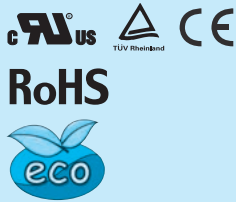
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Example recommended EMI/EMC filter
NAC-06-472



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.

Cover is optional

- ① Series name
- ② Single output
- ③ Output wattage
- ④ Universal input
- ⑤ Output voltage
- ⑥ Optional *5
- C : with Coating
- G : Low leakage current
- E : Low leakage current and EMI class A
- T : Vertical terminal block
- J1 : VH (J.S.T.) connector type
- N : with Cover (UL508 is acquired [5V, 12V, 24V])
- N1 : with DIN rail and Cover
- V : Output voltage setting potentiometer external

* 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	PBA30F-3R3	PBA30F-5	PBA30F-9	PBA30F-12	PBA30F-15	PBA30F-24	PBA30F-48
MAX OUTPUT WATTAGE[W]	19.8	30	30.6	30	30	31.2	31.2
DC OUTPUT	3.3V 6A	5V 6A	9V 3.4A	12V 2.5A	15V 2A	24V 1.3A	48V 0.65A

SPECIFICATIONS

	MODEL	PBA30F-3R3	PBA30F-5	PBA30F-9	PBA30F-12	PBA30F-15	PBA30F-24	PBA30F-48
INPUT	VOLTAGE[V]	AC85 - 264 1 ϕ or DC110 - 370 (AC50 or DC70 Please refer to the instruction manual 1.1 Input voltage *3)						
	CURRENT[A]	ACIN 100V	0.50typ (Io=100%)	0.70typ (Io=100%)				
		ACIN 200V	0.30typ (Io=100%)	0.40typ (Io=100%)				
	FREQUENCY[Hz]	50/60 (47 - 440) or DC						
	EFFICIENCY[%]	ACIN 100V	68typ	74typ	75typ	76typ	78typ	79typ
		ACIN 200V	69typ	77typ	77typ	78typ	81typ	81typ
	INRUSH CURRENT[A]	ACIN 100V	15typ (Io=100%) (At cold start)					
OUTPUT		ACIN 200V	30typ (Io=100%) (At cold start)					
	LEAKAGE CURRENT[ma]	0.30/0.65max (ACIN 100V/240V 60Hz, Io=100%, According to IEC60950-1.DENAN)						
	VOLTAGE[V]	3.3	5	9	12	15	24	48
	CURRENT[A]	6	6	3.4	2.5	2	1.3	0.65
	LINE REGULATION[mV] *6	20max	20max	36max	48max	60max	96max	192max
	LOAD REGULATION[mV] *6	40max	40max	100max	100max	120max	150max	240max
	RIPPLE[mVp-p]	0 to +50°C *1	80max	80max	120max	120max	120max	150max
		-10 - 0°C *1	140max	140max	160max	160max	160max	200max
	RIPPLE NOISE[mVp-p]	0 to +50°C *1	120max	120max	150max	150max	150max	250max
		-10 - 0°C *1	160max	160max	180max	180max	180max	300max
	TEMPERATURE REGULATION[mV]	0 to +50°C	50max	50max	90max	120max	150max	240max
		-10 to +50°C	60max	60max	120max	150max	180max	290max
	DRIFT[mV] *2	20max	20max	36max	48max	60max	96max	192max
	START-UP TIME[ms]	200typ (ACIN 100V, Io=100%) *Start-up time is 700ms typ for less than 1minute of applying input again from turning off the input voltage.						
	HOLD-UP TIME[ms]	20typ (ACIN 100V, Io=100%)						
	OUTPUT VOLTAGE ADJUSTMENT RANGE[V]	2.85 - 3.60	4.50 - 5.50	7.50 - 10.0	10.0 - 13.2	13.2 - 18.0	19.2 - 27.0	39.0 - 53.0
	OUTPUT VOLTAGE SETTING[V]	3.30 - 3.40	5.00 - 5.15	9.00 - 9.36	12.00 - 12.48	15.00 - 15.60	24.00 - 24.96	48.00 - 49.92
PROTECTION CIRCUIT AND OTHERS	OVERCURRENT PROTECTION	Works over 105% of rated current and recovers automatically						
	OVERVOLTAGE PROTECTION[V]	4.00 - 5.25	5.75 - 7.00	11.5 - 14.0	15.0 - 18.0	20.0 - 25.0	30.0 - 37.0	58.0 - 65.0
	OPERATING INDICATION	LED (Green)						
	REMOTE ON/OFF	None						
ISOLATION	INPUT-OUTPUT	AC3,000V 1minute, Cutoff current = 10mA, DC500V 50M Ω min (At Room Temperature)						
	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)						
ENVIRONMENT	OPERATING TEMP., HUMID. AND ALTITUDE	-10 to +71°C (Refer to "Derating"), 20 - 90%RH (Non condensing) 3,000m (10,000feet) max						
	STORAGE TEMP., HUMID. AND ALTITUDE	-20 to +75°C, 20 - 90%RH (Non condensing) 9,000m (30,000feet) max						
	VIBRATION	10 - 55Hz, 19.6m/s ² (2G), 3minutes period, 60minutes each along X, Y and Z axis						
	IMPACT	196.1m/s ² (20G), 11ms, once each X, Y and Z axis						
SAFETY AND NOISE REGULATIONS	AGENCY APPROVALS (At only AC input)	UL60950-1, C-UL(CSA60950-1), EN60950-1, EN50178 Complies with DEN-AN						
	CONDUCTED NOISE	Complies with FCC Part15 classB, VCCI-B, CISPR22-B, EN55011-B, EN55022-B						
	HARMONIC ATTENUATOR	Complies with IEC61000-3-2 (Not built-in to active filter *4) *7						
OTHERS	CASE SIZE/WEIGHT	31 x 78 x 103mm [1.22 x 3.07 x 4.06 inches] (without terminal block) (W x H x D) / 270g max (with cover : 310g max)						
	COOLING METHOD	Convection						

*1 Measured by 20MHz oscilloscope or Ripple-Noise meter(equivalent to KEISOKU-GIKEN :RM101).

*2 Drift is the change in DC output for an eight hour period after a half-hour warm-up at 25°C.

*3 Derating is required.

*4 When two or more units are used, they may not comply with the harmonic attenuator. Please contact us for details.

*5 Please contact us about safety approvals for the model with option.

*6 Please contact us about dynamic load and input response.

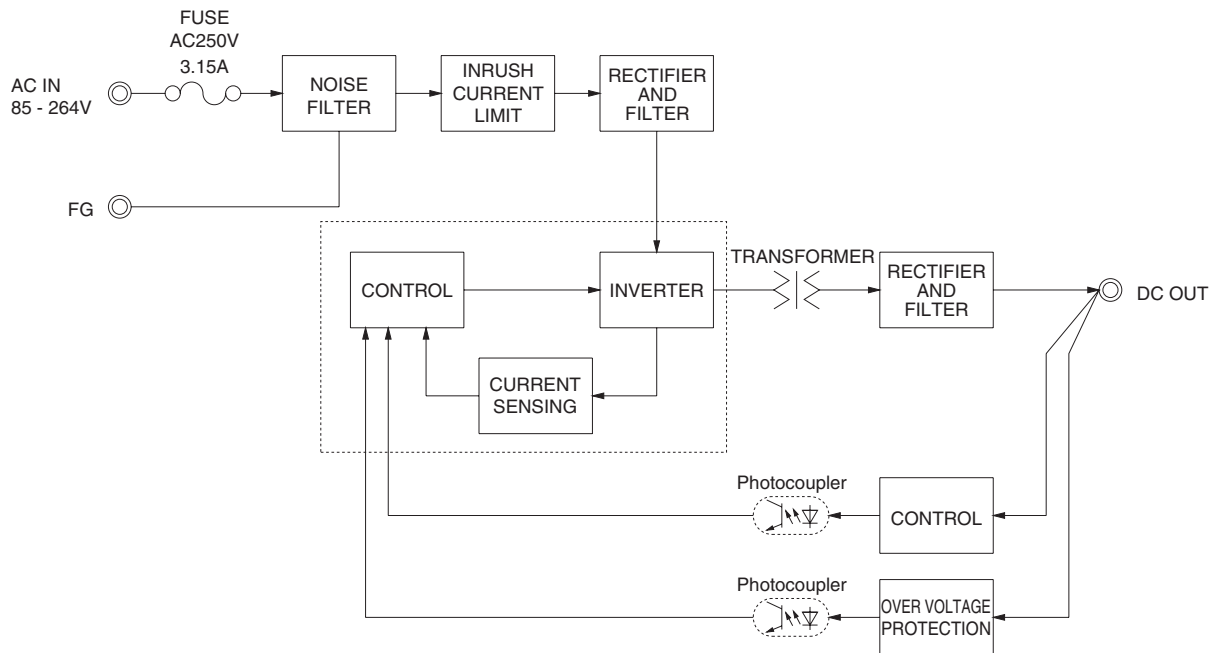
*7 Please contact us about class C.

* Parallel operation with other model is not possible.

* Derating is required when operated with cover.

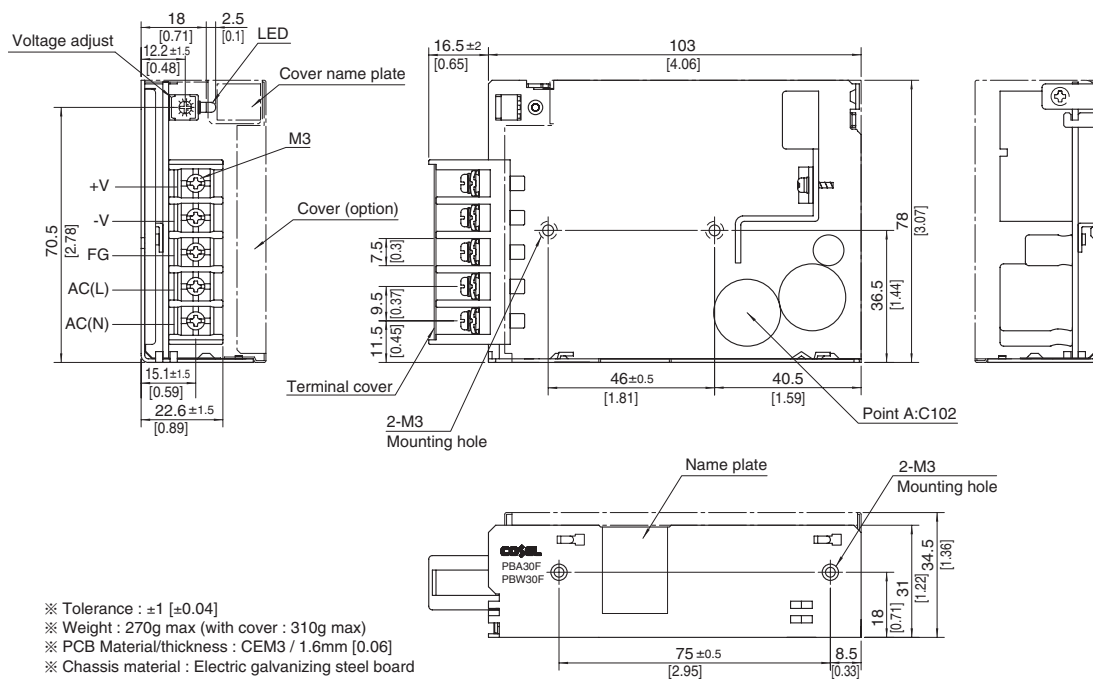
* A sound may occur from power supply at peak loading.

Block diagram



External view

※ External size of option T,J1,N1 and V is different from standard model and refer to 7 Option of instruction manual for details.



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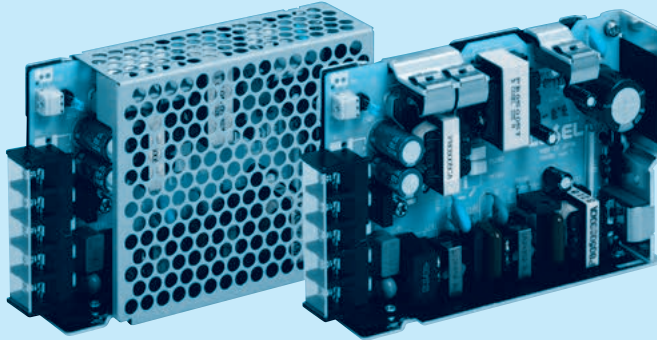
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Example recommended EMI/EMC filter
NAC-06-472



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.

- ① Series name
- ② Single output
- ③ Output wattage
- ④ Universal input
- ⑤ Output voltage
- ⑥ Optional *5
- C : with Coating
- G : Low leakage current (0.15mA max / ACIN 240V)
- E : Low leakage current and EMI class A (0.5mA max / ACIN 240V)
- T : Vertical terminal block
- J1 : VH (J.S.T.) connector type
- R : with Remote ON/OFF
- N : with Cover (Only 24V UL508 is acquired)
- Nt : with DIN rail and Cover
- V : Output voltage setting potentiometer externally

Cover is optional

*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	PBA50F-3R3	PBA50F-5	PBA50F-9	PBA50F-12	PBA50F-15	PBA50F-24	PBA50F-36	PBA50F-48
MAX OUTPUT WATTAGE[W]	33	50	50.4	51.6	52.5	52.8	50.4	52.8
DC OUTPUT	3.3V 10A	5V 10A	9V 5.6A	12V 4.3A	15V 3.5A	24V 2.2A	36V 1.4A	48V 1.1A

SPECIFICATIONS

	MODEL	PBA50F-3R3	PBA50F-5	PBA50F-9	PBA50F-12	PBA50F-15	PBA50F-24	PBA50F-36	PBA50F-48	
INPUT	VOLTAGE[V]	AC85 - 264 1 φ or DC120 - 370 (AC50 or DC70 Please refer to the instruction manual 1.1 Input voltage *4)								
	CURRENT[A]	ACIN 100V	0.5typ	0.7typ						
		ACIN 200V	0.3typ	0.4typ						
	FREQUENCY[Hz]	50/60 (47 - 63)								
	EFFICIENCY[%]	ACIN 100V	75typ	80typ	79typ	80typ	81typ	82typ	83typ	
		ACIN 200V	76typ	82typ	81typ	82typ	83typ	84typ	85typ	
	POWER FACTOR(Io=100%)	ACIN 100V	0.98typ	0.99typ						
ACIN 200V		0.87typ	0.93typ							
INRUSH CURRENT[A]	ACIN 100V	15typ (Io=100%) (At cold start)								
	ACIN 200V	30typ (Io=100%) (At cold start)								
LEAKAGE CURRENT[mA]	0.4/0.75max (ACIN 100V/240V 60Hz, Io=100%, According to IEC60950-1.DENAN)									
OUTPUT	VOLTAGE[V]	3.3	5	9	12	15	24	36	48	
	CURRENT[A]	10	10	5.6	4.3	3.5	2.2	1.4	1.1	
	LINE REGULATION[mV]	20max	20max	36max	48max	60max	96max	144max	192max	
	LOAD REGULATION[mV]	40max	40max	100max	100max	120max	150max	240max	240max	
	RIPPLE[mVp-p]	0 to +50℃ *1	80max	80max	120max	120max	120max	120max	150max	150max
		-10 - 0℃ *1	140max	140max	160max	160max	160max	160max	200max	200max
	RIPPLE NOISE[mVp-p]	0 to +50℃ *1	120max	120max	150max	150max	150max	150max	250max	250max
		-10 - 0℃ *1	160max	160max	180max	180max	180max	180max	300max	300max
	TEMPERATURE REGULATION[mV]	0 to +50℃	50max	50max	90max	120max	150max	240max	360max	480max
		-10 to +50℃	60max	60max	120max	150max	180max	290max	450max	600max
	DRIFT[mV]	*2	20max	20max	36max	48max	60max	96max	144max	192max
	START-UP TIME[ms]	350typ(ACIN 100V, Io=100%)								
	HOLD-UP TIME[ms]	20typ (ACIN 100V, Io=100%)								
	OUTPUT VOLTAGE ADJUSTMENT RANGE[V]	2.85 - 3.63	4.00 - 5.50	7.50 - 10.0	10.0 - 13.2	13.2 - 18.0	19.2 - 27.0	28.8 - 39.6	39.0 - 53.0	
OUTPUT VOLTAGE SETTING[V]	3.30 - 3.40	5.00 - 5.15	9.00 - 9.36	12.00 - 12.48	15.00 - 15.60	24.00 - 24.96	35.00 - 37.44	48.00 - 49.92		
PROTECTION CIRCUIT AND OTHERS	OVERCURRENT PROTECTION	Works over 105% of rated current and recovers automatically								
	OVERVOLTAGE PROTECTION[V]	4.00 - 5.25	5.75 - 7.00	11.5 - 14.0	15.0 - 18.0	20.0 - 25.0	30.0 - 37.0	43.0 - 50.0	58.0 - 65.0	
	OPERATING INDICATION	LED (Green)								
ISOLATION	REMOTE ON/OFF	Optional (Required external power source)								
	INPUT-OUTPUT · RC	*3	AC3,000V 1minute, Cutoff current = 10mA, DC500V 50MΩmin (At Room Temperature)							
	INPUT-FG		AC2,000V 1minute, Cutoff current = 10mA, DC500V 50MΩmin (At Room Temperature)							
	OUTPUT · RC-FG	*3	AC500V 1minute, Cutoff current = 100mA, DC500V 50MΩmin (At Room Temperature)							
ENVIRONMENT	OPERATING TEMP.,HUMID.AND ALTITUDE	-10 to +71℃ (Refer to “Derating”), 20 - 90%RH (Non condensing) 3,000m (10,000feet) max								
	STORAGE TEMP.,HUMID.AND ALTITUDE	-20 to +75℃, 20 - 90%RH (Non condensing) 9,000m (30,000feet) max								
	VIBRATION	10 - 55Hz, 19.6m/s ² (2G), 3minutes period, 60minutes each along X, Y and Z axis								
	IMPACT	196.1m/s ² (20G), 11ms, once each X, Y and Z axis								
SAFETY AND NOISE REGULATIONS	AGENCY APPROVALS (At only AC input)	UL60950-1, C-UL(CSA60950-1), EN60950-1, EN50178 Complies with DEN-AN								
	CONDUCTED NOISE	Complies with FCC Part15 classB, VCCI-B, CISPR22-B, EN55011-B, EN55022-B								
	HARMONIC ATTENUATOR	Complies with IEC61000-3-2 *6								
OTHERS	CASE SIZE/WEIGHT	31 x 82 x 120mm [1.22 x 3.23 x 4.72 inches] (without terminal block) (W x H x D) / 280g max (with cover : 325g max)								
	COOLING METHOD	Convection								

*1 Measured by 20MHz oscilloscope or Ripple-Noise meter(equivalent to KEISOKU-GIKEN :RM101).

*2 Drift is the change in DC output for an eight hour period after a half-hour warm-up at 25°C.

*3 Applicable when Remote ON/OFF(optional) is added. RC is insulated with input, output and FG.

*4 Derating is required.

*5 Please contact us about safety approvals for the model with option.

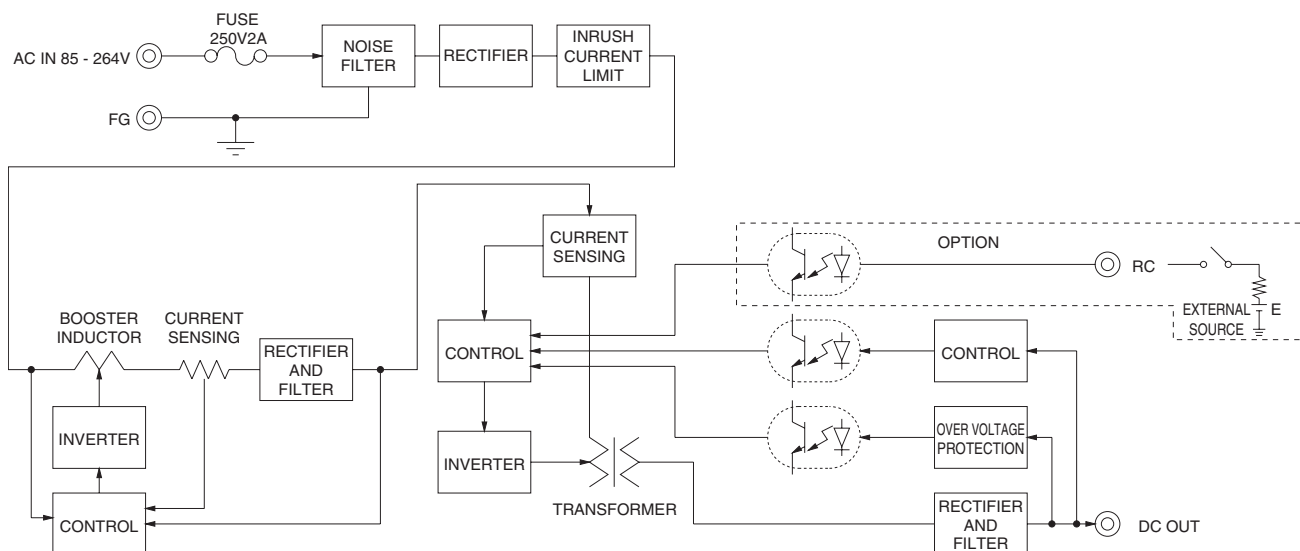
*6 Please contact us about class C.

* Parallel operation with other model is not possible.

* Derating is required when operated with cover.

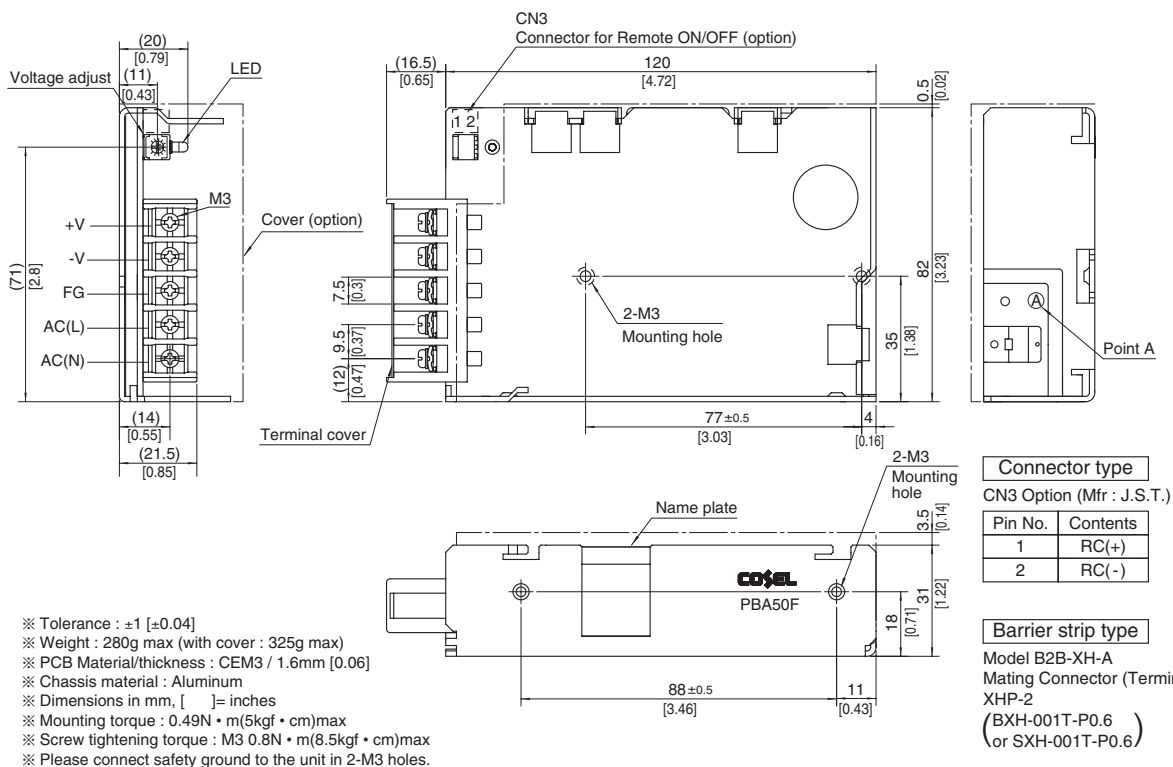
* A sound may occur from power supply at peak loading.

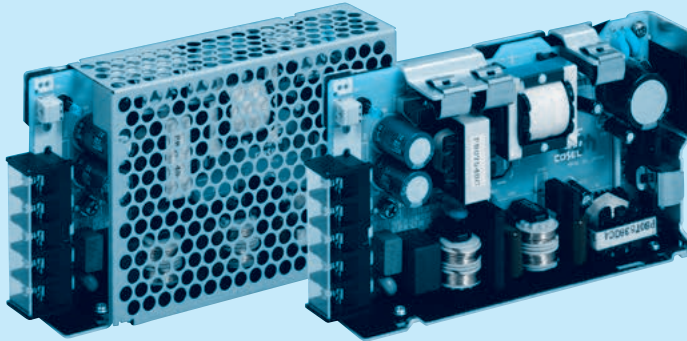
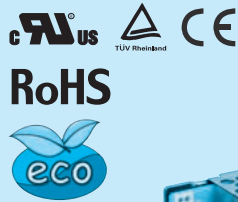
Block diagram



External view

※ External size of option T,J1,R,N1 and V is different from standard model and refer to 7 Option of instruction manual for details.





Example recommended EMI/EMC filter
NAC-06-472



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.

- ① Series name
- ② Single output
- ③ Output wattage
- ④ Universal input
- ⑤ Output voltage
- ⑥ Optional *5
- C : with Coating
- G : Low leakage current (0.15mA max / ACIN 240V)
- E : Low leakage current and EMI class A (0.5mA max / ACIN 240V)
- T : Vertical terminal block
- J1 : VH (J.S.T.) connector type
- R : with Remote ON/OFF
- N : with Cover (Only 24V UL508 is acquired)
- Nt : with DIN rail and Cover
- V : Output voltage setting potentiometer external-ly

Cover is optional

*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	PBA75F-3R3	PBA75F-5	PBA75F-9	PBA75F-12	PBA75F-15	PBA75F-24	PBA75F-36	PBA75F-48
MAX OUTPUT WATTAGE[W]	49.5	75	75.6	75.6	75	76.8	75.6	76.8
DC OUTPUT	3.3V 15A	5V 15A	9V 8.4A	12V 6.3A	15V 5A	24V 3.2A	36V 2.1A	48V 1.6A

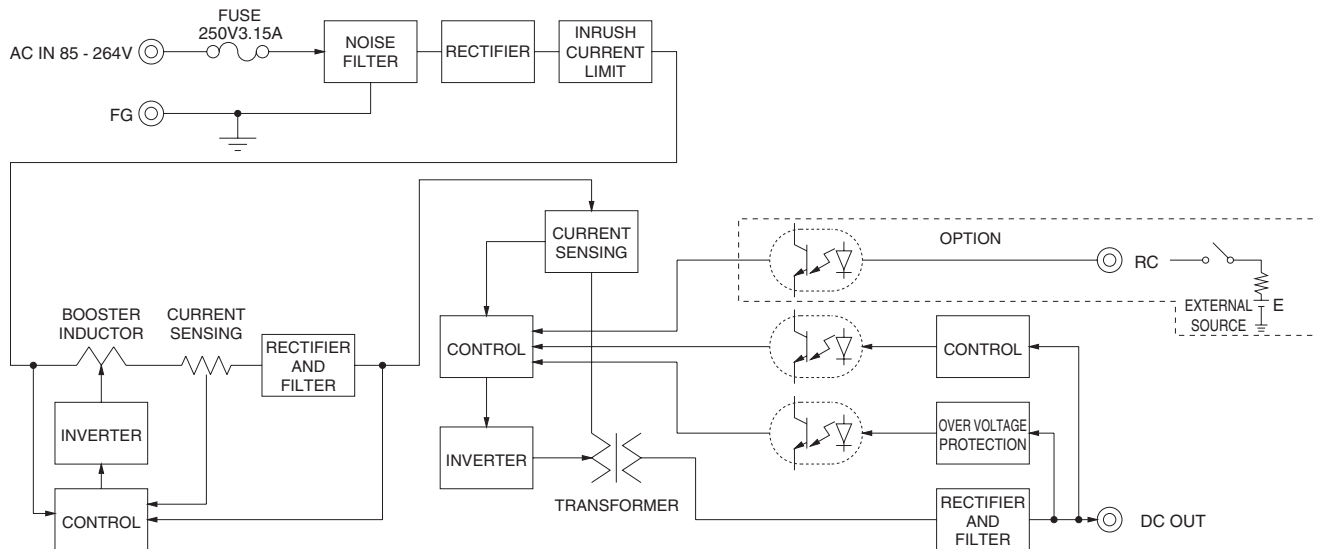
SPECIFICATIONS

	MODEL	PBA75F-3R3	PBA75F-5	PBA75F-9	PBA75F-12	PBA75F-15	PBA75F-24	PBA75F-36	PBA75F-48	
INPUT	VOLTAGE[V]	AC85 - 264 1 φ or DC120 - 370 (AC50 or DC70 Please refer to the instruction manual 1.1 Input voltage *4)								
	CURRENT[A]	ACIN 100V ACIN 200V	0.7typ 0.4typ	1.0typ 0.5typ						
	FREQUENCY[Hz]	50/60 (47 - 63)								
	EFFICIENCY[%]	ACIN 100V ACIN 200V	77typ 78typ	81typ 83typ	80typ 82typ	81typ 83typ	82typ 84typ	83typ 85typ	84typ 86typ	84typ 86typ
	POWER FACTOR(lo=100%)	ACIN 100V ACIN 200V	0.98typ 0.87typ	0.99typ 0.93typ						
	INRUSH CURRENT[A]	ACIN 100V ACIN 200V	15typ (lo=100%) (At cold start) 30typ (lo=100%) (At cold start)							
	LEAKAGE CURRENT[mA]	0.4/0.75max (ACIN 100V/240V 60Hz, lo=100%, According to IEC60950-1.DENAN)								
	VOLTAGE[V]	3.3	5	9	12	15	24	36	48	
OUTPUT	CURRENT[A]	15	15	8.4	6.3	5	3.2	2.1	1.6	
	LINE REGULATION[mV]	20max		20max	36max	48max	60max	96max	144max	192max
	LOAD REGULATION[mV]	40max		40max	100max	100max	120max	150max	240max	240max
	RIPPLE[mVp-p]	0 to +50℃ *1 -10 - 0℃ *1	80max 140max	80max 140max	120max 160max	120max 160max	120max 160max	120max 160max	150max 200max	150max 200max
	RIPPLE NOISE[mVp-p]	0 to +50℃ *1 -10 - 0℃ *1	120max 160max	120max 160max	150max 180max	150max 180max	150max 180max	150max 180max	250max 300max	250max 300max
	TEMPERATURE REGULATION[mV]	0 to +50℃ -10 to +50℃	50max 60max	50max 60max	90max 120max	120max 150max	150max 180max	240max 290max	360max 450max	480max 600max
	DRIFT[mV]	*2	20max	20max	36max	48max	60max	96max	144max	192max
	START-UP TIME[ms]	350typ(ACIN 100V, lo=100%)								
	HOLD-UP TIME[ms]	20typ (ACIN 100V, lo=100%)								
	OUTPUT VOLTAGE ADJUSTMENT RANGE[V]	2.85 - 3.63	4.00 - 5.50	7.50 - 10.0	10.0 - 13.2	13.2 - 18.0	19.2 - 27.0	28.8 - 39.6	39.0 - 53.0	
	OUTPUT VOLTAGE SETTING[V]	3.30 - 3.40	5.00 - 5.15	9.00 - 9.36	12.00 - 12.48	15.00 - 15.60	24.00 - 24.96	36.00 - 37.44	48.00 - 49.92	
	PROTECTION CIRCUIT AND OTHERS	OVERCURRENT PROTECTION	Works over 105% of rated current and recovers automatically							
OVERVOLTAGE PROTECTION[V]		4.00 - 5.25	5.75 - 7.00	11.5 - 14.0	15.0 - 18.0	20.0 - 25.0	30.0 - 37.0	43.0 - 50.0	58.0 - 65.0	
OPERATING INDICATION		LED (Green)								
REMOTE ON/OFF		Optional (Required external power source)								
ISOLATION	INPUT-OUTPUT · RC	*3	AC3,000V 1minute, Cutoff current = 10mA, DC500V 50MΩmin (At Room Temperature)							
	INPUT-FG		AC2,000V 1minute, Cutoff current = 10mA, DC500V 50MΩmin (At Room Temperature)							
	OUTPUT · RC-FG	*3	AC500V 1minute, Cutoff current = 100mA, DC500V 50MΩmin (At Room Temperature)							
ENVIRONMENT	OPERATING TEMP.,HUMID.AND ALTITUDE	-10 to +71℃ (Refer to "Derating"), 20 - 90%RH (Non condensing) 3,000m (10,000feet) max								
	STORAGE TEMP.,HUMID.AND ALTITUDE	-20 to +75℃, 20 - 90%RH (Non condensing) 9,000m (30,000feet) max								
	VIBRATION	10 - 55Hz, 19.6m/s ² (2G), 3minutes period, 60minutes each along X, Y and Z axis								
	IMPACT	196.1m/s ² (20G), 11ms, once each X, Y and Z axis								
SAFETY AND NOISE REGULATIONS	AGENCY APPROVALS (At only AC input)	UL60950-1, C-UL(CSA60950-1), EN60950-1, EN50178 Complies with DEN-AN								
	CONDUCTED NOISE	Complies with FCC Part15 classB, VCCI-B, CISPR22-B, EN55011-B, EN55022-B								
	HARMONIC ATTENUATOR	Complies with IEC61000-3-2 *6								
OTHERS	CASE SIZE/WEIGHT	32 x 82 x 135mm [1.26 x 3.23 x 5.31 inches] (without terminal block) (W x H x D) / 350g max (with cover : 400g max)								
	COOLING METHOD	Convection								

*1 Measured by 20MHz oscilloscope or Ripple-Noise meter(equivalent to KEISOKU-GIKEN :RM101).
 *2 Drift is the change in DC output for an eight hour period after a half-hour warm-up at 25°C.
 *3 Applicable when Remote ON/OFF(optional) is added. RC is insulated with input, output and FG.
 *4 Derating is required.

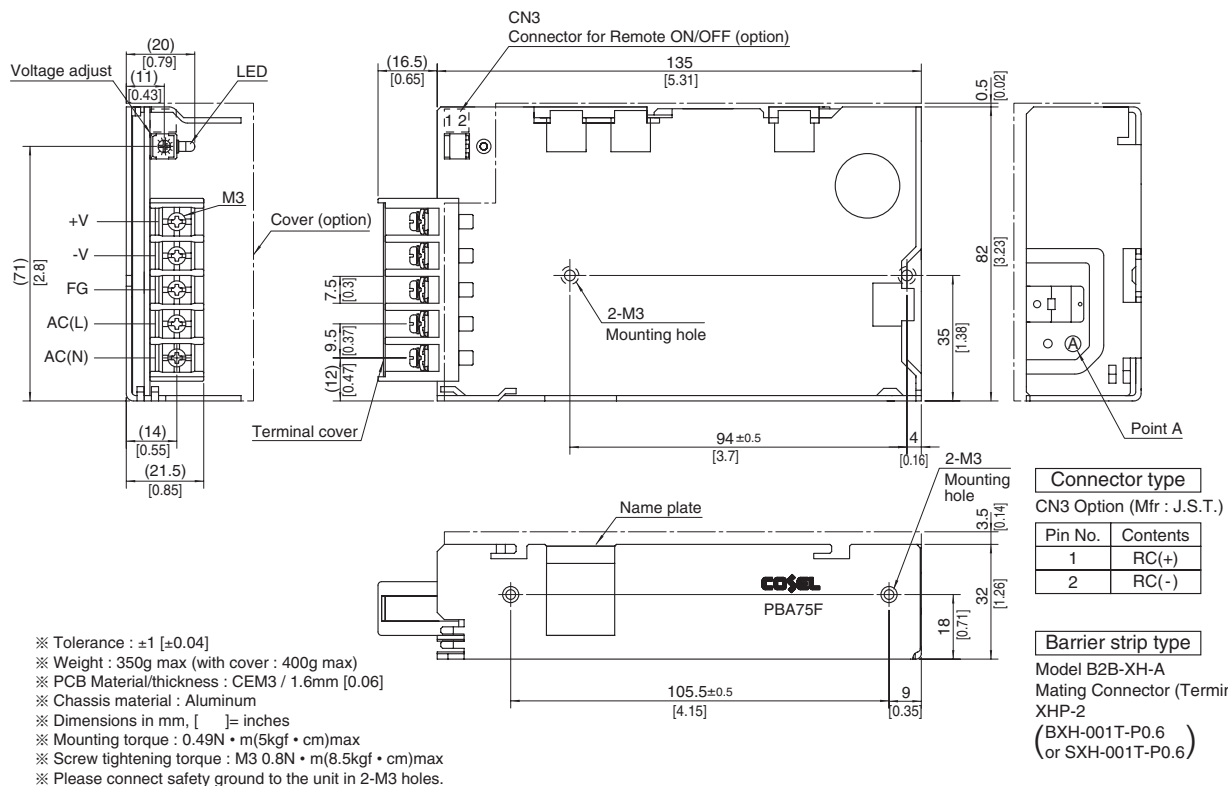
*5 Please contact us about safety approvals for the model with option.
 *6 Please contact us about class C.
 * Parallel operation with other model is not possible.
 * Derating is required when operated with cover.
 * A sound may occur from power supply at peak loading.

Block diagram



External view

※ External size of option T, J1, R, N1 and V is different from standard model and refer to 7 Option of instruction manual for details.



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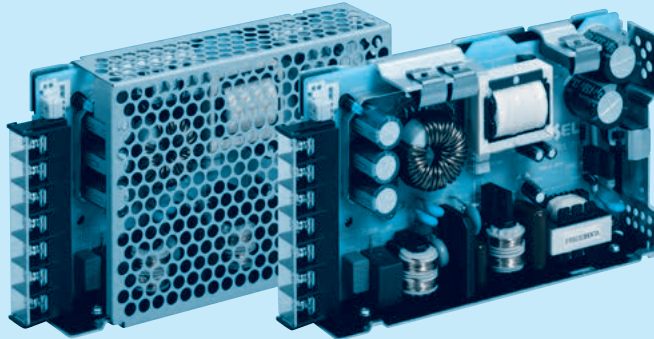
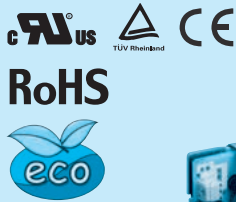
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Example recommended EMI/EMC filter
NAC-06-472



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.

- ① Series name
② Single output
③ Output wattage
④ Universal input
⑤ Output voltage
⑥ Optional *5
C : with Coating
G : Low leakage current
(0.15mA max / ACIN 240V)
E : Low leakage current
and EMI class A
(0.5mA max / ACIN 240V)
T : Vertical terminal block
J1 : VH (J.S.T.) connector type
(Only -12, -15, -24, -36, -48)
R : with Remote ON/OFF
N : with Cover
(Only 24V UL508 is acquired)
N1 : with DIN rail and Cover
V : Output voltage setting
potentiometer external-
ly

Cover is optional

* 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	PBA100F-3R3	PBA100F-5	PBA100F-9	PBA100F-12	PBA100F-15	PBA100F-24	PBA100F-36	PBA100F-48
MAX OUTPUT WATTAGE[W]	66	100	94.5	102	105	108	100.8	100.8
DC OUTPUT	3.3V 20A	5V 20A	9V 10.5A	12V 8.5A	15V 7A	24V 4.5A	36V 2.8A	48V 2.1A

SPECIFICATIONS

	MODEL	PBA100F-3R3	PBA100F-5	PBA100F-9	PBA100F-12	PBA100F-15	PBA100F-24	PBA100F-36	PBA100F-48	
INPUT	VOLTAGE[V]	AC85 - 264 1 φ or DC120 - 370 (AC50 or DC70 Please refer to the instruction manual 1.1 Input voltage *4)								
	CURRENT[A]	ACIN 100V ACIN 200V	0.9typ 0.5typ	1.3typ 0.7typ						
	FREQUENCY[Hz]	50/60 (47 - 63)								
	EFFICIENCY[%]	ACIN 100V ACIN 200V	77typ 79typ	82typ 84typ	80typ 82typ	81typ 83typ	83typ 86typ	84typ 86typ	84typ 86typ	
	POWER FACTOR(lo=100%)	ACIN 100V ACIN 200V	0.98typ 0.87typ	0.99typ 0.93typ						
	INRUSH CURRENT[A]	ACIN 100V ACIN 200V	20typ (lo=100%) (At cold start) 40typ (lo=100%) (At cold start)							
	LEAKAGE CURRENT[ma]	0.4/0.75max (ACIN 100V/240V 60Hz, lo=100%, According to IEC60950-1.DENAN)								
	OUTPUT	VOLTAGE[V]	3.3	5	9	12	15	24	36	48
CURRENT[A]		20	20	10.5	8.5	7	4.5	2.8	2.1	
LINE REGULATION[mV]		20max	20max	36max	48max	60max	96max	144max	192max	
LOAD REGULATION[mV]		40max	40max	100max	100max	120max	150max	240max	240max	
RIPPLE[mVp-p]		0 to +50℃ *1 -10 - 0℃ *1	80max 140max	80max 140max	120max 160max	120max 160max	120max 160max	150max 200max	150max 200max	
RIPPLE NOISE[mVp-p]		0 to +50℃ *1 -10 - 0℃ *1	120max 160max	120max 160max	150max 180max	150max 180max	150max 180max	250max 300max	250max 300max	
TEMPERATURE REGULATION[mV]		0 to +50℃ -10 to +50℃	50max 60max	50max 60max	90max 120max	120max 150max	150max 180max	240max 290max	360max 450max	
DRIFT[mV]		*2	20max	20max	36max	48max	60max	96max	144max	
START-UP TIME[ms]		350typ(ACIN 100V, lo=100%)								
HOLD-UP TIME[ms]		20typ (ACIN 100V, lo=100%)								
OUTPUT VOLTAGE ADJUSTMENT RANGE[V]		2.85 - 3.63 4.00 - 5.50 7.50 - 10.0 10.0 - 13.2 13.2 - 18.0 19.2 - 27.0 28.8 - 39.6 39.0 - 53.0								
OUTPUT VOLTAGE SETTING[V]		3.20 - 3.40 5.00 - 5.15 9.00 - 9.36 12.00 - 12.48 15.00 - 15.60 24.00 - 24.96 36.00 - 37.44 48.00 - 49.92								
PROTECTION CIRCUIT AND OTHERS	OVERCURRENT PROTECTION	Works over 105% of rated current and recovers automatically								
	OVERVOLTAGE PROTECTION[V]	4.00 - 5.25	5.75 - 7.00	11.5 - 14.0	15.0 - 18.0	20.0 - 25.0	30.0 - 37.0	43.0 - 50.0	58.0 - 65.0	
	OPERATING INDICATION	LED (Green)								
	REMOTE SENSING	Optional (Only -3R3, -5 Option -K)								
ISOLATION	REMOTE ON/OFF	Optional (Required external power source)								
	INPUT-OUTPUT · RC	*3	AC3.000V 1minute, Cutoff current = 10mA, DC500V 50MΩmin (At Room Temperature)							
	INPUT-FG		AC2.000V 1minute, Cutoff current = 10mA, DC500V 50MΩmin (At Room Temperature)							
ENVIRONMENT	OUTPUT · RC-FG	*3	AC500V 1minute, Cutoff current = 100mA, DC500V 50MΩmin (At Room Temperature)							
	OPERATING TEMP.,HUMID.AND ALTITUDE	-10 to +71℃ (Refer to “Derating”), 20 - 90%RH (Non condensing) 3,000m (10,000feet) max								
	STORAGE TEMP.,HUMID.AND ALTITUDE	-20 to +75℃, 20 - 90%RH (Non condensing) 9,000m (30,000feet) max								
	VIBRATION	10 - 55Hz, 19.6m/s² (2G), 3minutes period, 60minutes each along X, Y and Z axis								
SAFETY AND NOISE REGULATIONS	IMPACT	196.1m/s² (20G), 11ms, once each X, Y and Z axis								
	AGENCY APPROVALS (At only AC input)	UL60950-1, C-UL(CSA60950-1), EN60950-1, EN50178 Complies with DEN-AN								
	CONDUCTED NOISE	Complies with FCC Part15 classB, VCCI-B, CISPR22-B, EN55011-B, EN55022-B								
OTHERS	HARMONIC ATTENUATOR	Complies with IEC61000-3-2 *6								
	CASE SIZE/WEIGHT	32×93×147mm [1.26×3.66×5.79 inches] (without terminal block) (W×H×D) / 440g max (with cover : 500g max)								
	COOLING METHOD	Convection								

*1 Measured by 20MHz oscilloscope or Ripple-Noise meter(equivalent to KEISOKU-GIKEN :RM101).

*2 Drift is the change in DC output for an eight hour period after a half-hour warm-up at 25°C.

*3 Applicable when Remote ON/OFF(optional) is added. RC is insulated with input, output and FG.

*4 Derating is required.

*5 Please contact us about safety approvals for the model with option.

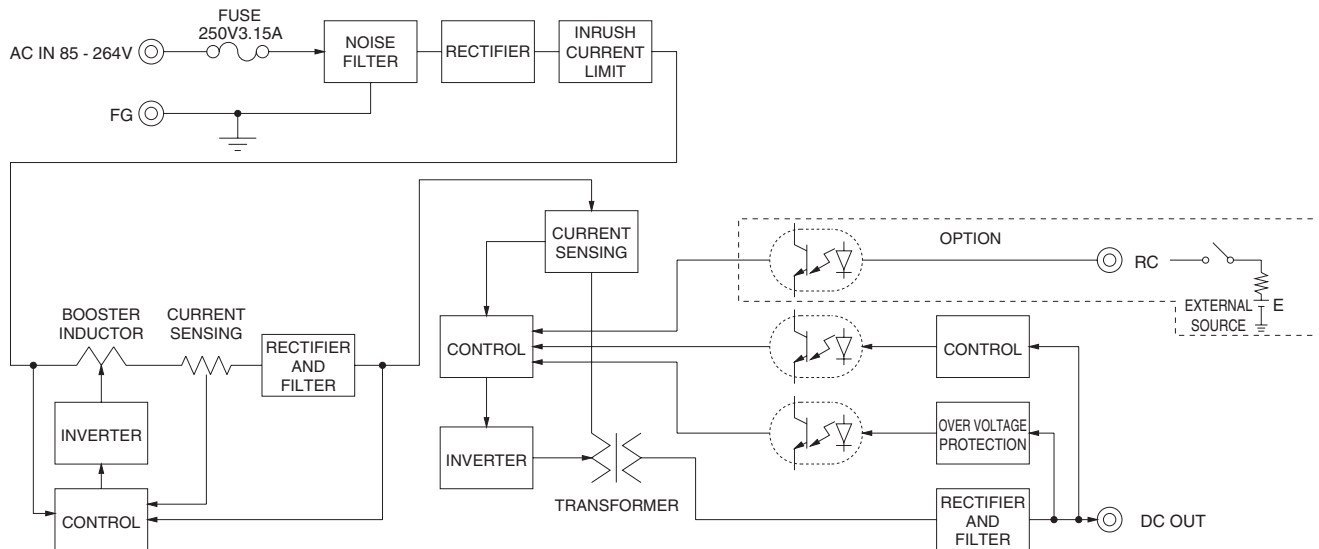
*6 Please contact us about class C.

* Parallel operation with other model is not possible.

* Derating is required when operated with cover.

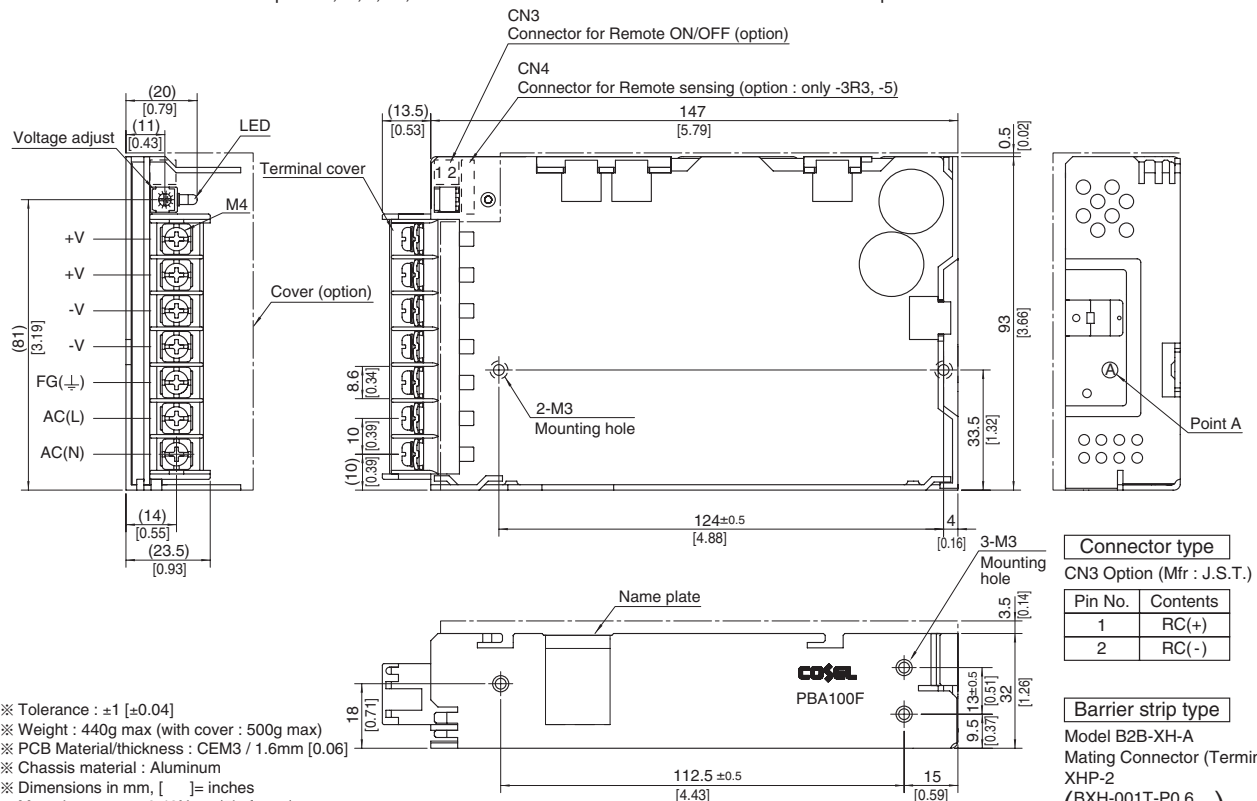
* A sound may occur from power supply at peak loading.

Block diagram



External view

※ External size of option T, J1, R, N1, V and K is different from standard model and refer to 7 Option of instruction manual for details.

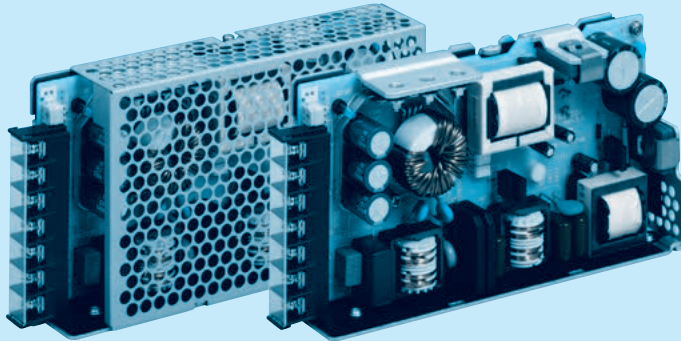
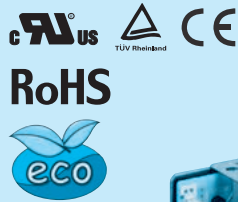


※ Tolerance : ± 1 [± 0.04]
 ※ Weight : 440g max (with cover : 500g max)
 ※ PCB Material/thickness : CEM3 / 1.6mm [0.06]
 ※ Chassis material : Aluminum
 ※ Dimensions in mm, [] = inches
 ※ Mounting torque : 0.49N · m (5kgf · cm) max
 ※ Mounting torque : M4:1.6N · m (16.9kgf · cm) max
 ※ Please connect safety ground to FG terminal on the unit.

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Example recommended EMI/EMC filter
NAC-06-472



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.

- ① Series name
- ② Single output
- ③ Output wattage
- ④ Universal input
- ⑤ Output voltage
- ⑥ Optional *5
- C : with Coating
- G : Low leakage current (0.15mA max / ACIN 240V)
- E : Low leakage current and EMI class A (0.5mA max / ACIN 240V)
- T : Vertical terminal block
- J1 : VH (J.S.T.) connector type (Only -12, -15, -24, -36, -48)
- R : with Remote ON/OFF
- N : with Cover (Only 24V UL508 is acquired)
- NI : with DIN rail and Cover
- V : Output voltage setting potentiometer external

Cover is optional

* 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	PBA150F-3R3	PBA150F-5	PBA150F-9	PBA150F-12	PBA150F-15	PBA150F-24	PBA150F-36	PBA150F-48
MAX OUTPUT WATTAGE[W]	99	150	150.3	156	150	156	154.8	158.4
DC OUTPUT	3.3V 30A	5V 30A	9V 16.7A	12V 13A	15V 10A	24V 6.5A	36V 4.3A	48V 3.3A

SPECIFICATIONS

	MODEL	PBA150F-3R3	PBA150F-5	PBA150F-9	PBA150F-12	PBA150F-15	PBA150F-24	PBA150F-36	PBA150F-48	
INPUT	VOLTAGE[V]	AC85 - 264 1 φ or DC120 - 370 (AC50 or DC70 Please refer to the instruction manual 1.1 Input voltage *4)								
	CURRENT[A]	ACIN 100V ACIN 200V	1.3typ 0.7typ	2.0typ 1.0typ						
	FREQUENCY[Hz]	50/60 (47 - 63)								
	EFFICIENCY[%]	ACIN 100V ACIN 200V	80typ 82typ	83typ 86typ	82typ 85typ	83typ 86typ	84typ 87typ	85typ 88typ	85typ 88typ	
	POWER FACTOR(Io=100%)	ACIN 100V ACIN 200V	0.98typ 0.87typ	0.99typ 0.93typ						
	INRUSH CURRENT[A]	ACIN 100V ACIN 200V	20typ (Io=100%) (At cold start) 40typ (Io=100%) (At cold start)							
	LEAKAGE CURRENT[ma]	0.4/0.75max (ACIN 100V/240V 60Hz, Io=100%, According to IEC60950-1.DENAN)								
	OUTPUT	VOLTAGE[V]	3.3	5	9	12	15	24	36	48
CURRENT[A]		30	30	16.7	13	10	6.5	4.3	3.3	
LINE REGULATION[mV]		20max	20max	36max	48max	60max	96max	144max	192max	
LOAD REGULATION[mV]		40max	40max	100max	100max	120max	150max	240max	240max	
RIPPLE[mVp-p]		0 to +50℃ *1 -10 - 0℃ *1	80max 140max	80max 140max	120max 160max	120max 160max	120max 160max	150max 200max	150max 200max	
RIPPLE NOISE[mVp-p]		0 to +50℃ *1 -10 - 0℃ *1	120max 160max	120max 160max	150max 180max	150max 180max	150max 180max	250max 300max	250max 300max	
TEMPERATURE REGULATION[mV]		0 to +50℃ -10 to +50℃	50max 60max	50max 60max	90max 120max	120max 150max	150max 180max	240max 290max	360max 450max	
DRIFT[mV]		*2	20max	20max	36max	48max	60max	96max	144max	
START-UP TIME[ms]		350typ(ACIN 100V, Io=100%)								
HOLD-UP TIME[ms]		20typ (ACIN 100V, Io=100%)								
OUTPUT VOLTAGE ADJUSTMENT RANGE[V]		2.85 - 3.63 4.00 - 5.50 7.50 - 10.0 10.0 - 13.2 13.2 - 18.0 19.2 - 27.0 28.8 - 39.6 39.0 - 53.0								
OUTPUT VOLTAGE SETTING[V]		3.30 - 3.40 5.00 - 5.15 9.00 - 9.36 12.00 - 12.48 15.00 - 15.60 24.00 - 24.96 36.00 - 37.44 48.00 - 49.92								
PROTECTION CIRCUIT AND OTHERS	OVERCURRENT PROTECTION	Works over 105% of rated current and recovers automatically								
	OVERVOLTAGE PROTECTION[V]	4.00 - 5.25	5.75 - 7.00	11.5 - 14.0	15.0 - 18.0	20.0 - 25.0	30.0 - 37.0	43.0 - 50.0	58.0 - 65.0	
	OPERATING INDICATION	LED (Green)								
	REMOTE SENSING	Optional (Only -3R3, -5 Option -K)								
ISOLATION	REMOTE ON/OFF	Optional (Required external power source)								
	INPUT-OUTPUT · RC	*3	AC3.000V 1minute, Cutoff current = 10mA, DC500V 50MΩmin (At Room Temperature)							
	INPUT-FG		AC2.000V 1minute, Cutoff current = 10mA, DC500V 50MΩmin (At Room Temperature)							
ENVIRONMENT	OUTPUT · RC-FG	*3	AC500V 1minute, Cutoff current = 100mA, DC500V 50MΩmin (At Room Temperature)							
	OPERATING TEMP.,HUMID.AND ALTITUDE	-10 to +71℃ (Refer to “Derating”), 20 - 90%RH (Non condensing) 3,000m (10,000feet) max								
	STORAGE TEMP.,HUMID.AND ALTITUDE	-20 to +75℃, 20 - 90%RH (Non condensing) 9,000m (30,000feet) max								
	VIBRATION	10 - 55Hz, 19.6m/s² (2G), 3minutes period, 60minutes each along X, Y and Z axis								
SAFETY AND NOISE REGULATIONS	IMPACT	196.1m/s² (20G), 11ms, once each X, Y and Z axis								
	AGENCY APPROVALS (At only AC input)	UL60950-1, C-UL(CSA60950-1), EN60950-1, EN50178 Complies with DEN-AN								
	CONDUCTED NOISE	Complies with FCC Part15 classB, VCCI-B, CISPR22-B, EN55011-B, EN55022-B								
OTHERS	HARMONIC ATTENUATOR	Complies with IEC61000-3-2 *6								
	CASE SIZE/WEIGHT	34×93×168mm [1.34×3.66×6.61 inches] (without terminal block) (W×H×D) / 560g max (with cover : 630g max)								
	COOLING METHOD	Convection								

*1 Measured by 20MHz oscilloscope or Ripple-Noise meter(equivalent to KEISOKU-GIKEN :RM101).

*2 Drift is the change in DC output for an eight hour period after a half-hour warm-up at 25°C.

*3 Applicable when Remote ON/OFF(optional) is added. RC is insulated with input, output and FG.

*4 Derating is required.

*5 Please contact us about safety approvals for the model with option.

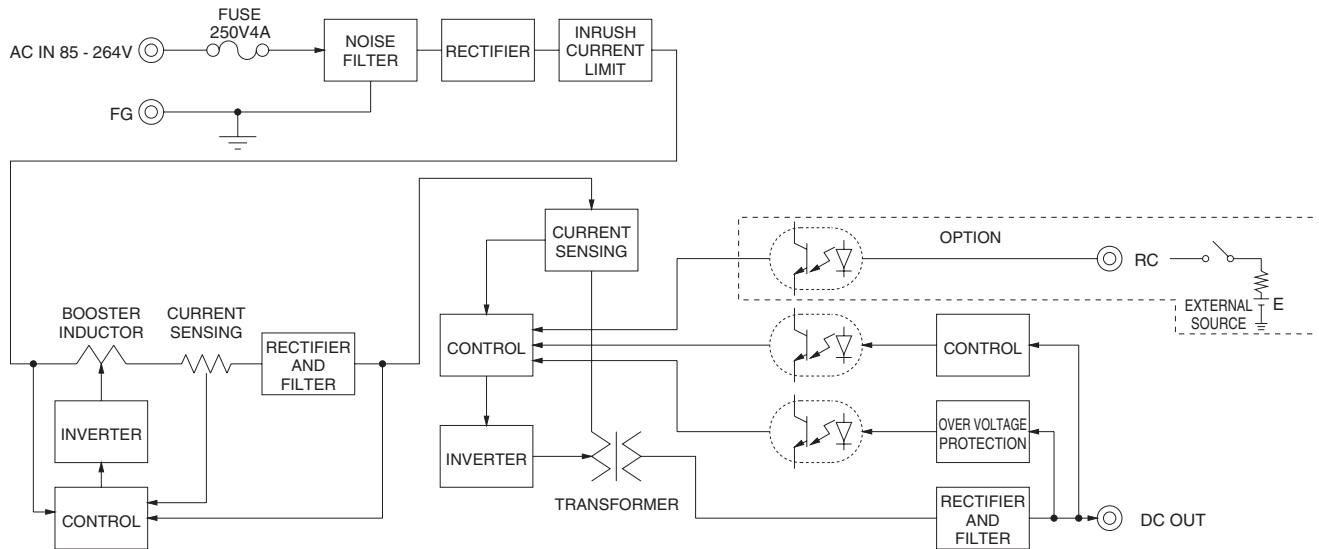
*6 Please contact us about class C.

* Parallel operation with other model is not possible.

* Derating is required when operated with cover.

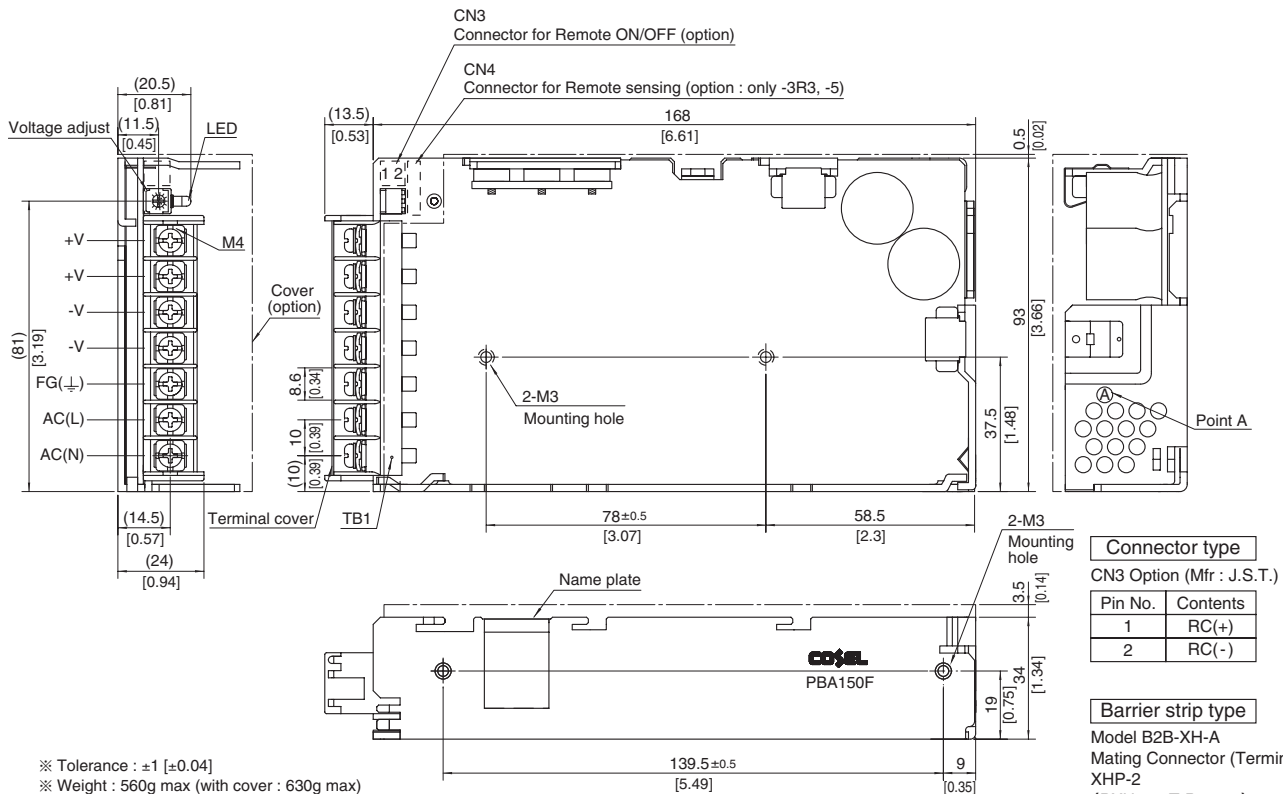
* A sound may occur from power supply at peak loading.

Block diagram



External view

※ External size of option T,J1,R,N1,V and K is different from standard model and refer to 7 Option of instruction manual for details.



※ Tolerance : ± 1 [± 0.04]
 ※ Weight : 560g max (with cover : 630g max)
 ※ PCB Material/thickness : CEM3 / 1.6mm [0.06]
 ※ Chassis material : Aluminum
 ※ Dimensions in mm, [] = inches
 ※ Mounting torque : $0.49\text{N} \cdot \text{m}$ (5kgf \cdot cm) max
 ※ Mounting torque : M4: $1.6\text{N} \cdot \text{m}$ (16.9kgf \cdot cm) max
 ※ Keep drawing current per pin below 20A for TB1.
 ※ Please connect safety ground to FG terminal on the unit.

PBA300F

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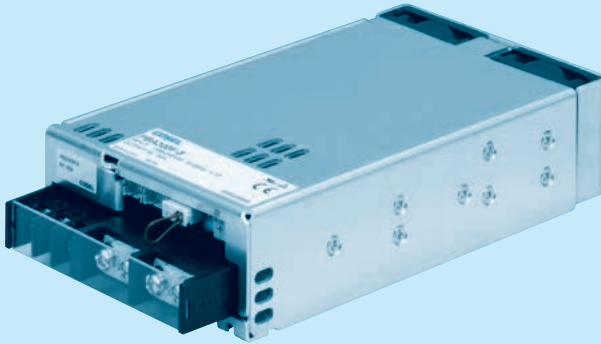
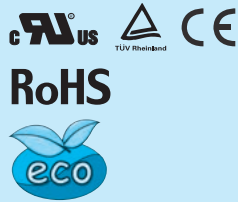
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Example recommended EMI/EMC filter
NAC-06-472



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.

- ① Series name
② Single output
③ Output wattage
④ Universal input
⑤ Output voltage
⑥ Optional *5
C : with Coating
G : Low leakage current
U : Operation stop voltage
is set at a lower value
F3 : Reverse air exhaust
type
F4 : Low speed fan
N1 : with DIN rail

Refer to instruction manual
7.1.

*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		PBA300F-3R3	PBA300F-5	PBA300F-7R5	PBA300F-12	PBA300F-15	PBA300F-24	PBA300F-36	PBA300F-48
MAX OUTPUT WATTAGE[W]		198	300	300	324	330	336	324	336
DC OUTPUT	ACIN 100V	3.3V 60A	5V 60A	7.5V 40A	12V 27A	15V 22A	24V 14A	36V 9A	48V 7A
	ACIN 200V *3	3.3V 60A	5V 60A	7.5V 40A	12V 27A	15V 22A	24V 14(16.5)A	36V 9A	48V 7A

SPECIFICATIONS

	MODEL		PBA300F-3R3	PBA300F-5	PBA300F-7R5	PBA300F-12	PBA300F-15	PBA300F-24	PBA300F-36	PBA300F-48
INPUT	VOLTAGE[V]		AC85 - 264 1 ϕ or DC120 - 350 (AC50 or DC70 Please refer to the instruction manual 7. option *4)							
	CURRENT[A]	ACIN 100V	3typ	4.1typ						
		ACIN 200V	1.6typ	2typ						
	FREQUENCY[Hz]		50/60 (47 - 63)							
	EFFICIENCY[%]	ACIN 100V	68typ	74typ	76typ	78typ	78typ	79typ	81typ	79typ
		ACIN 200V	71typ	77typ	79typ	81typ	81typ	82typ	84typ	82typ
	POWER FACTOR	ACIN 100V	0.98typ (Io=100%)							
INRUSH CURRENT[A]	ACIN 100V	20/40typ (Io=100%) (Primary inrush current /Secondary inrush current) (More then 3 sec. to re-start)								
	ACIN 200V	40/40typ (Io=100%) (Primary inrush current /Secondary inrush current) (More then 3 sec. to re-start)								
LEAKAGE CURRENT[ma]		0.45/0.75max (ACIN 100V/240V 60Hz, Io=100%, According to IEC60950-1.DENAN)								
OUTPUT	VOLTAGE[V]		3.3	5	7.5	12	15	24	36	48
	CURRENT[A]	ACIN 100V	60	60	40	27	22	14	9	7
		ACIN 200V *3	60	60	40	27	22	14(16.5)	9	7
	LINE REGULATION[mV]		20max	20max	36max	48max	60max	96max	144max	192max
	LOAD REGULATION[mV]		40max	40max	60max	100max	120max	150max	150max	300max
	RIPPLE[mVp-p]	0 to +50℃ *1	80max	80max	120max	120max	120max	120max	150max	150max
		-20 - 0℃ *1	140max	140max	160max	160max	160max	160max	160max	400max
	RIPPLE NOISE[mVp-p]	0 to +50℃ *1	120max	120max	150max	150max	150max	150max	200max	200max
		-20 - 0℃ *1	160max	160max	180max	180max	180max	180max	240max	500max
	TEMPERATURE REGULATION[mV]	0 to +50℃	40max	50max	75max	120max	150max	240max	360max	480max
		-20 to +50℃	60max	75max	120max	180max	180max	290max	440max	600max
	DRIFT[mV]	*2	12max	20max	30max	48max	60max	96max	144max	192max
START-UP TIME[ms]		300typ(ACIN 100/200V, Io=100%) *Start-up time is 500ms typ for less than 1minute of applying input again from turning off the input voltage.								
HOLD-UP TIME[ms]		20typ (ACIN 100/200V, Io=100%)								
OUTPUT VOLTAGE ADJUSTMENT RANGE[V]		2.64 - 3.96	3.96 - 6.00	5.25 - 8.25	8.25 - 13.20	10.50 - 16.50	16.50 - 26.40	25.20 - 39.60	38.40 - 56.00	
OUTPUT VOLTAGE SETTING[V]		3.30 - 3.40	5.00 - 5.15	7.50 - 7.80	12.00 - 12.48	15.00 - 15.60	24.00 - 24.96	36.00 - 37.44	48.00 - 49.92	
PROTECTION CIRCUIT AND OTHERS	OVERCURRENT PROTECTION		Works over 105% of rated current or 101% of peak current and recovers automatically							
	OVERVOLTAGE PROTECTION[V]		4.3 - 6.3	6.5 - 8.0	9.0 - 11.6	14.4 - 18.6	18.0 - 23.3	28.8 - 37.2	43.2 - 54.0	57.6 - 80.0
	OPERATING INDICATION		LED (Green)							
	REMOTE SENSING		Provided							
	REMOTE ON/OFF		Provided							
ISOLATION	INPUT-OUTPUT · RC		AC3.000V 1minute, Cutoff current = 10mA, DC500V 50MΩmin (At Room Temperature)							
	INPUT-FG		AC2.000V 1minute, Cutoff current = 10mA, DC500V 50MΩmin (At Room Temperature)							
	OUTPUT · RC · AUX-FG		AC500V 1minute, Cutoff current = 100mA, DC500V 50MΩmin (At Room Temperature)							
	OUTPUT-RC · AUX		AC500V 1minute, Cutoff current = 100mA, DC500V 50MΩmin (At Room Temperature)							
ENVIRONMENT	OPERATING TEMP.,HUMID.AND ALTITUDE		-20 to +71℃ (Refer to "Derating"), 20 - 90%RH (Non condensing) 3.000m (10.000feet) max							
	STORAGE TEMP.,HUMID.AND ALTITUDE		-20 to +75℃, 20 - 90%RH (Non condensing) 9.000m (30.000feet) max							
	VIBRATION		10 - 55Hz, 19.6m/s² (2G), 3minutes period, 60minutes each along X, Y and Z axis							
	IMPACT		196.1m/s² (20G), 11ms, once each X, Y and Z axis							
SAFETY AND NOISE REGULATIONS	AGENCY APPROVALS (At only AC input)		UL60950-1, C-UL(CSA60950-1), EN60950-1, EN50178 Complies with DEN-AN							
	CONDUCTED NOISE		Complies with FCC Part15 classB, VCCI-B, CISPR22-B, EN55011-B, EN55022-B							
	HARMONIC ATTENUATOR		Complies with IEC61000-3-2 *6							
OTHERS	CASE SIZE/WEIGHT		102×42×170mm [4.02×1.65×6.69 inches] (without terminal block and screw) (W×H×D) /1.0kg max							
	COOLING METHOD		Forced cooling (internal fan)							

*1 Measured by 20MHz oscilloscope or Ripple-Noise meter(equivalent to KEISOKU-GIKEN :RM101).

*2 Drift is the change in DC output for an eight hour period after a half-hour warm-up at 25°C.

*3 () means peak current. Peak loading for 10s. And Duty 35% max, refer to Instruction manual in detail.

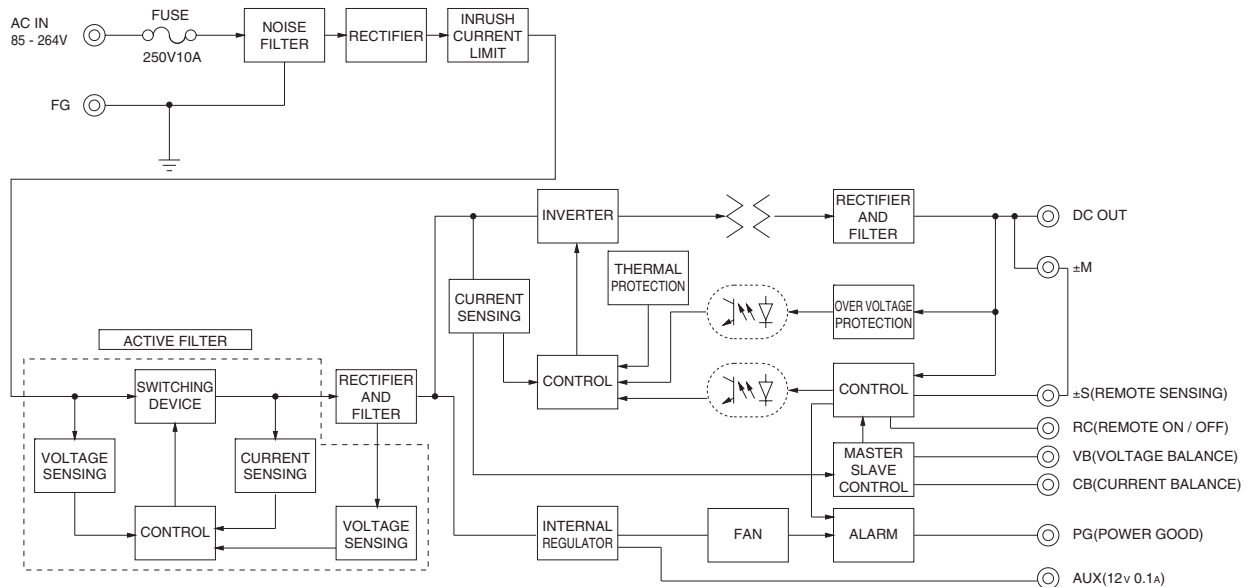
*4 Derating is required.Consult us for details.

*5 Please contact us about safety approvals for the model with option.

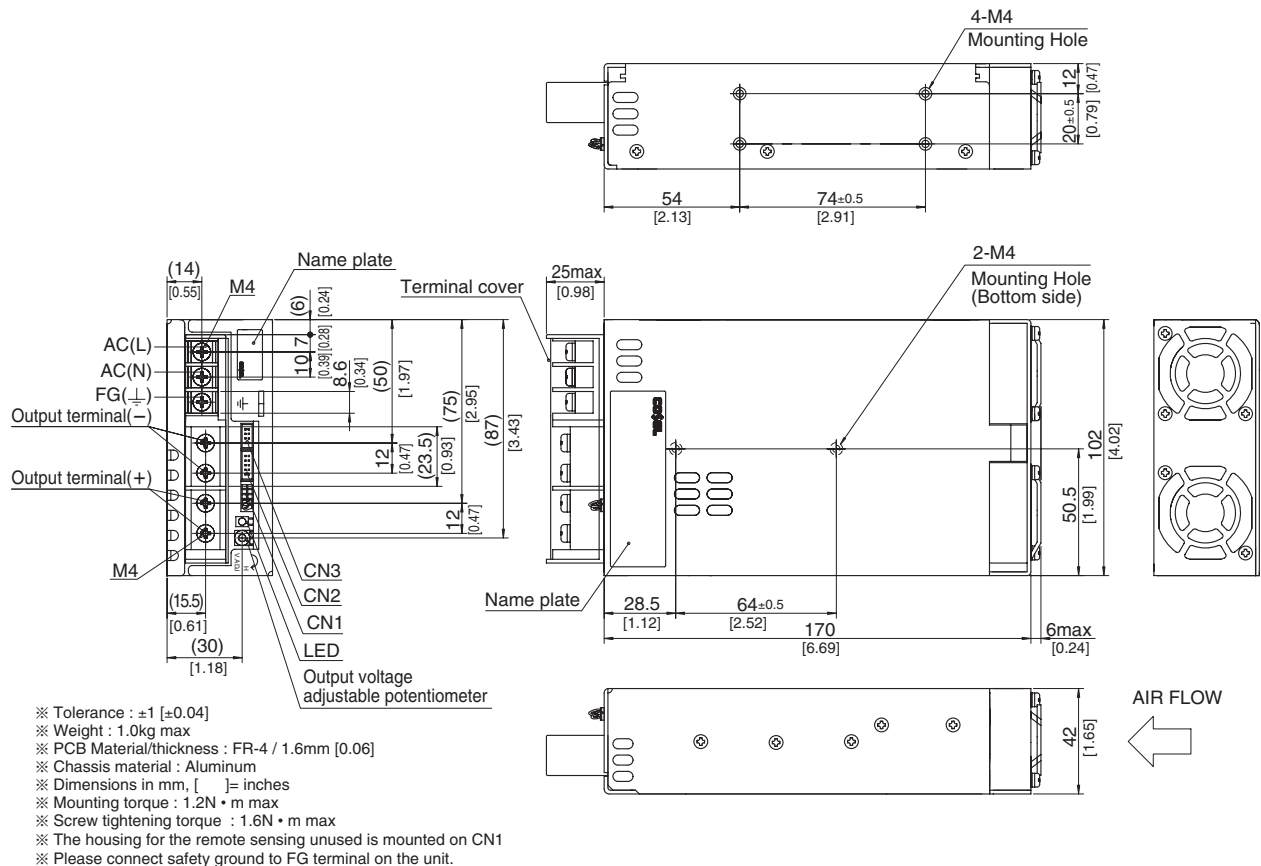
*6 Please contact us about class C.

* A sound may occur from power supply at pulse loading.

Block diagram



External view



PBA600F

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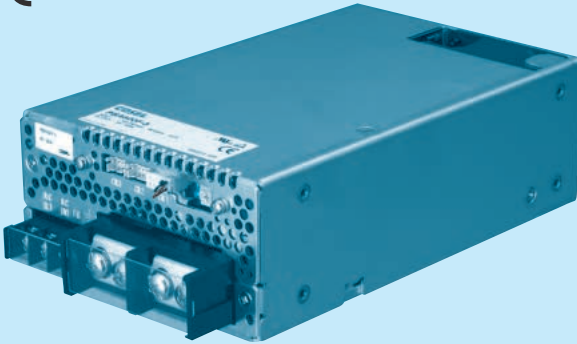
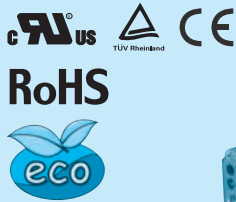
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Example recommended EMI/EMC filter
NAC-16-472

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.

- ① Series name
② Single output
③ Output wattage
④ Universal input
⑤ Output voltage
⑥ Optional *6
C : with Coating
G : Low leakage current
U : Operation stop voltage
is set at a lower value
F1 : With Long-Life fan
F3 : Reverse air exhaust
type
F4 : Low speed fan

Refer to instruction manual
7.1.

*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	PBA600F-3R3	PBA600F-5	PBA600F-7R5	PBA600F-12	PBA600F-15	PBA600F-24	PBA600F-36	PBA600F-48
MAX OUTPUT WATTAGE[W]	396	600	600	636	645	648	648	624
DC OUTPUT	ACIN 100V	3.3V 120A	5V 120A	7.5V 80A	12V 53A	15V 43A	24V 27A	36V 18A
	ACIN 200V *3	3.3V 120A	5V 120A	7.5V 80A	12V 53A	15V 43A	24V 27(31)A	36V 18A

SPECIFICATIONS

	MODEL		PBA600F-3R3	PBA600F-5	PBA600F-7R5	PBA600F-12	PBA600F-15	PBA600F-24	PBA600F-36	PBA600F-48
INPUT	VOLTAGE[V]		AC85 - 264 1 φ or DC120 - 350 (AC50 or DC70 Please refer to the instruction manual 7. option ※5)							
	CURRENT[A]	ACIN 100V	5.8typ	8.2typ						
		ACIN 200V	3typ	4.1typ						
	FREQUENCY[Hz]		50/60 (47 - 63)							
	EFFICIENCY[%]	ACIN 100V	70typ	75typ	76typ	79typ	79typ	81typ	82typ	81typ
		ACIN 200V	72typ	77typ	79typ	82typ	82typ	84typ	84typ	83typ
	POWER FACTOR	ACIN 100V	0.98typ (Io=100%)							
	ACIN 200V	0.95typ (Io=100%)								
	ACIN 100V	20/40typ (Io=100%) (Primary inrush current /Secondary inrush current) (More than 3 sec. to re-start)								
	ACIN 200V	40/40typ (Io=100%) (Primary inrush current /Secondary inrush current) (More than 3 sec. to re-start)								
	LEAKAGE CURRENT[ma]		0.45/0.75max (ACIN 100V/240V 60Hz, Io=100%, According to IEC60950-1, DENAN)							
OUTPUT	VOLTAGE[V]		3.3	5	7.5	12	15	24	36	48
	CURRENT[A]	ACIN 100V	120	120	80	53	43	27	18	13
		ACIN 200V ※3	120	120	80	53	43	27(31)	18	13
	LINE REGULATION[mV]		20max	20max	36max	48max	60max	96max	144max	192max
	LOAD REGULATION[mV]		40max	40max	60max	100max	120max	150max	150max	300max
	RIPPLE[mVp-p]	0 to +50℃ ※1	80max	80max	120max	120max	120max	120max	150max	150max
		-20 - 0℃ ※1	140max	140max	160max	160max	160max	160max	160max	400max
	RIPPLE NOISE[mVp-p]	0 to +50℃ ※1	120max	120max	150max	150max	150max	150max	200max	200max
		-20 - 0℃ ※1	160max	160max	180max	180max	180max	180max	240max	500max
	TEMPERATURE REGULATION[mV]	0 to +50℃	40max	50max	75max	120max	150max	240max	360max	480max
		-20 to +50℃	60max	75max	120max	180max	180max	290max	440max	600max
	DRIFT[mV]	※2	12max	20max	30max	48max	60max	96max	144max	192max
	START-UP TIME[ms]		400typ(ACIN 100/200V, Io=100%) ※Start-up time is 500ms typ for less than 1minute of applying input again from turning off the input voltage.							
HOLD-UP TIME[ms]		20typ (ACIN 100/200V, Io=100%)								
OUTPUT VOLTAGE ADJUSTMENT RANGE[V]		2.64 - 3.96	3.96 - 6.00	5.25 - 8.25	8.25 - 13.20	10.50 - 16.50	16.50 - 26.40	25.20 - 39.60	38.40 - 56.00	
OUTPUT VOLTAGE SETTING[V]		3.30 - 3.40	5.00 - 5.15	7.50 - 7.80	12.00 - 12.48	15.00 - 15.60	24.00 - 24.96	36.00 - 37.44	48.00 - 49.92	
PROTECTION CIRCUIT AND OTHERS	OVERCURRENT PROTECTION		Works over 105% of rated current or 101% of peak current and recovers automatically							
	OVERVOLTAGE PROTECTION[V] ※4		Vo+0.66 - 1.32	Vo+1.0 - 2.0	Vo+1.5 - 3.0	Vo+2.4 - 4.8	Vo+3.0 - 6.0	Vo+4.8 - 9.6	Vo+7.2 - 14.4	Vo+4.8 - 12.0
	OPERATING INDICATION		LED (Green)							
	REMOTE SENSING		Provided							
	REMOTE ON/OFF		Provided							
ISOLATION	INPUT-OUTPUT · RC		AC3.000V 1minute, Cutoff current = 10mA, DC500V 50MΩmin (At Room Temperature)							
	INPUT-FG		AC2.000V 1minute, Cutoff current = 10mA, DC500V 50MΩmin (At Room Temperature)							
	OUTPUT · RC · AUX-FG		AC500V 1minute, Cutoff current = 100mA, DC500V 50MΩmin (At Room Temperature)							
	OUTPUT-RC · AUX		AC500V 1minute, Cutoff current = 100mA, DC500V 50MΩmin (At Room Temperature)							
ENVIRONMENT	OPERATING TEMP.,HUMID.AND ALTITUDE		-20 to +71℃ (Refer to "Derating"), 20 - 90%RH (Non condensing) 3,000m (10,000feet) max							
	STORAGE TEMP.,HUMID.AND ALTITUDE		-20 to +75℃, 20 - 90%RH (Non condensing) 9,000m (30,000feet) max							
	VIBRATION		10 - 55Hz, 19.6m/s ² (2G), 3minutes period, 60minutes each along X, Y and Z axis							
	IMPACT		196.1m/s ² (20G), 11ms, once each X, Y and Z axis							
SAFETY AND NOISE REGULATIONS	AGENCY APPROVALS (At only AC input)		UL60950-1, C-UL(CSA60950-1), EN60950-1, EN50178 Complies with DEN-AN							
	CONDUCTED NOISE		Complies with FCC Part15 classB, VCCI-B, CISPR22-B, EN55011-B, EN55022-B							
	HARMONIC ATTENUATOR		Complies with IEC61000-3-2 ※7							
OTHERS	CASE SIZE/WEIGHT		120×61×190mm [4.72×2.4×7.48 inches] (without terminal block and screw) (W×H×D) /1.6kg max							
	COOLING METHOD		Forced cooling (internal fan)							

*1 Measured by 20MHz oscilloscope or Ripple-Noise meter (equivalent to KEISOKU-GIKEN :RM101).

*2 Drift is the change in DC output for an eight hour period after a half-hour warm-up at 25°C.

*3 () means peak current. Peak loading for 10s. And Duty 35% max, refer to Instruction manual in detail.

*4 Overvoltage protection circuit to follow to output voltage setting. Standard overvoltage protection circuit is please contact us for details.

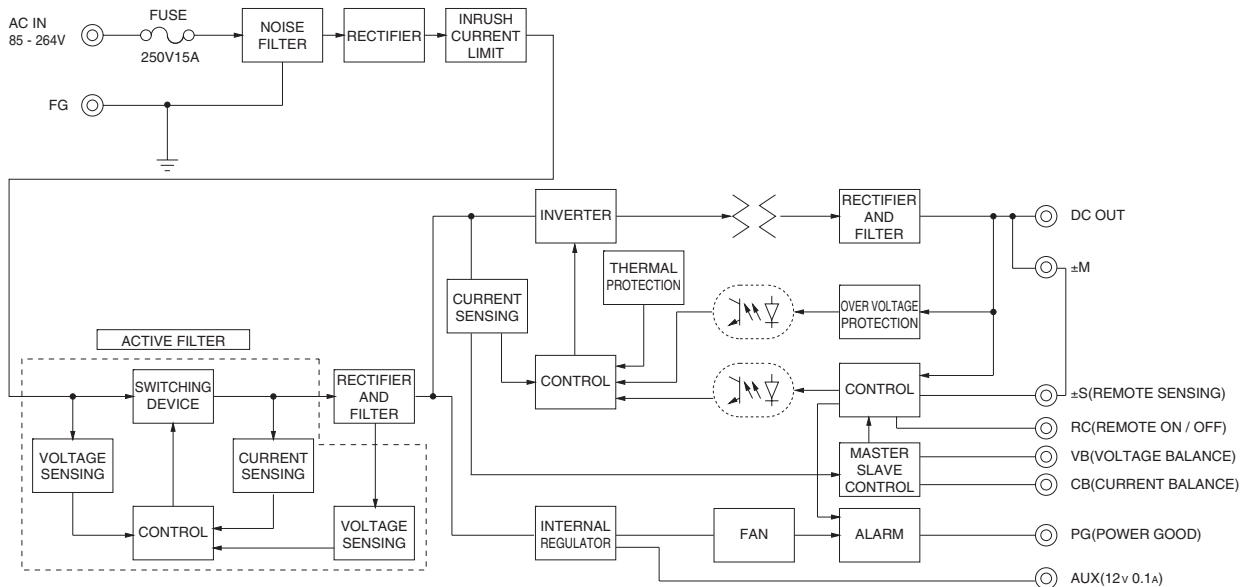
*5 Derating is required. Consult us for details.

*6 Please contact us about safety approvals for the model with option.

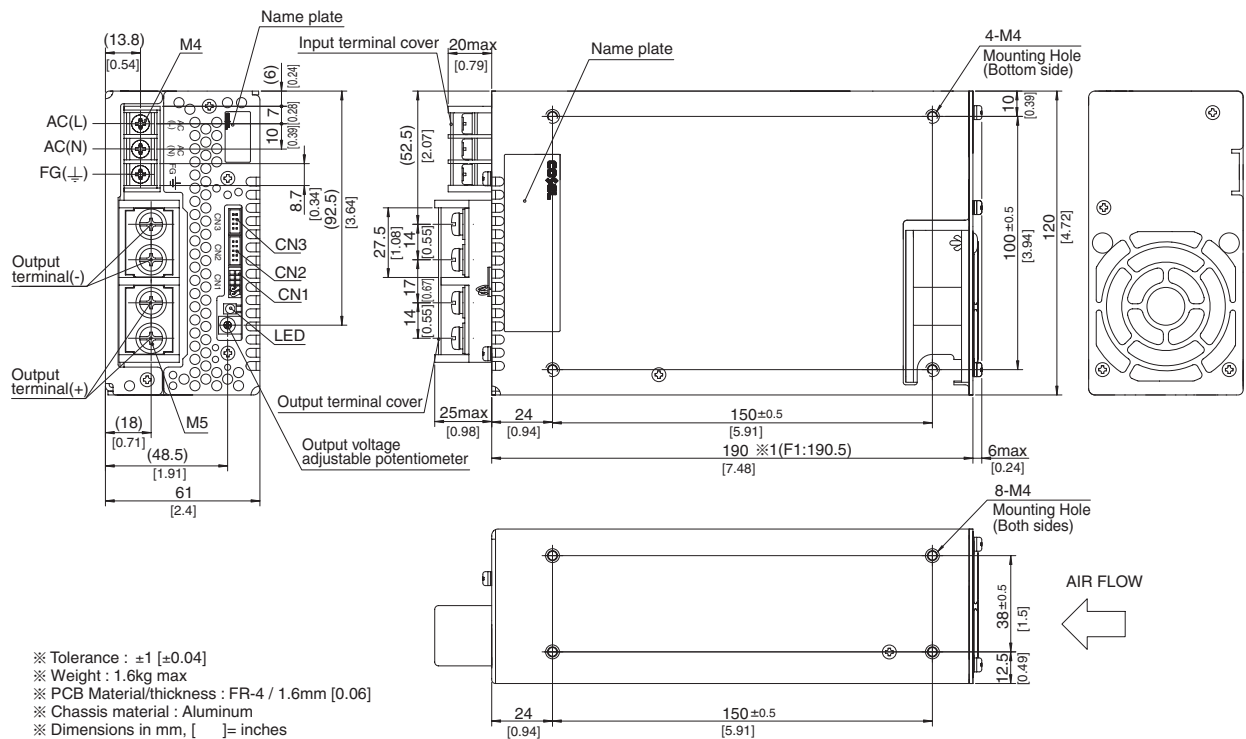
*7 Please contact us about class C.

* A sound may occur from power supply at pulse loading.

Block diagram



External view

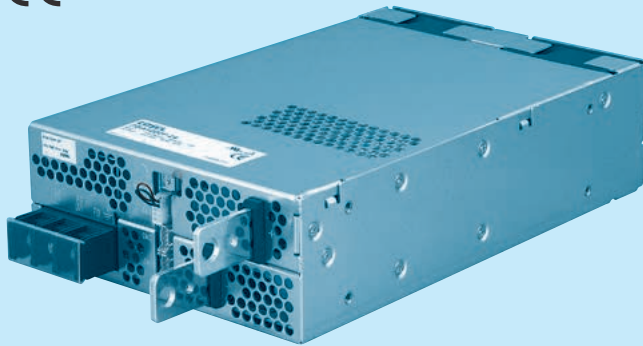
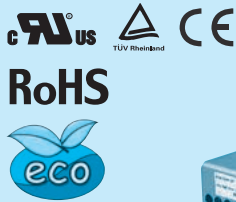


- ※ Tolerance : ± 1 [± 0.04]
- ※ Weight : 1.6kg max
- ※ PCB Material/thickness : FR-4 / 1.6mm [0.06]
- ※ Chassis material : Aluminum
- ※ Dimensions in mm, [] = inches
- ※ Mounting torque : 1.2N · m (12.8kgf · cm) max
- ※ Screw tightening torque : M4 1.6N · m (16.9kgf · cm) max
M5 2.5N · m (24.5kgf · cm) max
- ※ The housing for the remote sensing unused is mounted on CN1
- ※ 1 F1(Optional):190.5
- ※ Please connect safety ground to FG terminal on the unit.

PBA1000F

PB A 1000 F -5 -□

① ② ③ ④ ⑤ ⑥



Example recommended EMI/EMC filter
NAC-20-472



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.

- ① Series name
- ② Single output
- ③ Output wattage
- ④ Universal input
- ⑤ Output voltage
- ⑥ Optional *6
- C : with Coating
- G : Low leakage current
- U : Operation stop voltage is set at a lower value
- F1 : With Long-Life fan
- F3 : Reverse air exhaust type
- F4 : Low speed fan

Refer to instruction manual 7.1.

*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		PBA1000F-3R3	PBA1000F-5	PBA1000F-7R5	PBA1000F-12	PBA1000F-15	PBA1000F-24	PBA1000F-36	PBA1000F-48
MAX OUTPUT WATTAGE[W]		660	1000	1005	1056	1050	1056	1044	1056
DC OUTPUT	ACIN 100V	3.3V 200A	5V 200A	7.5V 134A	12V 88A	15V 70A	24V 44A	36V 29A	48V 22A
	ACIN 200V *3	3.3V 200A	5V 200A	7.5V 134A	12V 88A	15V 70A	24V 44(51)A	36V 29A	48V 22A

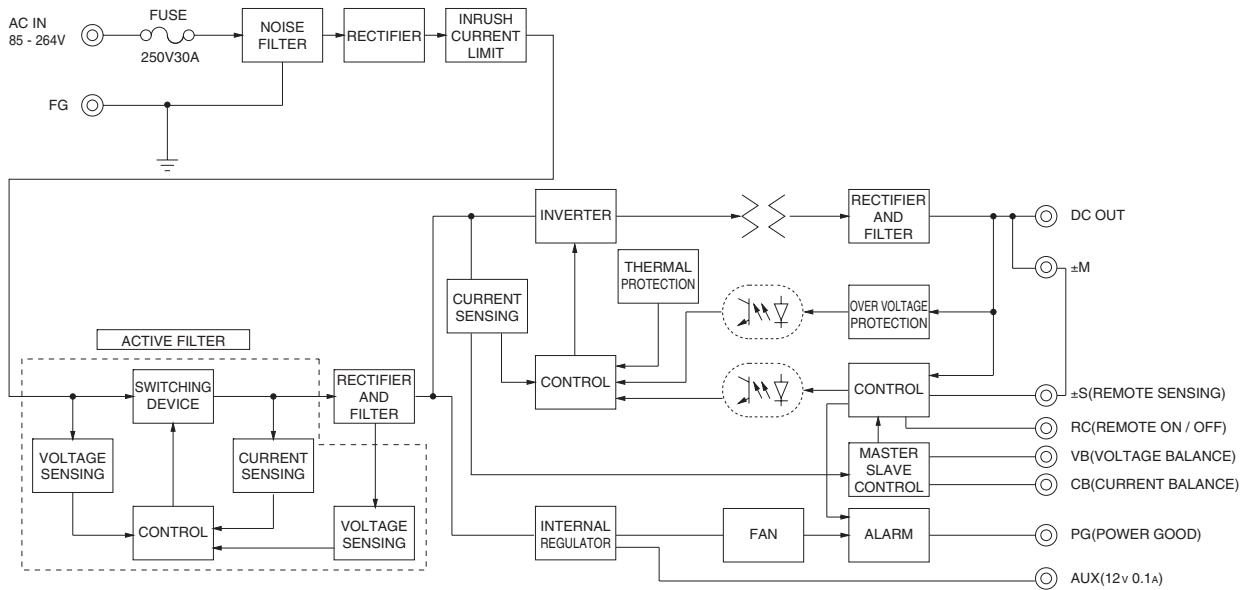
SPECIFICATIONS

	MODEL		PBA1000F-3R3	PBA1000F-5	PBA1000F-7R5	PBA1000F-12	PBA1000F-15	PBA1000F-24	PBA1000F-36	PBA1000F-48
INPUT	VOLTAGE[V]		AC85 - 264 1 φ or DC120 - 350 (AC50 or DC70 Please refer to the instruction manual 7. option *5)							
	CURRENT[A]	ACIN 100V	9typ	13typ						
		ACIN 200V	5typ	7typ						
	FREQUENCY[Hz]		50/60 (47 - 63)							
	EFFICIENCY[%]	ACIN 100V	74typ	79typ	80typ	82typ	82typ	84typ	84typ	84typ
		ACIN 200V	76typ	81typ	83typ	84typ	84typ	86typ	86typ	86typ
	POWER FACTOR	ACIN 100V	0.98typ (Io=100%)							
INRUSH CURRENT[A]	ACIN 100V	20/40typ (Io=100%) (Primary inrush current /Secondary inrush current) (More than 10 sec. to re-start)								
	ACIN 200V	40/40typ (Io=100%) (Primary inrush current /Secondary inrush current) (More than 10 sec. to re-start)								
LEAKAGE CURRENT[ma]		0.5/1.0max (ACIN 100V/240V 60Hz, Io=100%, According to IEC60950-1, DENAN)								
OUTPUT	VOLTAGE[V]		3.3	5	7.5	12	15	24	36	48
	CURRENT[A]	ACIN 100V	200	200	134	88	70	44	29	22
		ACIN 200V *3	200	200	134	88	70	44(51)	29	22
	LINE REGULATION[mV]		20max	20max	36max	48max	60max	96max	144max	192max
	LOAD REGULATION[mV]		40max	40max	60max	100max	120max	150max	150max	300max
	RIPPLE[mVp-p]	0 to +50℃ *1	80max	80max	120max	120max	120max	120max	150max	150max
		-20 - 0℃ *1	140max	140max	160max	160max	160max	160max	160max	400max
	RIPPLE NOISE[mVp-p]	0 to +50℃ *1	120max	120max	150max	150max	150max	150max	200max	200max
		-20 - 0℃ *1	160max	160max	180max	180max	180max	180max	240max	500max
	TEMPERATURE REGULATION[mV]	0 to +50℃	40max	50max	75max	120max	150max	240max	360max	480max
		-20 to +50℃	60max	75max	120max	180max	180max	290max	440max	600max
	DRIFT[mV]	*2	12max	20max	30max	48max	60max	96max	144max	192max
START-UP TIME[ms]		400typ(ACIN 100/200V, Io=100%) *Start-up time is 500ms typ for less than 1minute of applying input again from turning off the input voltage.								
HOLD-UP TIME[ms]		20typ (ACIN 100/200V, Io=100%)								
OUTPUT VOLTAGE ADJUSTMENT RANGE[V]		2.64 - 3.96	3.96 - 6.00	5.25 - 8.25	8.25 - 13.20	10.50 - 16.50	16.50 - 26.40	25.20 - 39.60	38.40 - 56.00	
OUTPUT VOLTAGE SETTING[V]		3.30 - 3.40	5.00 - 5.15	7.50 - 7.80	12.00 - 12.48	15.00 - 15.60	24.00 - 24.96	36.00 - 37.44	48.00 - 49.92	
PROTECTION CIRCUIT AND OTHERS	OVERCURRENT PROTECTION		Works over 105% of rated current or 101% of peak current and recovers automatically							
	OVERVOLTAGE PROTECTION[V] *4		Vo+0.66 - 1.32	Vo+1.0 - 2.0	Vo+1.5 - 3.0	Vo+2.4 - 4.8	Vo+3.0 - 6.0	Vo+4.8 - 9.6	Vo+7.2 - 14.4	Vo+4.8 - 12.0
	OPERATING INDICATION		LED (Green)							
	REMOTE SENSING		Provided							
REMOTE ON/OFF		Provided								
ISOLATION	INPUT-OUTPUT · RC		AC3.000V 1minute, Cutoff current = 25mA, DC500V 50MΩmin (At Room Temperature)							
	INPUT-FG		AC2.000V 1minute, Cutoff current = 25mA, DC500V 50MΩmin (At Room Temperature)							
	OUTPUT · RC · AUX-FG		AC500V 1minute, Cutoff current = 100mA, DC500V 50MΩmin (At Room Temperature)							
	OUTPUT-RC · AUX		AC500V 1minute, Cutoff current = 100mA, DC500V 50MΩmin (At Room Temperature)							
ENVIRONMENT	OPERATING TEMP.,HUMID.AND ALTITUDE		-20 to +71℃ (Refer to "Derating"), 20 - 90%RH (Non condensing) 3.000m (10.000feet) max							
	STORAGE TEMP.,HUMID.AND ALTITUDE		-20 to +75℃, 20 - 90%RH (Non condensing) 9.000m (30.000feet) max							
	VIBRATION		10 - 55Hz, 19.6m/s² (2G), 3minutes period, 60minutes each along X, Y and Z axis							
SAFETY AND NOISE REGULATIONS	IMPACT		196.1m/s² (20G), 11ms, once each X, Y and Z axis							
	AGENCY APPROVALS (At only AC input)		UL60950-1, C-UL(CSA60950-1), EN60950-1, EN50178 Complies with DEN-AN							
	CONDUCTED NOISE		Complies with FCC Part15 classB, VCCI-B, CISPR22-B, EN55011-B, EN55022-B							
OTHERS	HARMONIC ATTENUATOR		Complies with IEC61000-3-2 *7							
	CASE SIZE/WEIGHT		150×61×240mm [5.91×2.4×9.45 inches] (without terminal block and screw) (W×H×D) /2.2kg max							
COOLING METHOD		Forced cooling (internal fan)								

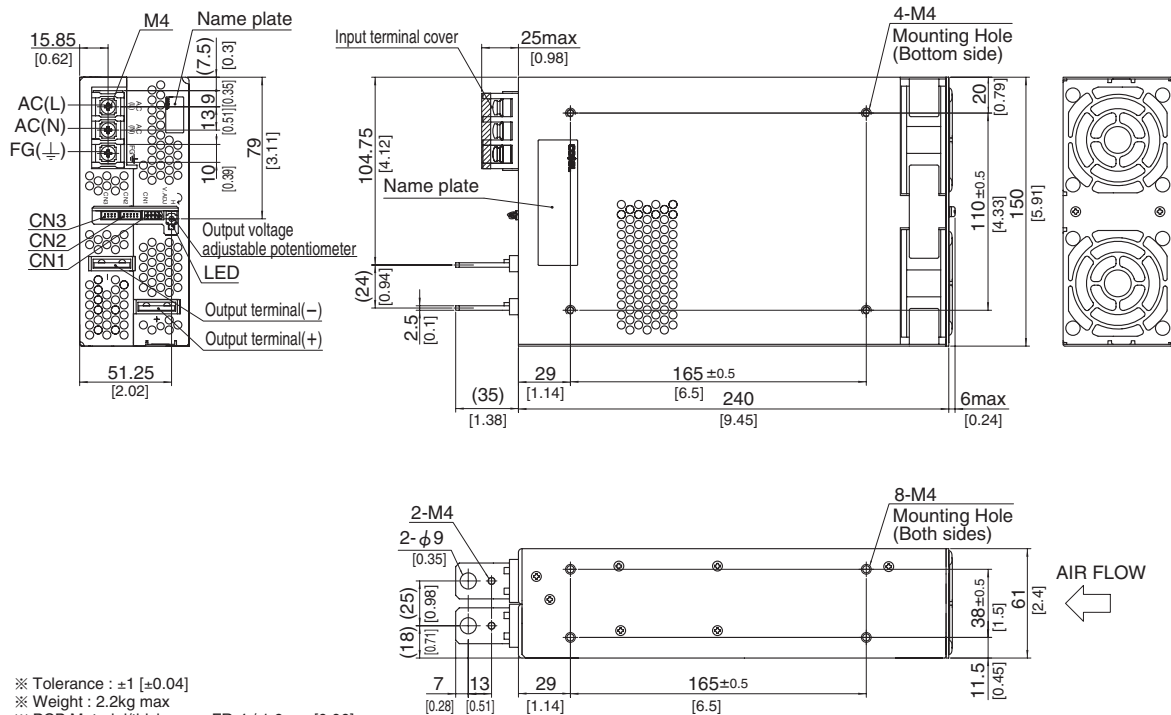
*1 Measured by 20MHz oscilloscope or Ripple-Noise meter(equivalent to KEISOKU-GIKEN :RM101).
Ripple and ripple noise is measured on measuring board with capacitor of 22 μF within 150mm from the output terminal.
*2 Drift is the change in DC output for an eight hour period after a half-hour warm-up at 25°C.
*3 () means peak current. Peak loading for 10s. And Duty 35% max, refer to Instruction manual in detail.

*4 Overvoltage protection circuit to follow to output voltage setting. Standard overvoltage protection circuit is please contact us for details.
*5 Derating is required. Consult us for details.
*6 Please contact us about safety approvals for the model with option.
*7 Please contact us about class C.
* A sound may occur from power supply at pulse loading.

Block diagram



External view

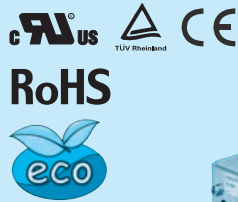


- ※ Tolerance : ± 1 [± 0.04]
- ※ Weight : 2.2kg max
- ※ PCB Material/thickness : FR-4 / 1.6mm [0.06]
- ※ Chassis material : Aluminum
- ※ Dimensions in mm, [] = inches
- ※ Mounting torque : 1.2N • m (12.8kgf • cm) max
- ※ Screw tightening torque : 1.6N • m (16.9kgf • cm) max
- ※ The housing for the remote sensing unused is mounted on CN1
- ※ Please connect safety ground to FG terminal on the unit.

PBA1500F

PB A 1500 F -5 -□

① ② ③ ④ ⑤ ⑥



Example recommended EMI/EMC filter
NAC-20-472



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.

- ① Series name
- ② Single output
- ③ Output wattage
- ④ Universal input
- ⑤ Output voltage
- ⑥ Optional *6
- C : with Coating
- G : Low leakage current
- U : Operation stop voltage is set at a lower value
- F1 : With Long-Life fan
- F3 : Reverse air exhaust type
- F4 : Low speed fan

Refer to instruction manual 7.1.

*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	PBA1500F-3R3	PBA1500F-5	PBA1500F-7R5	PBA1500F-12	PBA1500F-15	PBA1500F-24	PBA1500F-36	PBA1500F-48
MAX OUTPUT WATTAGE[W]	990	1500	1500	1500	1500	1680	1692	1680
DC OUTPUT	ACIN 100V	3.3V 300A	5V 300A	7.5V 200A	12V 125A	15V 100A	24V 65A	36V 42A
	ACIN 200V *3	3.3V 300A	5V 300A	7.5V 200A	12V 125A	15V 100A	24V 70(105)A	36V 47(70)A

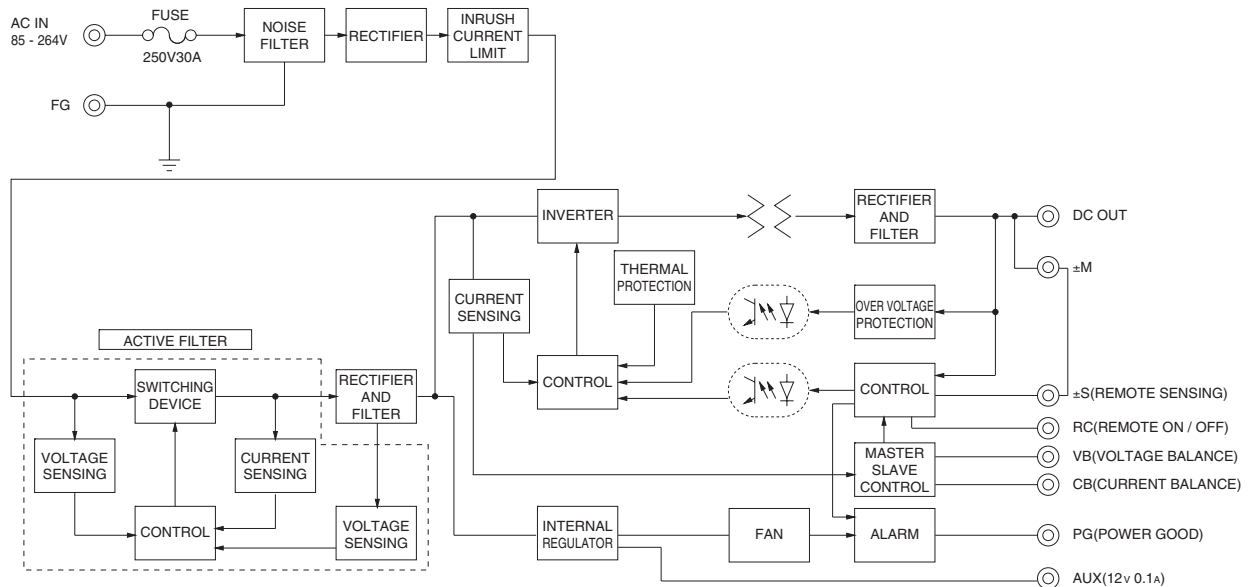
SPECIFICATIONS

	MODEL		PBA1500F-3R3	PBA1500F-5	PBA1500F-7R5	PBA1500F-12	PBA1500F-15	PBA1500F-24	PBA1500F-36	PBA1500F-48
INPUT	VOLTAGE[V]		AC85 - 264 1 φ or DC120 - 370 (AC50 or DC70 Please refer to the instruction manual 7. option *5)							
	CURRENT[A]	ACIN 100V	15typ	19typ						
		ACIN 200V	8typ	10typ						
	FREQUENCY[Hz]		50/60 (47 - 63)							
	EFFICIENCY[%]	ACIN 100V	72typ	77typ	81typ	81typ	83typ	84typ	84typ	84typ
		ACIN 200V	75typ	81typ	83typ	84typ	86typ	87typ	87typ	87typ
	POWER FACTOR	ACIN 100V	0.98typ (Io=100%)							
	ACIN 200V	0.95typ (Io=100%)								
	ACIN 100V	20/40typ (Io=100%) (Primary inrush current /Secondary inrush current) (More than 10 sec. to re-start)								
	ACIN 200V	40/40typ (Io=100%) (Primary inrush current /Secondary inrush current) (More than 10 sec. to re-start)								
	LEAKAGE CURRENT[ma]		0.9/1.5max (ACIN 100V/240V 60Hz, Io=100%, According to IEC60950-1, DENAN)							
OUTPUT	VOLTAGE[V]		3.3	5	7.5	12	15	24	36	48
	CURRENT[A]	ACIN 100V	300	300	200	125	100	65	42	32
		ACIN 200V *3	300	300	200	125	100	70(105)	47(70)	35
	LINE REGULATION[mV]		20max	20max	36max	48max	60max	96max	144max	192max
	LOAD REGULATION[mV]		40max	40max	60max	100max	120max	150max	150max	300max
	RIPPLE[mVp-p]	0 to +50℃ *1	80max	80max	120max	120max	120max	120max	150max	150max
		-20 - 0℃ *1	140max	140max	160max	160max	160max	160max	160max	400max
	RIPPLE NOISE[mVp-p]	0 to +50℃ *1	120max	120max	150max	150max	150max	150max	200max	200max
		-20 - 0℃ *1	160max	160max	180max	180max	180max	180max	240max	500max
	TEMPERATURE REGULATION[mV]	0 to +50℃	40max	50max	75max	120max	150max	240max	360max	480max
		-20 to +50℃	60max	75max	120max	180max	180max	290max	440max	600max
	DRIFT[mV]	*2	12max	20max	30max	48max	60max	96max	144max	192max
	START-UP TIME[ms]		600typ(ACIN 100/200V, Io=100%)							
HOLD-UP TIME[ms]		20typ (ACIN 100/200V, Io=100%)								
OUTPUT VOLTAGE ADJUSTMENT RANGE[V]		2.64 - 3.96	3.96 - 6.00	5.25 - 8.25	8.25 - 13.20	10.50 - 16.50	16.50 - 26.40	25.20 - 39.60	38.40 - 56.00	
OUTPUT VOLTAGE SETTING[V]		3.30 - 3.40	5.00 - 5.15	7.50 - 7.80	12.00 - 12.48	15.00 - 15.60	24.00 - 24.96	36.00 - 37.44	48.00 - 49.92	
PROTECTION CIRCUIT AND OTHERS	OVERCURRENT PROTECTION		Works over 105% of rated current or 101% of peak current and recovers automatically							
	OVERVOLTAGE PROTECTION[V] *4		Vo+0.66 - 1.32	Vo+1.0 - 2.0	Vo+1.5 - 3.0	Vo+2.4 - 4.8	Vo+3.0 - 6.0	Vo+4.8 - 9.6	Vo+7.2 - 14.4	Vo+4.8 - 12.0
	OPERATING INDICATION		LED (Green)							
	REMOTE SENSING		Provided							
	REMOTE ON/OFF		Provided							
ISOLATION	INPUT-OUTPUT · RC		AC3.000V 1minute, Cutoff current = 25mA, DC500V 50MΩmin (At Room Temperature)							
	INPUT-FG		AC2.000V 1minute, Cutoff current = 25mA, DC500V 50MΩmin (At Room Temperature)							
	OUTPUT · RC · AUX-FG		AC500V 1minute, Cutoff current = 100mA, DC500V 50MΩmin (At Room Temperature)							
	OUTPUT-RC · AUX		AC500V 1minute, Cutoff current = 100mA, DC500V 50MΩmin (At Room Temperature)							
ENVIRONMENT	OPERATING TEMP.,HUMID.AND ALTITUDE		-20 to +71℃ (Refer to "Derating"), 20 - 90%RH (Non condensing) 3.000m (10.000feet) max							
	STORAGE TEMP.,HUMID.AND ALTITUDE		-20 to +75℃, 20 - 90%RH (Non condensing) 9.000m (30.000feet) max							
	VIBRATION		10 - 55Hz, 19.6m/s² (2G), 3minutes period, 60minutes each along X, Y and Z axis							
	IMPACT		196.1m/s² (20G), 11ms, once each X, Y and Z axis							
SAFETY AND NOISE REGULATIONS	AGENCY APPROVALS (At only AC input)		UL60950-1, C-UL(CSA60950-1), EN60950-1, EN50178 Complies with DEN-AN							
	CONDUCTED NOISE		Complies with FCC Part15 classB, VCCI-B, CISPR22-B, EN55011-B, EN55022-B, additional EMI/EMC Filter required for meeting class B							
	HARMONIC ATTENUATOR		Complies with IEC61000-3-2 *7							
OTHERS	CASE SIZE/WEIGHT		178×61×268mm [7.01×2.4×10.55 inches] (without terminal block and screw) (W×H×D) /3.4kg max							
	COOLING METHOD		Forced cooling (internal fan)							

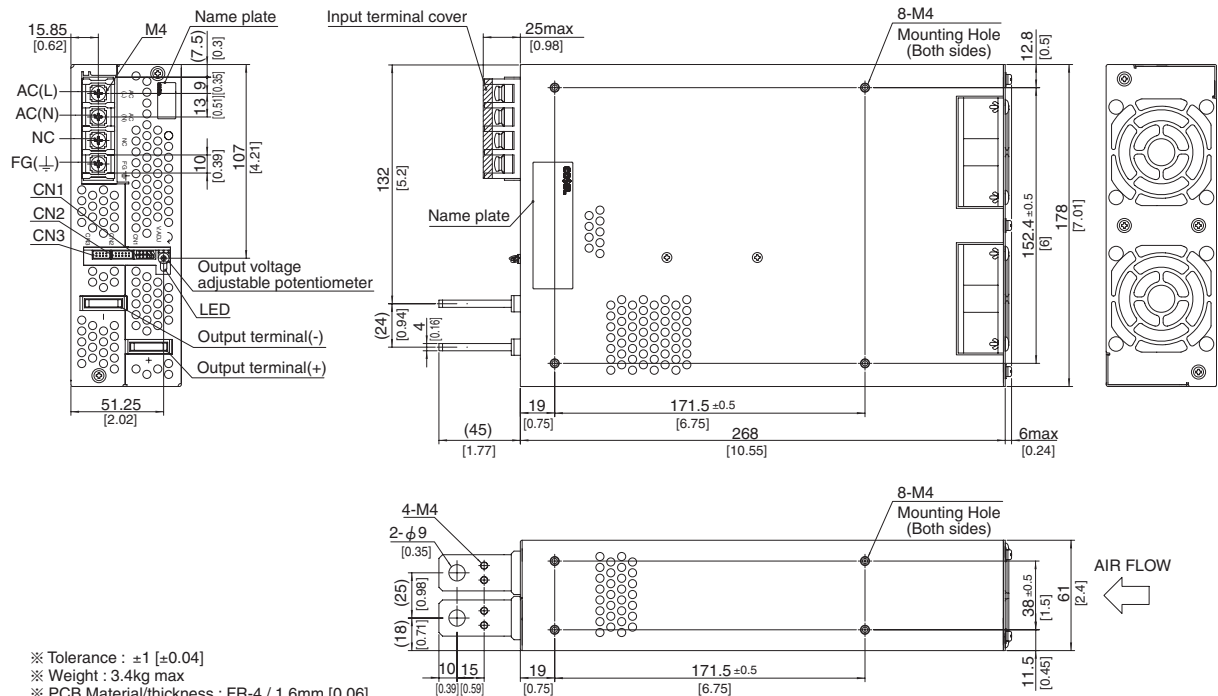
*1 Measured by 20MHz oscilloscope or Ripple-Noise meter (equivalent to KEISOKU-GIKEN :RM101).
Ripple and ripple noise is measured on measuring board with capacitor of 22 μF within 150mm from the output terminal.
*2 Drift is the change in DC output for an eight hour period after a half-hour warm-up at 25°C.
*3 () means peak current. Peak loading for 10s. And Duty 35% max, refer to Instruction manual in detail.

*4 Overvoltage protection circuit to follow to output voltage setting. Standard overvoltage protection circuit is please contact us for details.
*5 Derating is required. Consult us for details.
*6 Please contact us about safety approvals for the model with option.
*7 Please contact us about class C.
* A sound may occur from power supply at pulse loading.

Block diagram



External view

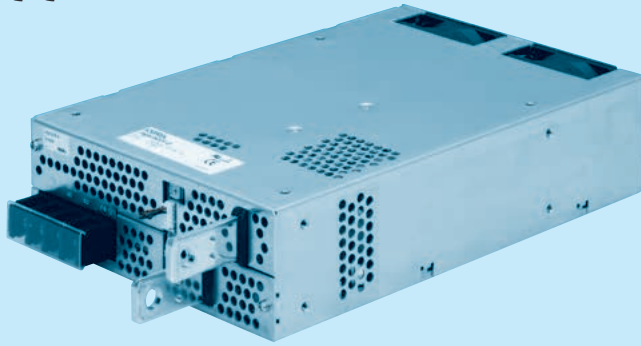
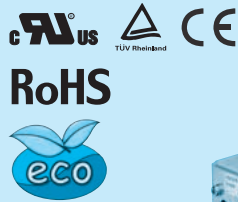


- ※ Tolerance : ±1 [±0.04]
 ※ Weight : 3.4kg max
 ※ PCB Material/thickness : FR-4 / 1.6mm [0.06]
 ※ Chassis material : Aluminum
 ※ Dimensions in mm, [] = inches
 ※ Mounting torque : 1.2N · m(12.8kgf · cm)/max
 ※ Screw tightening torque : 1.6N · m(16.9kgf · cm)max
 ※ The housing for the remote sensing unused is mounted on CN1
 ※ Please connect safety ground to FG terminal on the unit.

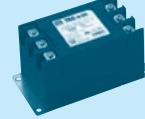
PBA1500T

PB A 1500 T -5 -□

① ② ③ ④ ⑤ ⑥



Example recommended EMI/EMC filter
TAC-10-683



* 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.

- ① Series name
- ② Single output
- ③ Output wattage
- ④ Triple input phase
- ⑤ Output voltage
- ⑥ Optional *6
- C :with Coating
- G :Low leakage current
- U :Operation stop voltage is set at a lower value
- F1 :With Long-Life fan
- F3 :Reverse air exhaust type
- F4 :Low speed fan

Refer to instruction manual 7.1.

*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	PBA1500T-5	PBA1500T-12	PBA1500T-24	PBA1500T-48
MAX OUTPUT WATTAGE[W]	1500	1500	1680	1680
DC OUTPUT	ACIN 200V *3 5V 300A	12V 125A	24V 70(105)A	48V 35A

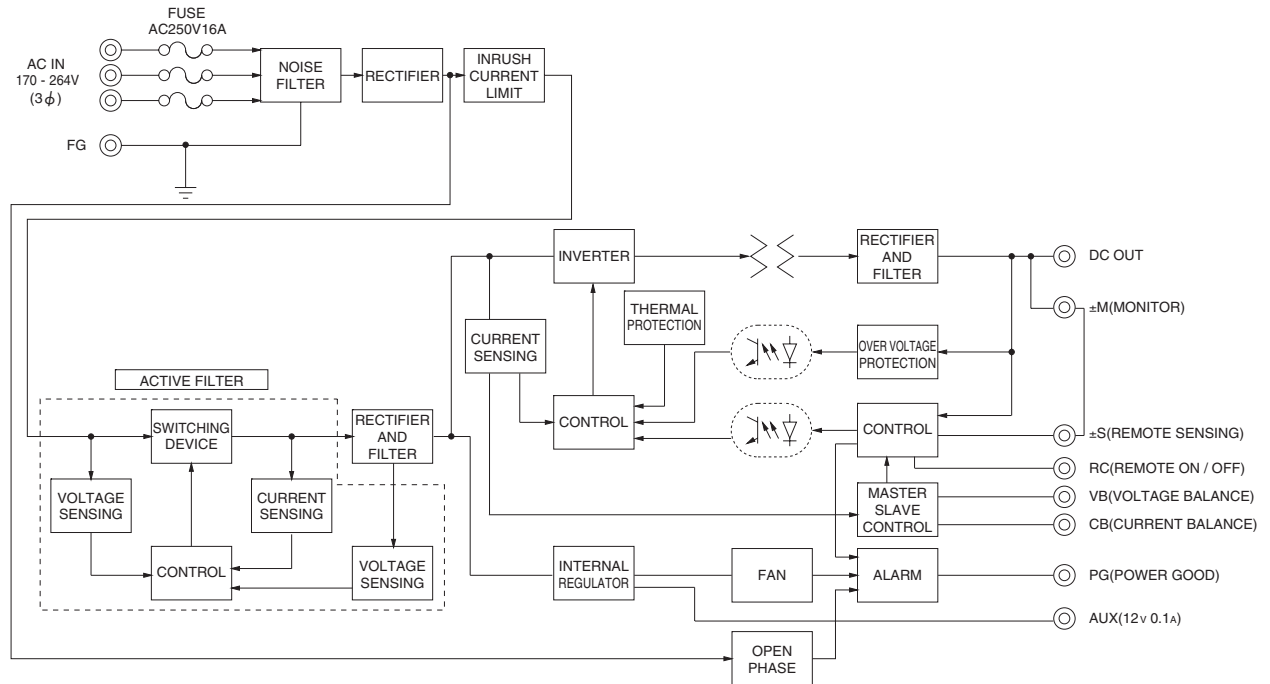
SPECIFICATIONS

	MODEL	PBA1500T-5	PBA1500T-12	PBA1500T-24	PBA1500T-48
INPUT	VOLTAGE[V]	AC170 - 264 3φ (AC100 Please refer to the instruction manual 7. option *5)			
	CURRENT[A]	ACIN 200V 6typ			
	FREQUENCY[Hz]	50/60 (47 - 63)			
	EFFICIENCY[%]	ACIN 200V 81typ	84typ	87typ	87typ
	POWER FACTOR	ACIN 200V 0.95typ (Io=100%)			
	INRUSH CURRENT[A]	ACIN 200V 40/40typ (Io=100%) (Primary inrush current /Secondary inrush current) (More than 10 sec. to re-start)			
OUTPUT	LEAKAGE CURRENT[mA]	1.5max (ACIN 240V 60Hz, Io=100%, According to IEC60950-1, DENAN)			
	VOLTAGE[V]	5	12	24	48
	CURRENT[A]	ACIN 200V *3 300	125	70(105)	35
	LINE REGULATION[mV]	20max	48max	96max	192max
	LOAD REGULATION[mV]	40max	100max	150max	300max
	RIPPLE[mVp-p]	0 to +50°C *1 80max -20 - 0°C *1 140max	120max 160max	120max 160max	150max 400max
	RIPPLE NOISE[mVp-p]	0 to +50°C *1 120max -20 - 0°C *1 160max	150max 180max	150max 180max	200max 500max
	TEMPERATURE REGULATION[mV]	0 to +50°C 50max -20 to +50°C 75max	120max 180max	240max 290max	480max 600max
	DRIFT[mV]	*2 20max	48max	96max	192max
	START-UP TIME[ms]	300typ(ACIN 200V, Io=100%) * Start-up time is 500ms typ for less than 1 minute of applying input again from turning off the input voltage.			
	HOLD-UP TIME[ms]	20typ (ACIN 200V, Io=100%)			
	OUTPUT VOLTAGE ADJUSTMENT RANGE[V]	3.96 - 6.00	8.25 - 13.20	16.50 - 26.40	38.40 - 56.00
PROTECTION CIRCUIT AND OTHERS	OUTPUT VOLTAGE SETTING[V]	5.00 - 5.15	12.00 - 12.48	24.00 - 24.96	48.00 - 49.92
	OVERCURRENT PROTECTION	Works over 105% of rated current or 101% of peak current and recovers automatically			
	OVERVOLTAGE PROTECTION[V] *4	Vo+1.0 - 2.0	Vo+2.4 - 4.8	Vo+4.8 - 9.6	Vo+2.0 - 12.0
	OPERATING INDICATION	LED (Green)			
ISOLATION	REMOTE SENSING	Provided			
	REMOTE ON/OFF	Provided			
	INPUT-OUTPUT · RC	AC3,000V 1minute, Cutoff current = 25mA, DC500V 50MΩmin (At Room Temperature)			
	INPUT-FG	AC2,000V 1minute, Cutoff current = 25mA, DC500V 50MΩmin (At Room Temperature)			
ENVIRONMENT	OUTPUT · RC · AUX-FG	AC500V 1minute, Cutoff current = 100mA, DC500V 50MΩmin (At Room Temperature)			
	OUTPUT-RC · AUX	AC500V 1minute, Cutoff current = 100mA, DC500V 50MΩmin (At Room Temperature)			
	OPERATING TEMP., HUMID. AND ALTITUDE	-20 to +71°C (Refer to "Derating"), 20 - 90%RH (Non condensing) 3,000m (10,000feet) max			
	STORAGE TEMP., HUMID. AND ALTITUDE	-20 to +75°C, 20 - 90%RH (Non condensing) 9,000m (30,000feet) max			
SAFETY AND NOISE REGULATIONS	VIBRATION	10 - 55Hz, 19.6m/s ² (2G), 3minutes period, 60minutes each along X, Y and Z axis			
	IMPACT	196.1m/s ² (20G), 11ms, once each X, Y and Z axis			
	AGENCY APPROVALS (At only AC input)	UL60950-1, C-UL(CSA60950-1), EN60950-1, EN50178 Complies with DEN-AN			
	CONDUCTED NOISE	Complies with FCC Part15 classB, VCCI-B, CISPR22-B, EN55011-B, EN55022-B, additional EMI/EMC Filter required for meeting class B			
OTHERS	CASE SIZE/WEIGHT	178×61×268mm [7.01×2.4×10.55 inches] (without terminal block and screw) (W×H×D) /3.4kg max			
	COOLING METHOD	Forced cooling (internal fan)			

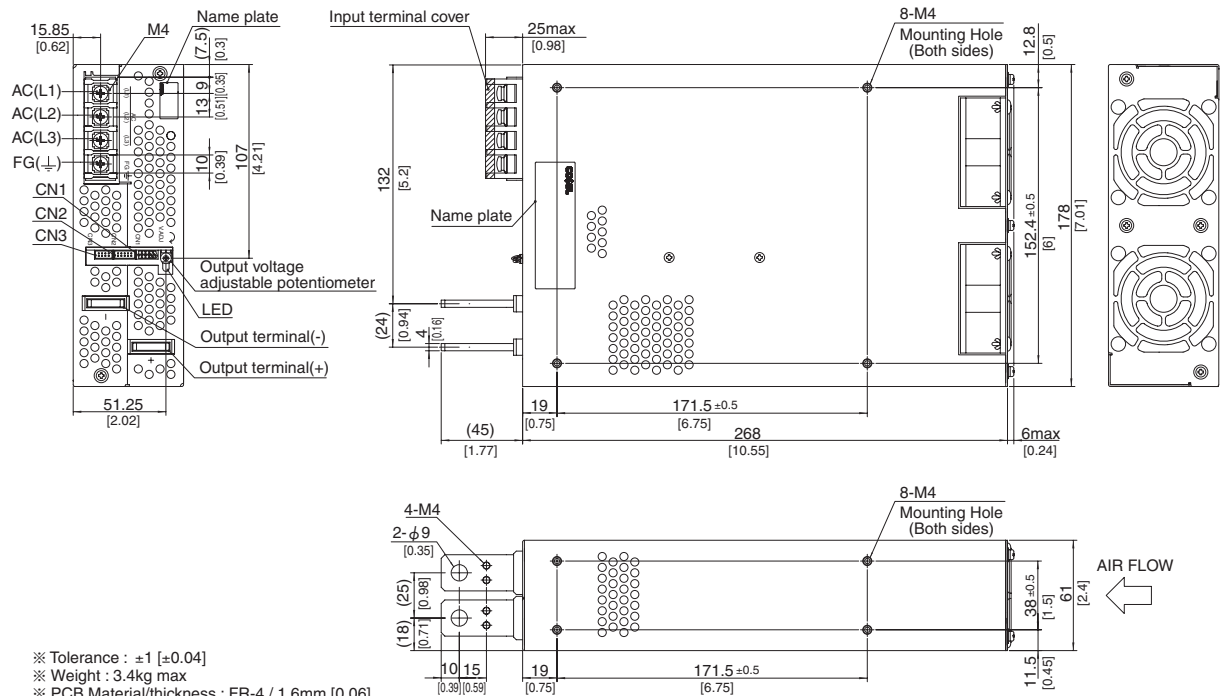
*1 Measured by 20MHz oscilloscope or Ripple-Noise meter(equivalent to KEISOKU-GIKEN :RM101).
Ripple and ripple noise is measured on measuring board with capacitor of 22 μF within 150mm from the output terminal.
*2 Drift is the change in DC output for an eight hour period after a half-hour warm-up at 25°C.
*3 () means peak current. Peak loading for 10s. And Duty 35% max, refer to Instruction manual in detail.

*4 Overvoltage protection circuit to follow to output voltage setting. Standard overvoltage protection circuit is please contact us for details.
*5 Derating is required. Consult us for details.
*6 Please contact us about safety approvals for the model with option.
* A sound may occur from power supply at pulse loading.

Block diagram



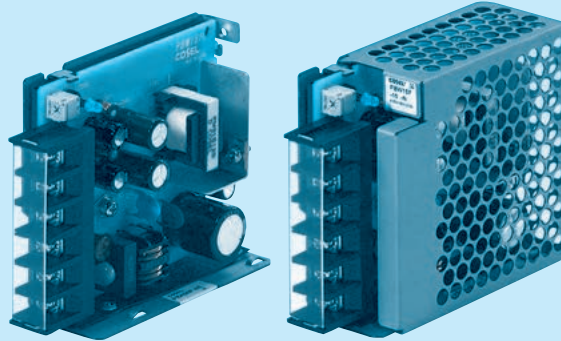
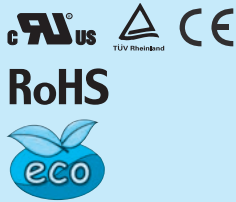
External view



- ※ Tolerance : ± 1 [± 0.04]
- ※ Weight : 3.4kg max
- ※ PCB Material/thickness : FR-4 / 1.6mm [0.06]
- ※ Chassis material : Aluminum
- ※ Dimensions in mm, [] = inches
- ※ Mounting torque : 1.2N • m (12.8kgf • cm) max
- ※ Screw tightening torque : 1.6N • m (16.9kgf • cm) max
- ※ The housing for the remote sensing unused is mounted on CN1
- ※ Please connect safety ground to unit in M4 holes.

PBW15F

PB W 15 F - -



Example recommended EMI/EMC filter
NAC-06-472



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.

- ① Series name
- ② Dual output
- ③ Output wattage
- ④ Universal input
- ⑤ Output voltage
- ⑥ Optional *10
- C : with Coating
- G : Low leakage current

E : Low leakage current and EMI class A

T : Vertical terminal block
J1 : VH (J.S.T.) connector type
N : with Cover
NI : with DIN rail
V : Output voltage setting potentiometer externally

Cover is optional

* 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	PBW15F-12	PBW15F-15
MAX OUTPUT WATTAGE[W]	16.8	15.0
DC OUTPUT	VOLTAGE[V] ± 12 (+24) CURRENT1[A] 0.7 CURRENT2[A] 1.4	± 15 (+30) 0.5 1.0

SPECIFICATIONS

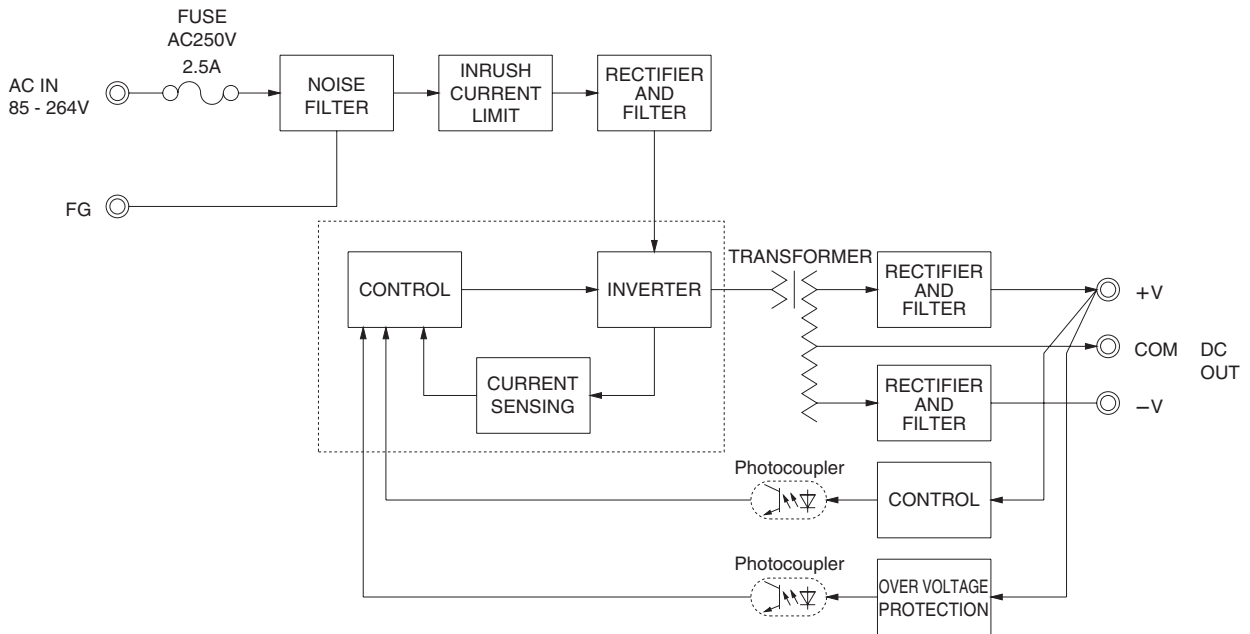
	MODEL	PBW15F-12	PBW15F-15
INPUT	VOLTAGE[V]	AC85 - 264 1 ϕ or DC110 - 370 (AC50 or DC70 Please refer to the instruction manual 1.1 Input voltage *8)	
	CURRENT[A]	ACIN 100V 0.40typ (CURRENT1) ACIN 200V 0.20typ (CURRENT1)	
	FREQUENCY[Hz]	50/60 (47 - 440) or DC	
	EFFICIENCY[%]	ACIN 100V 74typ (CURRENT1) ACIN 200V 77typ (CURRENT1)	78typ (CURRENT1) 80typ (CURRENT1)
	INRUSH CURRENT[A]	ACIN 100V 15typ (CURRENT1) (At cold start) ACIN 200V 30typ (CURRENT1) (At cold start)	
	LEAKAGE CURRENT[mA]	0.15/0.30max (ACIN 100V/240V 60Hz, $I_o=100\%$, According to IEC60950-1.DENAN)	
OUTPUT	VOLTAGE[V]	± 12 / (+24V reference number)	± 15 / (+30V reference number)
	CURRENT1[A]	0.7 / 0.7	0.5 / 0.5
	CURRENT2[A]	1.4 / -	1.0 / -
	LINE REGULATION[mV]	60max / 96max	60max / 96max
	LOAD REGULATION 1[mV]	600max / 150max	600max / 150max
	LOAD REGULATION 2[mV]	750max / -	750max / -
	RIPPLE [mVp-p]	0 to +50°C 120max / 240max -10 - 0°C 160max / 320max	120max / 240max 160max / 320max
	RIPPLE NOISE [mVp-p]	0 to +50°C 150max / 300max -10 - 0°C 180max / 360max	150max / 300max 180max / 360max
	TEMPERATURE REGULATION[mV]	0 to +50°C 120max -10 to +50°C 150max	150max 180max
	DRIFT[mV]	48max	60max
	START-UP TIME[ms]	200typ (ACIN 100V, $I_o=100\%$) *Start-up time is 700ms typ for less than 1minute of applying input again from turning off the input voltage.	
	HOLD-UP TIME[ms]	20typ (ACIN 100V, $I_o=100\%$)	
PROTECTION CIRCUIT AND OTHERS	OUTPUT VOLTAGE ADJUSTMENT RANGE[V]	9.60 - 13.2 (+V and -V are simultaneously adjusted)	13.2 - 16.5 (+V and -V are simultaneously adjusted)
	OUTPUT VOLTAGE SETTING[V]	11.5 - 12.5 (+V and -V CURRENT1)	14.4 - 15.6 (+V and -V CURRENT1)
	OVERCURRENT PROTECTION	Works over 105% of rated current and recovers automatically	
	OVERVOLTAGE PROTECTION[V]	16.8 - 24.0	20.0 - 29.0
ISOLATION	OPERATING INDICATION	LED (Green)	
	REMOTE ON/OFF	None	
	INPUT-OUTPUT	AC3,000V 1minute, Cutoff current = 10mA, DC500V 50M Ω min (At Room Temperature)	
ENVIRONMENT	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	-10 to +71°C (Refer to "Derating"), 20 - 90%RH (Non condensing) 3,000m (10,000feet) max	
SAFETY AND NOISE REGULATIONS	STORAGE TEMP., HUMID. AND ALTITUDE	-20 to +75°C, 20 - 90%RH (Non condensing) 9,000m (30,000feet) max	
	VIBRATION	10 - 55Hz, 19.6m/s ² (2G), 3minutes period, 60minutes each along X, Y and Z axis	
	IMPACT	196.1m/s ² (20G), 11ms, once each X, Y and Z axis	
OTHERS	AGENCY APPROVALS (At only AC input)	UL60950-1, C-UL(CSA60950-1), EN60950-1, EN50178 Complies with DEN-AN	
	CONDUCTED NOISE	Complies with FCC Part15 classB, VCCI-B, CISPR22-B, EN55011-B, EN55022-B	
	HARMONIC ATTENUATOR	Complies with IEC61000-3-2 (Not built-in to active filter *7) *12	
OTHERS	CASE SIZE/WEIGHT	31 X 78 X 85mm [1.22 X 3.07 X 3.35 inches] (without terminal block) (W X H X D) / 200g max (with cover : 235g max)	
	COOLING METHOD	Convection	

- *1 Measured by 20MHz oscilloscope or Ripple-Noise meter (equivalent to KEISOKU-GIKEN : RM101).
- *2 Drift is the change in DC output for an eight hour period after a half-hour warm-up at 25°C.
- *3 Figures for 0 to rated current 1. The current not measured side is fixed.
- *4 Figures for 0 to rated current 2. The current not measured

- side is fixed.
- *5 The sum of +power -power must be less than output power.
- *6 $\pm 12, \pm 15$ can be used as +24 and +30.
- *7 When two or more units are used, they may not comply with the harmonic attenuator. Please contact us for details.
- *8 Derating is required.
- *9 Figures to rated current 1.

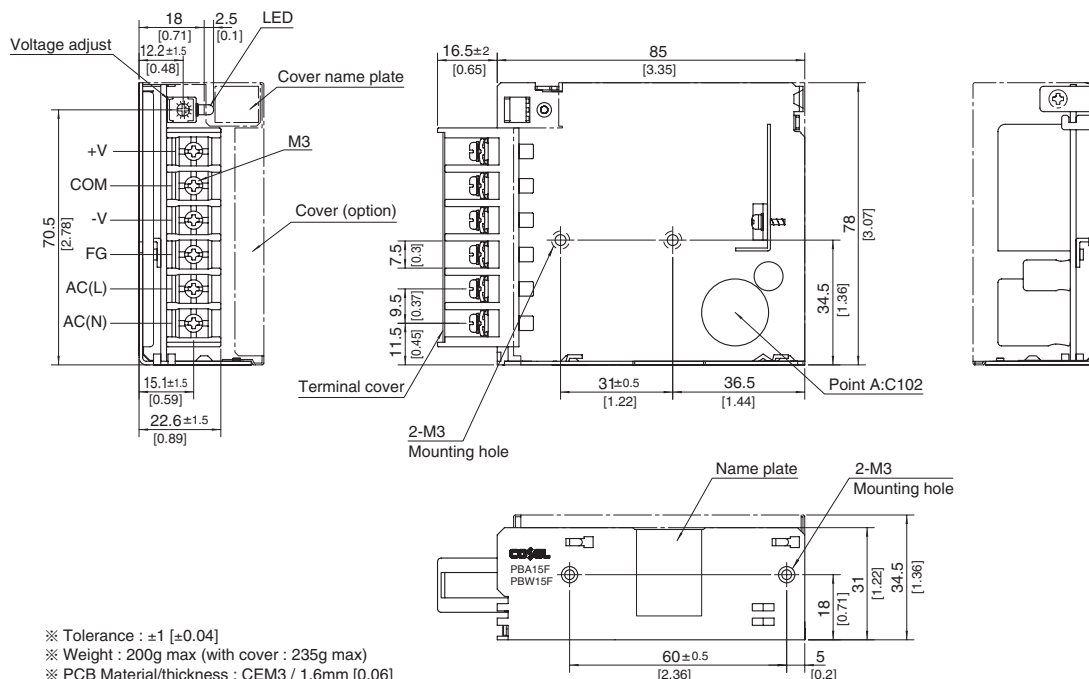
- *10 Please contact us about safety approvals for the model with option.
- *11 Please contact us about dynamic load and input response.
- *12 Please contact us about class C.
- * Parallel operation with other model is not possible.
- * Derating is required when operated with cover.
- * A sound may occur from power supply at peak loading.

Block diagram



External view

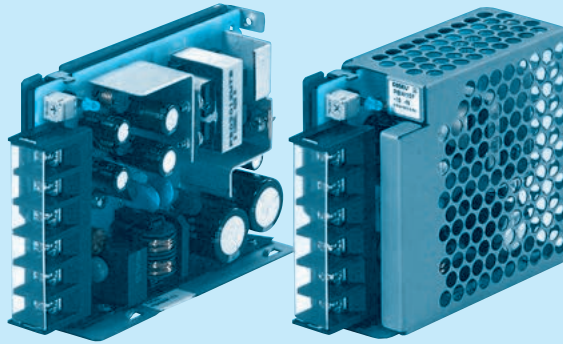
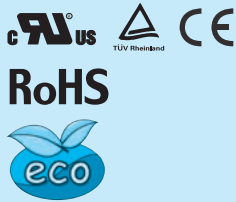
※ External size of option T, J1, N1 and V is different from standard model and refer to 7 Option of instruction manual for details.



- ※ Tolerance : ± 1 [± 0.04]
- ※ Weight : 200g max (with cover : 235g max)
- ※ PCB Material/thickness : CEM3 / 1.6mm [0.06]
- ※ Chassis material : Electric galvanizing steel board
- ※ Dimensions in mm, [] = inches
- ※ Mounting torque : 0.6N • m (6.3kgf • cm) max
- ※ Screw tightening torque : M3 0.8N • m (8.5kgf • cm) max
- ※ Please connect safety ground to the unit in 2-M3 holes.

PBW30F

PB W 30 F - -



Example recommended EMI/EMC filter
NAC-06-472



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.

- ① Series name
- ② Dual output
- ③ Output wattage
- ④ Universal input
- ⑤ Output voltage
- ⑥ Optional *10
- C : with Coating
- G : Low leakage current

E : Low leakage current and EMI class A

T : Vertical terminal block
J1 : V.H (J.S.T.) connector type
N : with Cover
N1 : with DIN rail
V : Output voltage setting potentiometer externally

Cover is optional

*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	PBW30F-5	PBW30F-12	PBW30F-15
MAX OUTPUT WATTAGE[W]	15	31.2	30.0
VOLTAGE[V]	±5 (+10)	±12 (+24)	±15 (+30)
DC OUTPUT	CURRENT1[A] 1.5	1.3	1.0
	CURRENT2[A] 2.0	1.7	1.4

SPECIFICATIONS

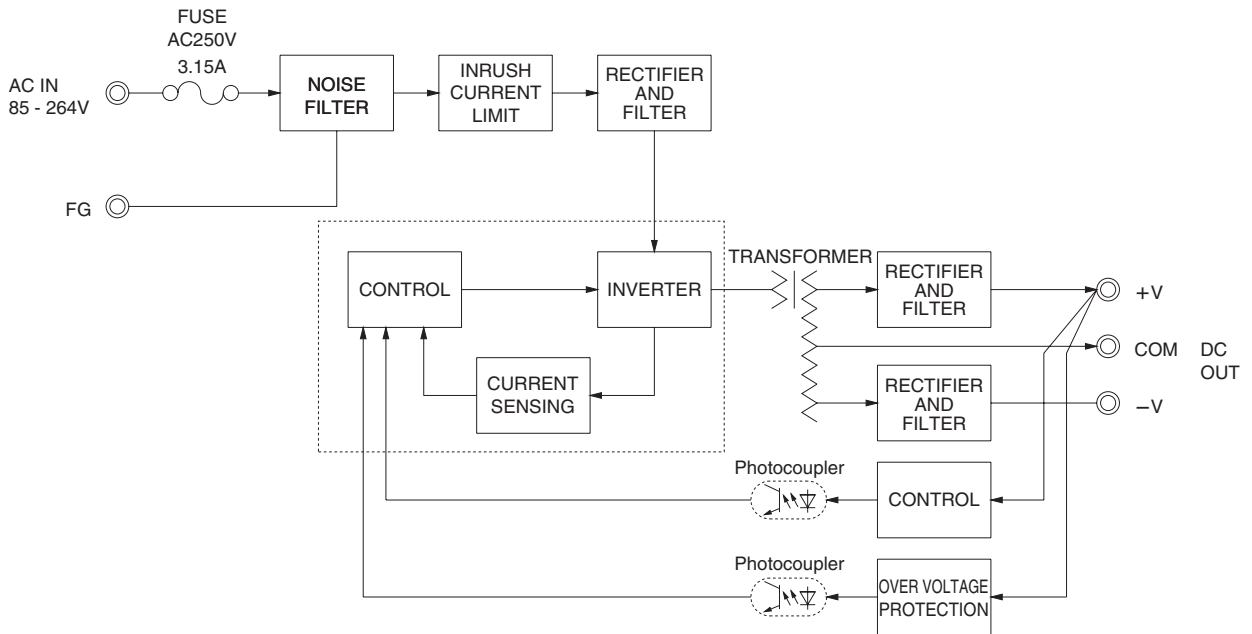
MODEL	PBW30F-5	PBW30F-12	PBW30F-15
VOLTAGE[V]	AC85 - 264 1 φ or DC110 - 370 (AC50 or DC70 Please refer to the instruction manual 1.1 Input voltage *8)		
CURRENT[A]	ACIN 100V 0.4typ (CURRENT1)	0.7typ (CURRENT1)	
	ACIN 200V 0.25typ (CURRENT1)	0.4typ (CURRENT1)	
FREQUENCY[Hz]	50/60 (47 - 440) or DC		
EFFICIENCY[%]	ACIN 100V 75typ (CURRENT1)	77typ (CURRENT1)	78typ (CURRENT1)
	ACIN 200V 75typ (CURRENT1)	81typ (CURRENT1)	79typ (CURRENT1)
INRUSH CURRENT[A]	ACIN 100V 15typ (CURRENT1) (At cold start)		
	ACIN 200V 30typ (CURRENT1) (At cold start)		
LEAKAGE CURRENT[mA]	0.30/0.65max (ACIN 100V/240V 60Hz, Io=100%, According to IEC60950-1.DENAN)		
VOLTAGE[V]	±5 (/ +10V reference number)	±12 (/ +24V reference number)	±15 (/ +30V reference number)
CURRENT1[A]	1.5 (/ 1.5)	1.3 (/ 1.3)	1.0 (/ 1.0)
CURRENT2[A]	2.0 (/ -)	1.7 (/ -)	1.4 (/ -)
LINE REGULATION[mV]	20max (/ 36max)	60max (/ 96max)	60max (/ 96max)
LOAD REGULATION 1[mV]	250max (/ 100max)	600max (/ 150max)	600max (/ 150max)
LOAD REGULATION 2[mV]	500max (/ -)	750max (/ -)	750max (/ -)
RIPPLE[mVp-p]	0 to +50°C 80max (/ 240max)	120max (/ 240max)	120max (/ 240max)
	-10 - 0°C 140max (/ 320max)	160max (/ 320max)	160max (/ 320max)
RIPPLE NOISE[mVp-p]	0 to +50°C 120max (/ 300max)	150max (/ 300max)	150max (/ 300max)
	-10 - 0°C 160max (/ 360max)	180max (/ 360max)	180max (/ 360max)
TEMPERATURE REGULATION[mV]	0 to +50°C 50max	120max	150max
	-10 to +50°C 60max	150max	180max
DRIFT[mV]	20max	48max	60max
START-UP TIME[ms]	200typ(ACIN 100V, Io=100%) *Start-up time is 700ms typ for less than 1minute of applying input again from turning off the input voltage.		
HOLD-UP TIME[ms]	20typ (ACIN 100V, Io=100%)		
OUTPUT VOLTAGE ADJUSTMENT RANGE[V]	4.99 - 6.00 (+V and -V are simultaneously adjusted)	9.60 - 13.2 (+V and -V are simultaneously adjusted)	13.2 - 16.5 (+V and -V are simultaneously adjusted)
OUTPUT VOLTAGE SETTING[V]	4.99 - 5.30 (+V and -V CURRENT1)	11.5 - 12.5 (+V and -V CURRENT1)	14.4 - 15.6 (+V and -V CURRENT1)
OVERCURRENT PROTECTION	Works over 105% of rated current and recovers automatically		
OVERVOLTAGE PROTECTION[V]	6.90 - 10.0	16.8 - 24.0	20.0 - 29.0
OPERATING INDICATION	LED (Green)		
REMOTE ON/OFF	None		
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 = 25mA, DC500V 50MΩ min (At Room Temperature)		
OPERATING TEMP.,HUMID.AND ALTITUDE	-10 to +71°C (Refer to "Derating"), 20 - 90%RH (Non condensing) 3,000m (10,000feet) max		
STORAGE TEMP.,HUMID.AND ALTITUDE	-20 to +75°C, 20 - 90%RH (Non condensing) 9,000m (30,000feet) max		
VIBRATION	10 - 55Hz, 19.6m/s ² (2G), 3minutes period, 60minutes each along X, Y and Z axis		
IMPACT	196.1m/s ² (20G), 11ms, once each X, Y and Z axis		
AGENCY APPROVALS (At only AC input)	UL60950-1, C-UL(CSA60950-1), EN60950-1, EN50178 Complies with DEN-AN		
CONDUCTED NOISE	Complies with FCC Part15 classB, VCCI-B, CISPR22-B, EN55011-B, EN55022-B		
HARMONIC ATTENUATOR	Complies with IEC61000-3-2 (Not built-in to active filter *7) *12		
CASE SIZE/WEIGHT	31 x 78 x 103mm [1.22 x 3.07 x 4.06 inches] (without terminal block) (W x H x D) / 270g max (with cover : 310g max)		
COOLING METHOD	Convection		

- *1 Measured by 20MHz oscilloscope or Ripple-Noise meter(equivalent to KEISOKU-GIKEN : RM101).
- *2 Drift is the change in DC output for an eight hour period after a half-hour warm-up at 25°C.
- *3 Figures for 0 to rated current 1.The current not measured side is fixed.
- *4 Figures for 0 to rated current 2.The current not measured

- side is fixed.
- *5 The sum of +power -power must be less than output power.
- *6 ±5, ±12, ±15 can be used as +10, +24 and +30.
- *7 When two or more units are used, they may not comply with the harmonic attenuator. Please contact us for details.
- *8 Derating is required.
- *9 Figures to rated current 1.

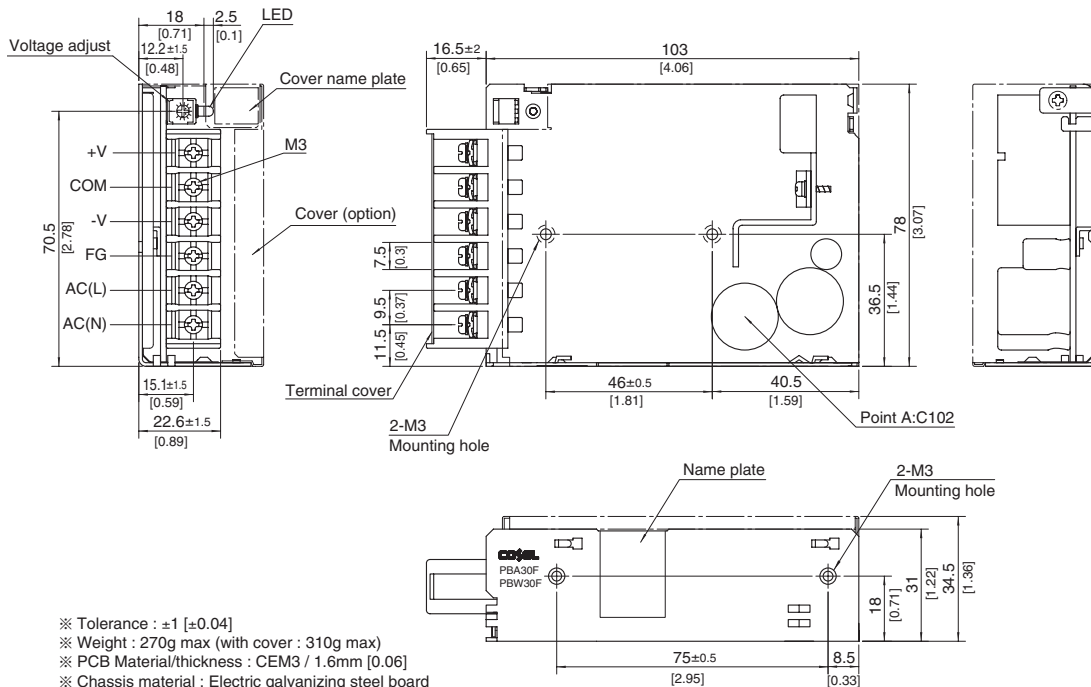
- *10 Please contact us about safety approvals for the model with option.
- *11 Please contact us about dynamic load and input response.
- *12 Please contact us about class C.
- * Parallel operation with other model is not possible.
- * Derating is required when operated with cover.
- * A sound may occur from power supply at peak loading.

Block diagram



External view

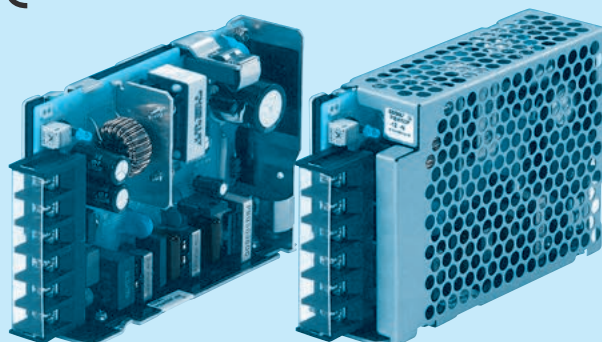
※ External size of option T, J1, N1 and V is different from standard model and refer to 7 Option of instruction manual for details.



PBW50F

PB W 50 F -□ -□

① ② ③ ④ ⑤ ⑥



Example recommended EMI/EMC filter
NAC-06-472



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.

Cover is optional

- ① Series name
② Dual output
③ Output wattage
④ Universal input
⑤ Output voltage
⑥ Optional *9
C : with Coating
G : Low leakage current
(0.15mA max / ACIN 240V)
E : Low leakage current
and EMI class A
(0.5mA max / ACIN 240V)
T : Vertical terminal block
J1 : V.H (J.S.T.) connector type
R : with Remote ON/OFF
N : with Cover
Nt : with DIN rail
V : Output voltage setting
potentiometer external-ly

*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	PBW50F-5	PBW50F-12	PBW50F-15
MAX OUTPUT WATTAGE[W]	30	50.4	51
VOLTAGE[V]	±5 (+10)	±12 (+24)	±15 (+30)
DC OUTPUT	CURRENT1[A]	2.1	1.7
	CURRENT2[A]	2.7	2.4

SPECIFICATIONS

	MODEL	PBW50F-5	PBW50F-12	PBW50F-15
INPUT	VOLTAGE[V]	AC85 - 264 1φ or DC120 - 370 (AC50 or DC70 Please refer to the instruction manual 1.1 Input voltage *3)		
	CURRENT[A]	ACIN 100V 0.45typ (CURRENT1)	0.70typ (CURRENT1)	
		ACIN 200V 0.30typ (CURRENT1)	0.40typ (CURRENT1)	
	FREQUENCY[Hz]	50/60 (47 - 63)		
	EFFICIENCY[%]	ACIN 100V 76typ (CURRENT1)	81typ (CURRENT1)	81typ (CURRENT1)
		ACIN 200V 77typ (CURRENT1)	83typ (CURRENT1)	83typ (CURRENT1)
	POWER FACTOR(lo=100%)	ACIN 100V 0.98typ	0.99typ	
OUTPUT		ACIN 200V 0.87typ	0.93typ	
	INRUSH CURRENT[A]	ACIN 100V 15typ (CURRENT1) (At cold start)		
		ACIN 200V 30typ (CURRENT1) (At cold start)		
	LEAKAGE CURRENT[mA]	0.40/0.75max (ACIN 100V/240V 60Hz, lo=100%, According to IEC60950-1.DENAN)		
	VOLTAGE[V]	±5 / (+10V reference number)	±12 / (+24V reference number)	±15 / (+30V reference number)
	CURRENT1[A]	3.0 / 3.0	2.1 / 2.1	1.7 / 1.7
	CURRENT2[A]	4.0 / -	2.7 / -	2.4 / -
PROTECTION CIRCUIT AND OTHERS	LINE REGULATION[mV]	20max / 36max	48max / 96max	60max / 96max
	LOAD REGULATION 1[mV]	250max / 100max	600max / 150max	600max / 150max
	LOAD REGULATION 2[mV]	500max / -	750max / -	750max / -
	RIPPLE[mVp-p]	0 to +50°C 80max / 240max	120max / 240max	120max / 240max
		-10 - 0°C 140max / 320max	160max / 320max	160max / 320max
	RIPPLE NOISE[mVp-p]	0 to +50°C 120max / 300max	150max / 300max	150max / 300max
		-10 - 0°C 160max / 360max	180max / 360max	180max / 360max
	TEMPERATURE REGULATION[mV]	0 to +50°C 50max	120max	150max
		-10 to +50°C 60max	150max	180max
	DRIFT[mV]	20max	48max	60max
ISOLATION	START-UP TIME[ms]	350typ (ACIN 100V, lo=100%)		
	HOLD-UP TIME[ms]	20typ (ACIN 100V, lo=100%)		
	OUTPUT VOLTAGE ADJUSTMENT RANGE[V]	4.99 - 6.00 (+V and -V are simultaneously adjusted)	9.60 - 13.2 (+V and -V are simultaneously adjusted)	13.2 - 16.5 (+V and -V are simultaneously adjusted)
	OUTPUT VOLTAGE SETTING[V]	4.99 - 5.30 (+V and -V CURRENT1)	11.5 - 12.5 (+V and -V CURRENT1)	14.4 - 15.6 (+V and -V CURRENT1)
	OVERCURRENT PROTECTION	Works over 105% of rated current and recovers automatically		
	OVERVOLTAGE PROTECTION[V]	6.90 - 10.0	16.8 - 24.0	20.0 - 29.0
	OPERATING INDICATION	LED (Green)		
	REMOTE ON/OFF	Optional (Required external power source)		
	INPUT-OUTPUT · RC	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)		
ENVIRONMENT	OUTPUT · RC-FG	AC500V 1minute, Cutoff current = 100mA, DC500V 50MΩ min (At Room Temperature)		
	OPERATING TEMP., HUMID. AND ALTITUDE	-10 to +71°C (Refer to "Derating"), 20 - 90%RH (Non condensing) 3,000m (10,000feet) max		
	STORAGE TEMP., HUMID. AND ALTITUDE	-20 to +75°C, 20 - 90%RH (Non condensing) 9,000m (30,000feet) max		
	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 (At only AC input)	UL60950-1, C-UL(CSA60950-1), EN60950-1, EN50178 Complies with DEN-AN		
	CONDUCTED NOISE	Complies with FCC Part15 classB, VCCI-B, CISPR22-B, EN55011-B, EN55022-B		
	HARMONIC ATTENUATOR	Complies with IEC61000-3-2 *10		
OTHERS	CASE SIZE/WEIGHT	31 x 82 x 120mm [1.22 x 3.23 x 4.72 inches] (without terminal block) (W x H x D) / 280g max (with cover : 325g max)		
	COOLING METHOD	Convection		

*1 Measured by 20MHz oscilloscope or Ripple-Noise meter (equivalent to KEISOKU-GIKEN : RM101).

*2 Drift is the change in DC output for an eight hour period after a half-hour warm-up at 25°C.

*3 Derating is required.

*4 Figures for 0 to rated current 1. The current not measured side is fixed.

*5 Figures for 0 to rated current 2. The current not measured side is fixed.

*6 The sum of +power -power must be less than output power.

*7 RC is applied to remote ON/OFF option. RC is isolated with input/output and FG.

*8 ±5, ±12, ±15 can be used as +10, +24 and +30.

*9 Please contact us about safety approvals for the model with option.

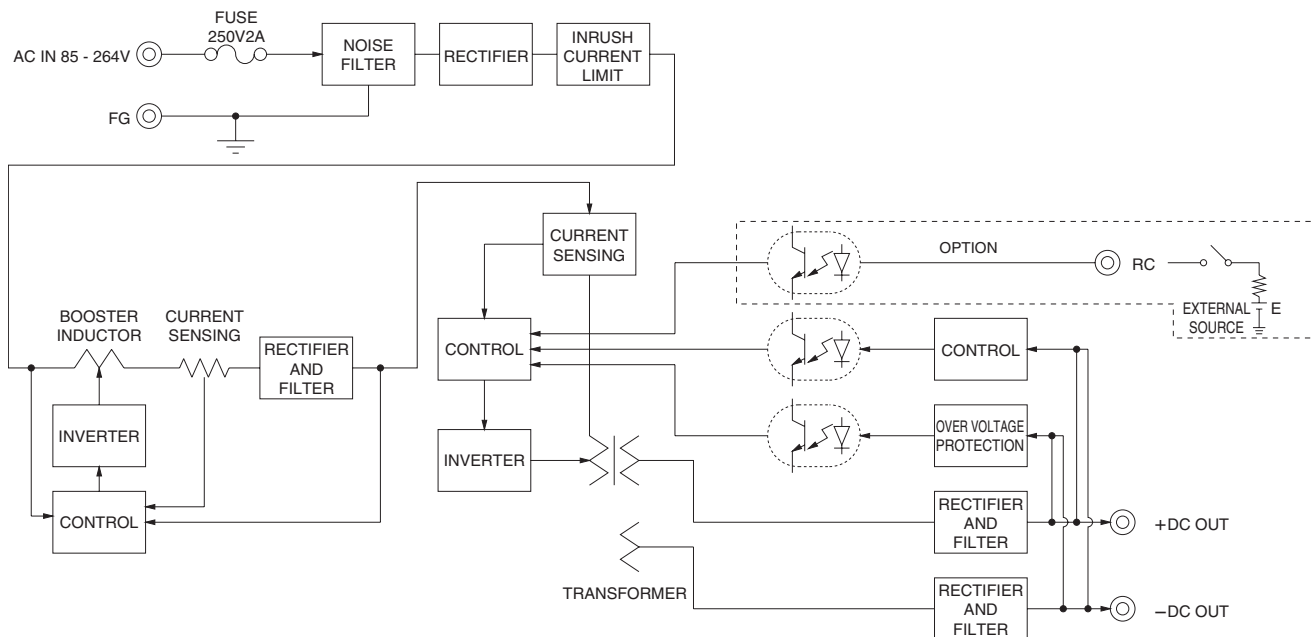
*10 Please contact us about class C.

* Parallel operation with other model is not possible.

* Derating is required when operated with cover.

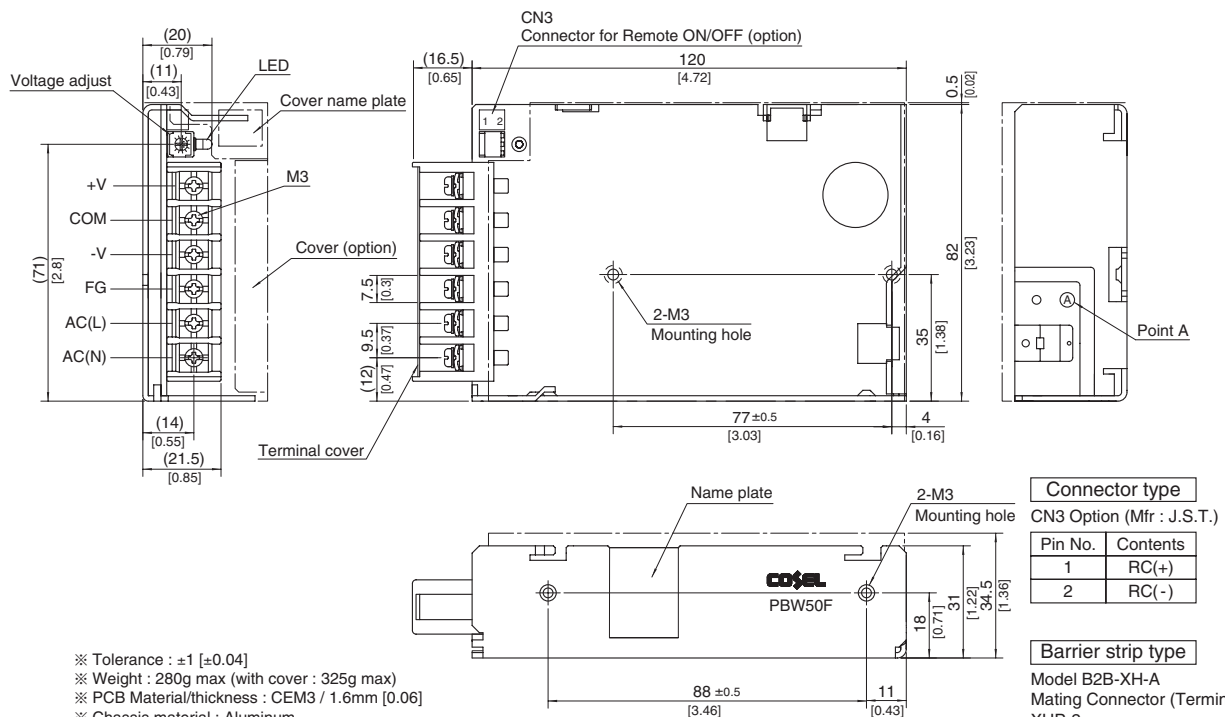
* A sound may occur from power supply at peak loading.

Block diagram



External view

※ External size of option T,J1,R,N1 and V is different from standard model and refer to 7 Option of instruction manual for details.

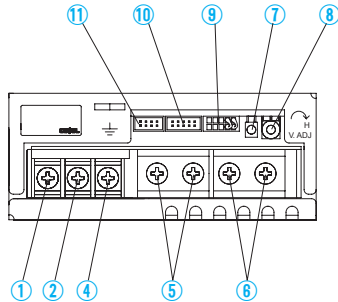


※ Tolerance : ± 1 [± 0.04]
 ※ Weight : 280g max (with cover : 325g max)
 ※ PCB Material/thickness : CEM3 / 1.6mm [0.06]
 ※ Chassis material : Aluminum
 ※ Dimensions in mm, [] = inches
 ※ Mounting torque : 0.49N • m (5kgf • cm) max
 ※ Screw tightening torque : M3 0.8N • m (8.5kgf • cm) max
 ※ Please connect safety ground to the unit in 2-M3 holes.

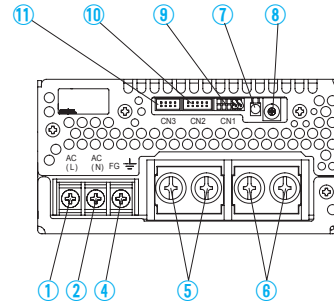
Terminal Blocks

* The following information covers PBA300F - 1500F. Please see External View for PBA10F - 150F and PBW15F - 50F.

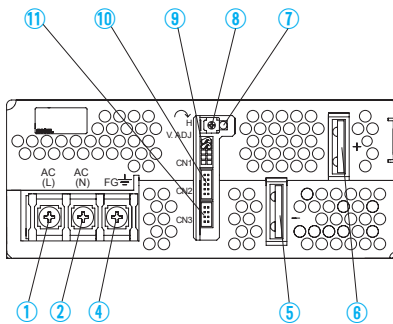
● PBA300F



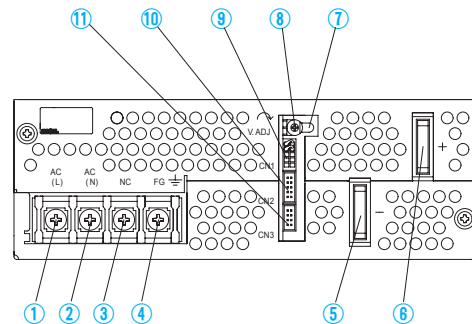
● PBA600F



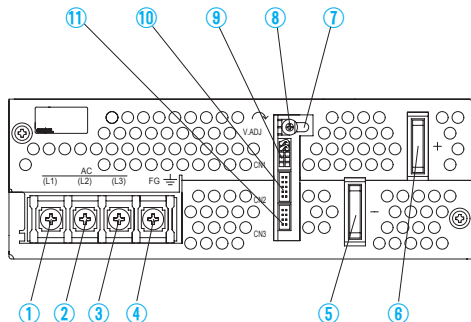
● PBA1000F



● PBA1500F



● PBA1500T



*PBA300F - 1500F

- ① AC (L) } Input Terminals AC85 - 264V ϕ 47 - 63Hz
- ② AC (N) } (M4)
- ③ NC
- ④ Frame ground (M4 \perp)
- ⑤ -Output
- ⑥ +Output
- ⑦ LED
- ⑧ Output voltage adjustable potentiometer
- ⑨ CN1 } Connectors
- ⑩ CN2 }
- ⑪ CN3 }

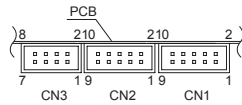
* Please see Optional Parts for dedicated harnesses.

*PBA1500T

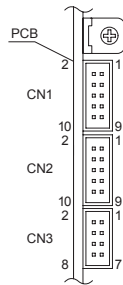
- ① AC (L1)
- ② AC (L2)
- ③ AC (L3)
- ④ Frame ground (M4 \perp)
- ⑤ -Output
- ⑥ +Output
- ⑦ LED
- ⑧ Output voltage adjustable potentiometer
- ⑨ CN1 } Connectors
- ⑩ CN2 }
- ⑪ CN3 }

Terminal Blocks

● PBA300F, 600F Pin Configuration



● PBA1000F, 1500F Pin Configuration



Pin Configuration and Functions of CN1 and CN2

Pin No.	Function
1	+M : Self sensing terminal. (Do not wire for external connection.)
2	+S : +Sensing
3	-M : Self sensing terminal. (Do not wire for external connection.)
4	-S : -Sensing
5	VB : Voltage balance
6	CB : Current balance
7	TRM : Adjustment of output voltage
8	-S : -Sensing
9	RC2 : Remote ON/OFF
10	RCG : Remote ON/OFF (GND)

Pin Configuration and Functions of CN3

Pin No.	Function
1	-S : -Sensing
2	-S : -Sensing
3	AUX : Auxiliary output (12V 0.1A)
4	RC1 : Remote ON/OFF
5	AUXG : Auxiliary output (GND)
6	N.C. : No connection
7	PG : Alarm
8	PGG : Alarm (GND)

* Common signs among CN1, CN2 and CN3 such as -S represent the same potential.

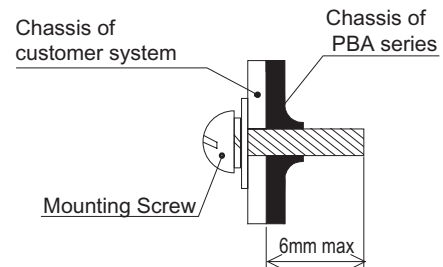
Matching connectors and terminals on CN1, CN2 and CN3

Connector	Housing	Terminal	Mfr.
CN1 CN2	S10B-PHDSS PHDR-10VS	Reel : SPHD-002T-P0.5 Loose : BPHD-001T-P0.5	J.S.T.
CN3	S8B-PHDSS PHDR-08VS		

Assembling and Installation Method

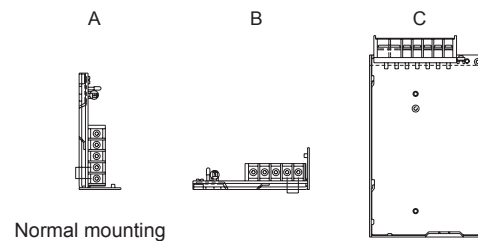
Installation Method

- Do not insert a screw more than 6mm from the outside of a power supply to keep enough insulation distance between the screw and internal components.



● PBA10F, PBA15F, PBW15F, PBA30F, PBW30F, PBA50F, PBW50F, PBA75F, PBA100F and PBA150F

- If you use two or more power supplies side by side, please keep a sufficient distance between them to allow enough air ventilation.
- Ambient temperature around each power supply should not exceed the temperature range shown in "derating".

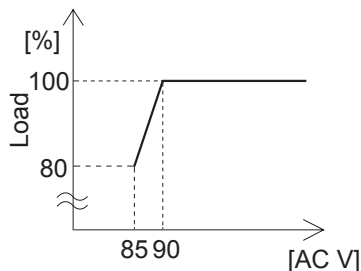


● PBA300F, PBA600F, PBA1000F, PBA1500F and PBA1500T

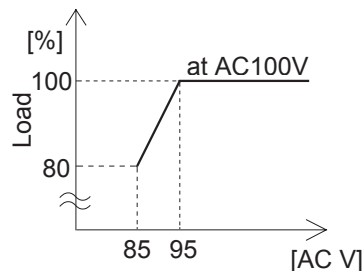
- The power supplies have a built-in forced cooling fan. Do not block ventilation at the suction side (terminal block side) and its opposite side (fan installation side). If you need to secure a power supply by screws, securely fix it, taking into consideration of its weight. You can install it in any direction.
- If you use a power supply in a dusty environment, it can give a cause for a failure. Please consider taking such countermeasures as installing an air filter near the suction area of the system to prevent a failure.
- In PBA300F, PBA1500F and PBA1500T, ventilation holes are located on the mounting side. If you would like to install the unit by using that side, please contact us for details.

Derating

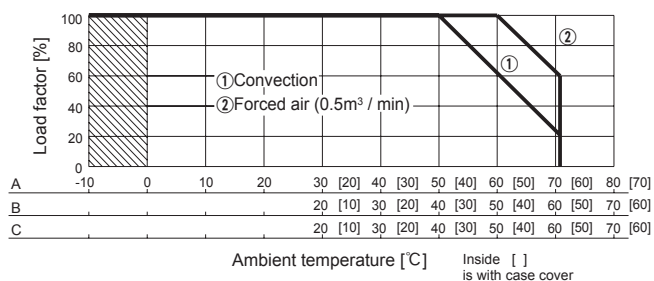
●PBA10F, PBA15F, PBW15F, PBA30F, PBW30F Input voltage Derating Curve



●PBA1500F Input voltage Derating Curve



●PBA10F, PBA15F, PBW15F, PBA30F, PBW30F, PBA50F, PBW50F, PBA75F, PBA100F, PBA150F Ambient temperature derating curve

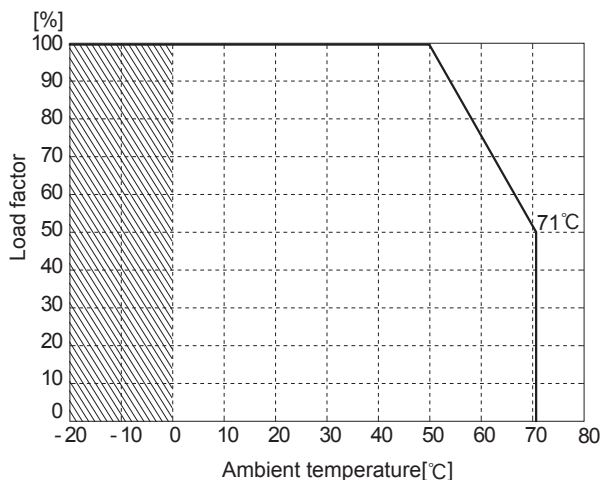


■ In the hatched area, the specification of Ripple, Ripple Noise is different from other area.

■ The ambient temperature should be measured 5 to 10 cm away from the power supply so that it won't be influenced by the heat from the power supply. Please consult us for more details.

■ Make sure the temperature at point A is less than the temperatures shown in Instruction Manual 4.

●PBA300F, PBA600F, PBA1000F, PBA1500F, PBA1500T Ambient temperature derating curve



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

■ Derating curve depending on an ambient temperature (temperature of air sucked in for a cooling purpose) is shown above.

Instruction Manual

◆ It is necessary to read the "Instruction Manual" and "Before using our product" before you use our product.

Instruction Manual <https://en.cosel.co.jp/product/powersupply/PBA/>
 Instruction Manual <https://en.cosel.co.jp/product/powersupply/PBW/>
 Before using our product <https://en.cosel.co.jp/technical/caution/index.html>

PBA



PBW



NOTICE



Basic Characteristics Data

Model	Circuit method	Switching frequency [kHz]	Input current [A]	Rated input fuse	Inrush current protection circuit	PCB/Pattern			Series/Parallel operation availability	
						Material	Single sided	Double sided	Series operation	Parallel operation
PBA10F	Flyback converter	100	0.3	250V 2.5A	LF	CEM-3	Yes		Yes	*1
PBA15F	Flyback converter	100	0.4		Thermistor	CEM-3	Yes		Yes	*1
PBA30F	Flyback converter	100	0.7		Thermistor	CEM-3	Yes		Yes	*1
PBA50F	Active filter	60 - 550	0.7	250V 2A	Thermistor	CEM-3	Yes		Yes	*1
	Forward converter	130								
PBA75F	Active filter	60 - 550	1.0	250V 3.15A	Thermistor	CEM-3	Yes		Yes	*1
	Forward converter	120								
PBA100F	Active filter	60 - 550	1.3	250V 3.15A	Thermistor	CEM-3	Yes		Yes	*1
	Forward converter	120								
PBA150F	Active filter	60 - 550	2.0	250V 4A	Thermistor	CEM-3	Yes		Yes	*1
	Forward converter	120								
PBA300F	Active filter	230	4.1	250V 10A	SCR	FR-4		Yes	Yes	Yes
	Forward converter	330								
PBA600F	Active filter	130	8.2	250V 15A	SCR	FR-4		Yes	Yes	Yes
	Forward converter	330								
PBA1000F	Active filter	130	13	250V 30A	SCR	FR-4		Yes	Yes	Yes
	Forward converter	280								
PBA1500F	Active filter	130	19	250V 30A	SCR	FR-4		Yes	Yes	Yes
	Forward converter	200								
PBA1500T	Active filter	130	6	250V 16A	SCR	FR-4		Yes	Yes	Yes
	Forward converter	200								
PBW15F	Flyback converter	100	0.4	250V 2.5A	Thermistor	CEM-3	Yes		Yes	*1
PBW30F	Flyback converter	100	0.7	250V 3.15A	Thermistor	CEM-3	Yes		Yes	*1
PBW50F	Active filter	60 - 550	0.7	250V 2A	Thermistor	CEM-3	Yes		Yes	*1
	Forward converter	130								

*1 Refer to Series/Parallel Operation of Instruction Manual.

* The value of input current is at ACIN 100V and rated load, ACIN 200V 3 φ and rated load in PBA1500T.



Макро Групп – это:

- дистрибьютор электронных компонентов с 1994 года
- контрактный производитель электроники с 2007 года с собственным производством в Санкт-Петербурге (компания Макро ЕМС, входит в ГК Макро Групп)
- поставщик полупроводниковых материалов
- комплексный поставщик электронных компонентов
- моделирование и производство полупроводниковых эпитаксиальных гетероструктур для задач оптоэлектроники

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- оформление банковских гарантий
- отсрочки платежей
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- инженерная поддержка проектов заказчиков
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