# COSEL|科索 PBA300F-24-N1 PDF



深圳创唯电子有限公司

http://www.cosel.net

#### **AC-DC Power Supplies Enclosed Type**













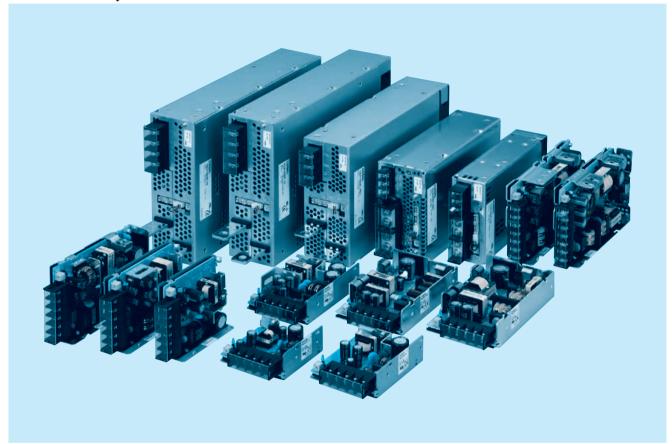








# PBA, PBW-series



#### 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 redandancy 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

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

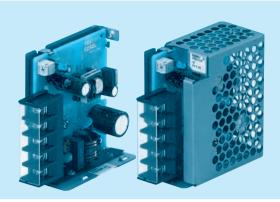
EN61000-4-8

EN61000-4-11

### PBA10F

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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

- ①Series name ②Single output
- (3) Output wattage 4 Universal input
- ⑤Output voltage
- 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 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	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**

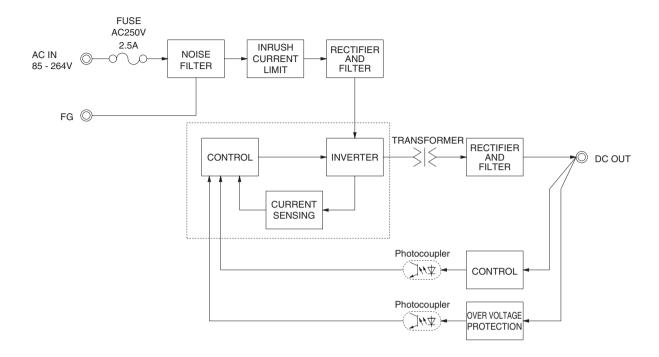
	MODEL		PBA10F-5	PBA10F-12	PBA10F-24					
	VOLTAGE[V]		AC85 - 264 1 φ or DC110 - 370 (AC5	0 or DC70 Please refer to the instruction	on manual 1.1 Input voltage *3)					
	OUDDENTIAL	ACIN 100V	0.30typ (lo=100%)							
	CURRENT[A]	ACIN 200V	0.20typ (lo=100%)							
	FREQUENCY[Hz]		50/60 (47 - 440) or DC							
INPUT		ACIN 100V	74typ	76typ	77typ					
	EFFICIENCY[%]	ACIN 200V		76typ	77typ					
		ACIN 100V	15typ (lo=100%)		1					
	INRUSH CURRENT[A]	ACIN 200V	30typ (lo=100%)							
	LEAKAGE CURREN	T[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	120max					
		-10 - 0℃ *1	140max	160max	160max					
	DIDDLE NOICEIV1	0 to +50°C *1	120max	150max	150max					
OUTPUT	RIPPLE NOISE[mVp-p]	-10 - 0℃ *1	160max	180max	180max					
		0 to +50℃	50max	120max	240max					
	TEMPERATURE REGULATION[mV]	-10 to +50℃	60max	150max	290max					
	DRIFT[mV]	*2	20max	48max	96max					
	START-UP TIME[ms]		200typ(ACIN 100V, Io=100%) *Start-up time	e is 700ms typ for less than 1minute of applying	g input again from turning off the input voltage.					
	HOLD-UP TIME[ms]		20typ (ACIN 100V, Io=100%)							
	OUTPUT VOLTAGE ADJUSTMENT	T RANGE[V]	4.50 - 5.50	10.0 - 13.2	19.2 - 27.0					
	<b>OUTPUT VOLTAGE SET</b>	TING[V]	5.00 - 5.15	12.00 - 12.48	24.00 - 24.96					
	OVERCURRENT PROT	ECTION	Works over 105% of rated current and	d recovers automatically						
PROTECTION CIRCUIT AND		TION[V]	5.75 - 7.00	15.0 - 18.0	30.0 - 37.0					
OTHERS	OPERATING INDICA	TION	LED (Green)							
	REMOTE ON/OFF		None							
	INPUT-OUTPUT		AC3,000V 1minute, Cutoff current = 1	0mA, DC500V 50M $\Omega$ min (At Room Te	mperature)					
ISOLATION	INPUT-FG		AC2,000V 1minute, Cutoff current = 1	0mA, DC500V 50M $\Omega$ min (At Room Te	mperature)					
	OUTPUT-FG		AC500V 1minute, Cutoff current = 25r	mA, DC500V 50M $\Omega$ min (At Room Tem	perature)					
	OPERATING TEMP.,HUMID.AND	ALTITUDE	-10 to +71 $^{\circ}$ (Refer to "Derating"), 20	- 90%RH (Non condensing) 3,000m (10	0,000feet) max					
ENVIRONMENT	STORAGE TEMP., HUMID.AND	ALTITUDE	-20 to +75℃, 20 - 90%RH (Non cond	ensing) 9,000m (30,000feet) max						
LIVINONWENT	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,							
SAFETY AND	AGENCY APPROVALS (At only		UL60950-1, C-UL(CSA60950-1), EN60950-1, EN50178 Complies with DEN-AN							
NOISE	CONDUCTED NOISE		Complies with FCC Part15 classB, VCCI-B, CISPR22-B, EN55011-B, EN55022-B							
REGULATIONS	HARMONIC ATTENU	IATOR	Complies with IEC61000-3-2 (Not buil	t-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)							
OTHERS	COOLING METHOD		Convection							

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

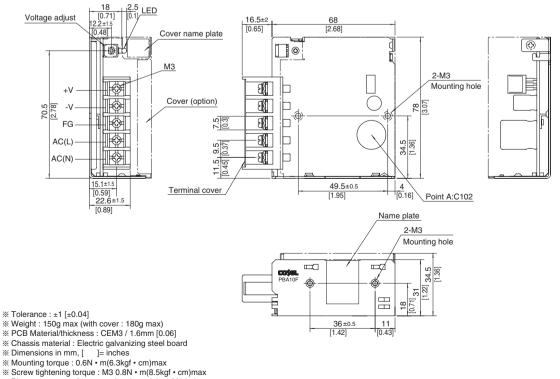
PBA/PBW-2





#### **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.



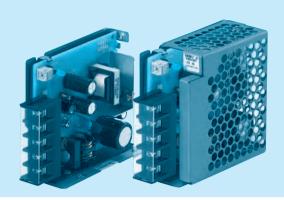
- % Chassis material : Electric galvanizing steel board

- \* Please connect safety ground to the unit in 2-M3 holes.

### PBA15F

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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

Series name
 Single output

(3) Output wattage 4 Universal input

⑤Output voltage

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	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**

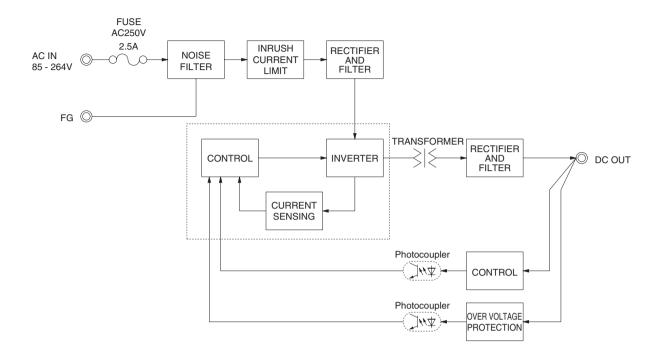
	MODEL		PBA15F-3R3	PBA15F-5	PBA15F-9	PBA15F-12	PBA15F-15	PBA15F-24	PBA15F-48		
	VOLTAGE[V]		AC85 - 264 1 φ	or DC110 - 370	(AC50 or DC70	Please refer to the	he instruction ma	ınual 1.1 Input vo	ltage *3)		
	CUDDENTIAL	ACIN 100V	0.30typ (lo=100%)	0.4typ (Io=100%	6)						
	CURRENT[A]	ACIN 200V	0.15typ (lo=100%)	0.2typ (lo=100%	6)						
	FREQUENCY[Hz]		50/60 (47 - 440)	or DC							
NPUT	EEEIOIENOVIO/ 1	ACIN 100V	68typ	74typ	75typ	75typ	77typ	75typ	75typ		
	EFFICIENCY[%]	ACIN 200V	68typ	75typ	77typ	78typ	80typ	78typ	78typ		
	INDUCU OUDDENTIAL	ACIN 100V	15typ (Io=100%	) (At cold start)							
	INRUSH CURRENT[A]	ACIN 200V	30typ (Io=100%	) (At cold start)							
	LEAKAGE CURREN	T[mA]	0.15/0.30max (A	ACIN 100V/240V	60Hz, lo=100%,	According to IE	C60950-1,DENAI	N)			
	VOLTAGE[V]	<b>BE[V]</b> 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		
	DIDDI Elm\/n m²	0 to +50°C *1	80max	80max	120max	120max	120max	120max	150max		
	RIPPLE[mVp-p]	-10 - 0℃ *1	140max	140max	160max	160max	160max	160max	200max		
	DIDDLE NOIGE	0 to +50°C *1	120max	120max	150max	150max	150max	150max	250max		
UTPUT	RIPPLE NOISE[mVp-p]	-10 - 0℃ *1	160max	160max	180max	180max	180max	180max	300max		
	TEMPERATURE REQUIRATIONS	0 to +50℃	50max	50max	90max	120max	150max	240max	480max		
	TEMPERATURE REGULATION[mV]	-10 to +50℃	60max	60max	120max	150max	180max	290max	600max		
	DRIFT[mV]	*2	20max	20max	36max	48max	60max	96max	192max		
	START-UP TIME[ms]		200typ(ACIN 100V	lo=100%) *Start-ı	up time is 700ms typ	for less than 1minu	ute of applying input	again from turning	off the input volta		
	HOLD-UP TIME[ms]		20typ (ACIN 10	0V, 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 SET	TING[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		
	OVERCURRENT PROT	ECTION	Works over 105	% of rated curre	nt and recovers a	automatically					
ROTECTION	OVERVOLTAGE PROTEC	TION[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		
IRCUIT AND THERS	OPERATING INDICA	TION	LED (Green)								
	REMOTE ON/OFF		None								
	INPUT-OUTPUT		AC3,000V 1min	ute, Cutoff currer	nt = 10mA, DC50	00V 50MΩmin ( <i>A</i>	At Room Tempera	ature)			
SOLATION	INPUT-FG		AC2,000V 1min	ute, Cutoff currer	nt = 10mA, DC50	00V 50MΩmin (A	At Room Tempera	ature)			
	OUTPUT-FG		AC500V 1minut	e, Cutoff current	= 25mA, DC500	V 50MΩmin (At	Room Temperati	ıre)			
	OPERATING TEMP.,HUMID.AND	ALTITUDE	-10 to +71℃ (R	efer to "Derating"	), 20 - 90%RH (I	Non condensing)	3,000m (10,000	feet) max			
NVIRONMENT	STORAGE TEMP.,HUMID.AND	ALTITUDE	-20 to +75°C, 20	) - 90%RH (Non	condensing) 9,0	00m (30,000feet)	max				
NVIRONWENT	VIBRATION		10 - 55Hz, 19.6	m/s² (2G), 3min	utes period, 60m	inutes each alon	g X, Y and Z axi	S			
	IMPACT		196.1m/s <sup>2</sup> (20G	196.1m/s² (20G), 11ms, once each X, Y and Z axis							
AFETY AND	AGENCY APPROVALS (At only	AC input)	UL60950-1, C-L	UL60950-1, C-UL(CSA60950-1), EN60950-1, EN50178 Complies with DEN-AN							
IOISE	CONDUCTED NOISE	:				PR22-B, EN5501					
EGULATIONS	HARMONIC ATTENU	IATOR	Complies with IEC61000-3-2 (Not built-in to active filter *4) *7								
THERE	CASE SIZE/WEIGHT		31×78×85mm	[1.22×3.07×3.0	35 inches] (witho	ut terminal block)	(W×H×D) / 20	00g max (with co	ver : 235g max		
THERS	COOLING METHOD		Convection	-	•			-	-		

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

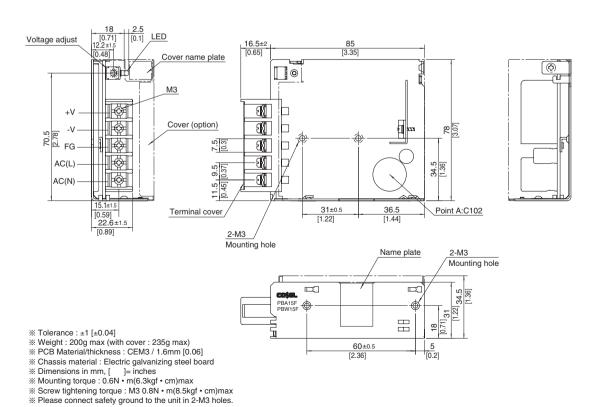
PBA/PBW-4





#### **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.



### PBA30F

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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

Series name
 Single output

- (3) Output wattage
- 4 Universal input
- ⑤Output voltage
- 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**

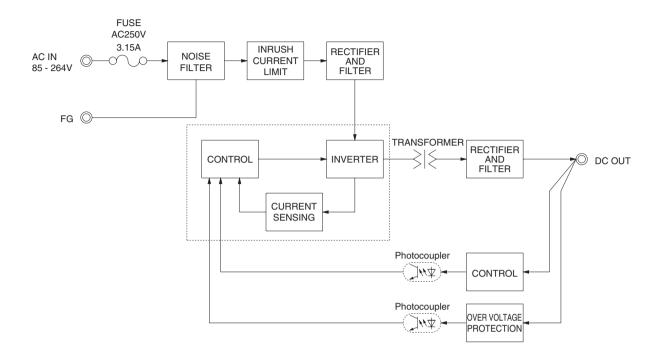
	MODEL		PBA30F-3R3	PBA30F-5	PBA30F-9	PBA30F-12	PBA30F-15	PBA30F-24	PBA30F-48		
	VOLTAGE[V]		AC85 - 264 1 φ	or DC110 - 370	(AC50 or DC70	Please refer to the	ne instruction ma	nual 1.1 Input vo	ltage *3)		
	CURRENT[A]	ACIN 100V	0.50typ (lo=100%)	0.70typ (lo=100	%)						
	CORNENT[A]	ACIN 200V	0.30typ (lo=100%)	0.40typ (lo=100	%)						
	FREQUENCY[Hz]		50/60 (47 - 440)	or DC							
INPUT	EFFICIENCY[%]	ACIN 100V	68typ	74typ	75typ	76typ	78typ	78typ	79typ		
	EFFICIENCI[/6]	ACIN 200V	69typ	77typ	77typ	78typ	81typ	81typ	81typ		
	INRUSH CURRENT[A]	ACIN 100V	15typ (Io=100%	) (At cold start)							
	INNUSH CUNNENT[A]	ACIN 200V	30typ (Io=100%	) (At cold start)							
	LEAKAGE CURREN	T[mA]	0.30/0.65max (A	ACIN 100V/240V	60Hz, lo=100%,	According to IE	C60950-1,DENAN	1)			
	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	120max	150max		
	MIPPLE[IIIVP-P]	-10 - 0℃ *1	140max	140max	160max	160max	160max	160max	200max		
	RIPPLE NOISE[mVp-p]	0 to +50°C *1	120max	120max	150max	150max	150max	150max	250max		
OUTPUT	MIPPLE NOISE[IIIVP-P]	-10 - 0℃ *1	160max	160max	180max	180max	180max	180max	300max		
	TEMPERATURE REGULATION[mV]	0 to +50℃	50max	50max	90max	120max	150max	240max	480max		
L	TEMPERATURE REGULATION[IIV]	-10 to +50℃	60max	60max	120max	150max	180max	290max	600max		
	DRIFT[mV]	*2	20max	20max	36max	48max	60max	96max	192max		
	START-UP TIME[ms]		200typ(ACIN 100V	, Io=100%) <b>*</b> Start-ı	up time is 700ms typ	p for less than 1minu	ite of applying input	again from turning of	off the input voltage		
	HOLD-UP TIME[ms]		20typ (ACIN 10	0V, 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 SET		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		
	OVERCURRENT PROT	ECTION		% of rated curre	nt and recovers a	automatically					
PROTECTION CIRCUIT AND	OVERVOLTAGE PROTEC	TION[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		
OTHERS	OPERATING INDICA	TION	LED (Green)								
	REMOTE ON/OFF		None								
	INPUT-OUTPUT					$00V$ $50M\Omega$ min (A					
ISOLATION	INPUT-FG		· ·			$00V$ $50M\Omega$ min (A		,			
	OUTPUT-FG					V 50MΩmin (At					
	OPERATING TEMP.,HUMID.AND					Non condensing)		eet) max			
ENVIRONMENT	STORAGE TEMP.;HUMID.AND	ALTITUDE				00m (30,000feet)					
	VIBRATION			0 - 55Hz, 19.6m/s² (2G), 3minutes period, 60minutes each along X, Y and Z axis							
	IMPACT			), 11ms, once ea							
SAFETY AND	AGENCY APPROVALS (At only					I50178 Complies					
NOISE REGULATIONS	CONDUCTED NOISE		Complies with FCC Part15 classB, VCCI-B, CISPR22-B, EN55011-B, EN55022-B								
NEGULATIONS	HARMONIC ATTENU		Complies with IEC61000-3-2 (Not built-in to active filter *4) *7  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)								
OTHERS	CASE SIZE/WEIGHT			n [1.22×3.07×4	.06 inches] (with	out terminal block	k) (W×H×D) / 2	70g max (with co	over : 310g max)		
	COOLING METHOD		Convection								

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

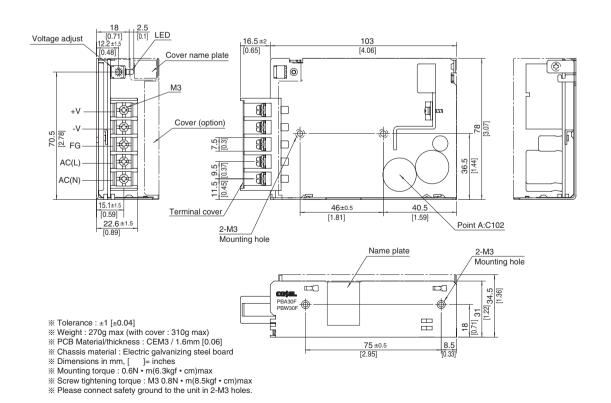
PBA/PBW-6





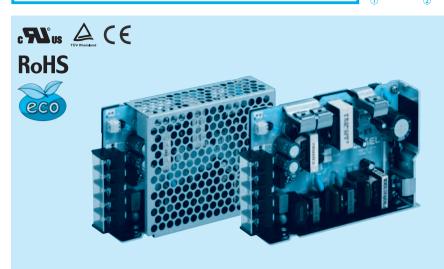
#### **External view**

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



### PBA50F

**50** 



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.

- ①Series name ②Single output
- (3) Output wattage
- 4 Universal input
- ⑤Output voltage
- 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) N1 :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.

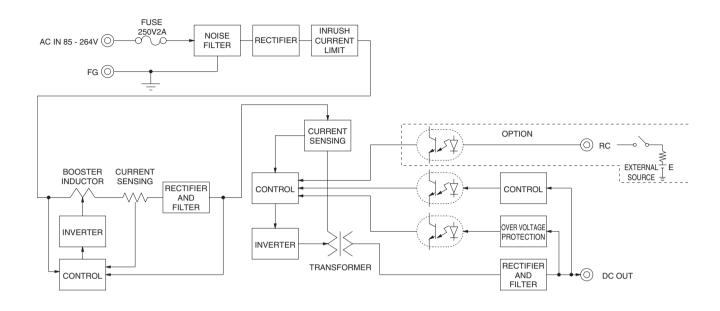
MODEL	PBA50F-3R3	PBA50F-5	PBA50F-9	PBA50F-12	PBA50F-15	PBA50F-24	PBA50F-36	PBA50F-48
MAX OUTPUT WATTAGE[W]	33	50	50.4	51.6	52.5	52.8	50.4	52.8
DC OUTPUT	3.3V 10A	5V 10A	9V 5.6A	12V 4.3A	15V 3.5A	24V 2.2A	36V 1.4A	48V 1.1A

	MODEL		PBA50F-3R3	PBA50F-5	PBA50F-9	PBA50F-12	PBA50F-15	PBA50F-24	PBA50F-36	PBA50F-48	
	VOLTAGE[V]		AC85 - 264 1 φ	or DC120 - 370	(AC50 or DC70	Please refer to	the instruction n	nanual 1.1 Input	voltage *4)		
	CURRENT[A]	ACIN 100V	0.5typ	0.7typ							
	CURRENT[A]	ACIN 200V	0.3typ	0.4typ							
	FREQUENCY[Hz]		50/60 (47 - 63)								
	EFFICIENCY[0/1	ACIN 100V	75typ	80typ	79typ	80typ	81typ	82typ	83typ	83typ	
INPUT	EFFICIENCY[%]	ACIN 200V	76typ	82typ	81typ	82typ	83typ	84typ	85typ	85typ	
	POWER FACTOR(Io=100%)	ACIN 100V	0.98typ	0.99typ							
	POWER FACTOR(IO=100%)	ACIN 200V	0.87typ	0.93typ							
	INDUCU CUDDENTIAL	ACIN 100V	15typ (lo=100%	(At cold start)							
	INRUSH CURRENT[A]	ACIN 200V	30typ (lo=100%) (At cold start)								
	LEAKAGE CURRENT[r	nA]	0.4/0.75max (ACIN 100V/240V 60Hz, Io=100%, According to IEC60950-1,DENAN)								
	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[m\	/]	20max	20max	36max	48max	60max	96max	144max	192max	
	LOAD REGULATION[m	ıV]	40max	40max	100max	100max	120max	150max	240max	240max	
	RIPPLE[mVp-p]	0 to +50°C *1	80max	80max	120max	120max	120max	120max	150max	150max	
	RIPPLE[IIIVP-P]	-10 - 0℃ *1	140max	140max	160max	160max	160max	160max	200max	200max	
	RIPPLE NOISE[mVp-p]	0 to +50°C *1	120max	120max	150max	150max	150max	150max	250max	250max	
OUTPUT		-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 10	00V, lo=100%)							
	HOLD-UP TIME[ms]		20typ (ACIN 100V, lo=100%)								
	OUTPUT VOLTAGE ADJUSTMENT	T 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	
	<b>OUTPUT VOLTAGE SET</b>	TING[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	
	OVERCURRENT PROT	ECTION	Works over 105	% of rated curre	ent and recovers	automatically					
PROTECTION CIRCUIT AND	OVERVOLTAGE PROTEC	TION[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	
OTHERS	OPERATING INDICATION	NC	LED (Green)								
	REMOTE ON/OFF			ired external pov							
	INPUT-OUTPUT · RC	*3				500V 50MΩmin					
ISOLATION	INPUT-FG		AC2,000V 1mir	ute, Cutoff curre	ent = 10mA, DC	500V 50MΩmin	(At Room Tempe	erature)			
	OUTPUT · RC-FG	*3				00V 50MΩmin (					
	OPERATING TEMP.,HUMID.AND	ALTITUDE				(Non condensing		00feet) max			
ENVIRONMENT	STORAGE TEMP., HUMID. AND	ALTITUDE				000m (30,000fee					
LIVINOIVILIVI	VIBRATION					minutes each ald	ong X, Y and Z a	axis			
	IMPACT			196.1m/s <sup>2</sup> (20G), 11ms, once each X, Y and Z axis							
SAFETY AND		AC input)									
NOISE	CONDUCTED NOISE		Complies with FCC Part15 classB, VCCI-B, CISPR22-B, EN55011-B, EN55022-B								
REGULATIONS		HARMONIC ATTENUATOR		Complies with IEC61000-3-2 *6							
OTHERS	CASE SIZE/WEIGHT			m [1.22 × 3.23 ×	4.72 inches] (wit	hout terminal blo	ck) (W×H×D) /	280g max (wit	n cover : 325g m	ax)	
OTHERS	COOLING METHOD Convection										

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

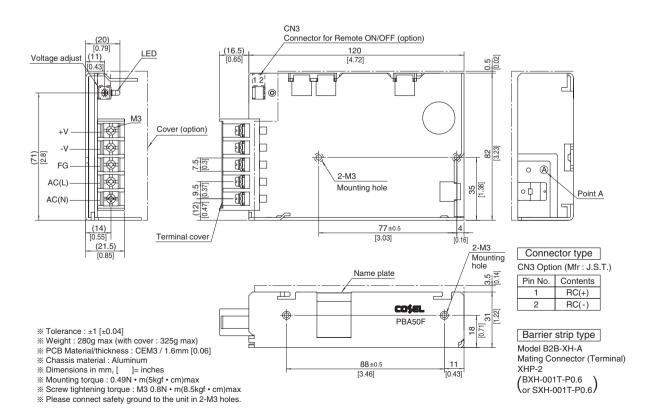
- \*5 Please contact us about safety approvals for the model with option.
- \*6 Please contact us about class C.
- Parallel operation with other model is not possible.
- Derating is required when operated with cover A sound may occur from power supply at peak loading.
- PBA/PBW-8 June 25, 2020





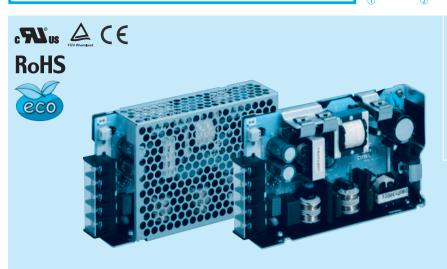
#### **External view**

\* 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.



### PBA75F

**75** 



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.

- ①Series name ②Single output
- (3) Output wattage 4 Universal input
- ⑤Output voltage
- 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) N1 :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.

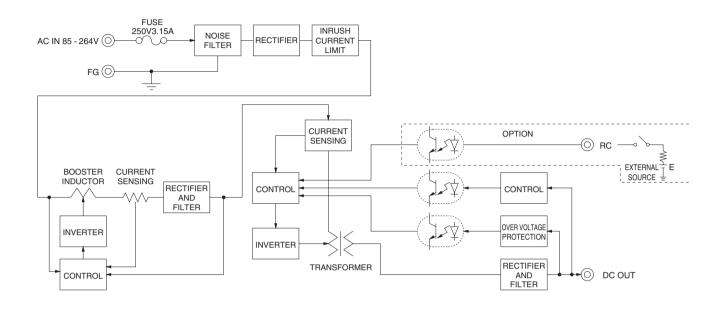
MODEL	PBA75F-3R3	PBA75F-5	PBA75F-9	PBA75F-12	PBA75F-15	PBA75F-24	PBA75F-36	PBA75F-48
MAX OUTPUT WATTAGE[W]	49.5	75	75.6	75.6	75	76.8	75.6	76.8
DC OUTPUT	3.3V 15A	5V 15A	9V 8.4A	12V 6.3A	15V 5A	24V 3.2A	36V 2.1A	48V 1.6A

	MODEL		PBA75F-3R3	PBA75F-5	PBA75F-9	PBA75F-12	PBA75F-15	PBA75F-24	PBA75F-36	PBA75F-48		
	VOLTAGE[V]		AC85 - 264 1 φ	or DC120 - 370	0 (AC50 or DC70	Please refer to	the instruction r	nanual 1.1 Input	voltage *4)			
	CURRENT[A]	ACIN 100V	0.7typ	1.0typ								
	CURRENT[A]	ACIN 200V	0.4typ	0.5typ								
	FREQUENCY[Hz]		50/60 (47 - 63)									
	EFFICIENCY[%]	ACIN 100V	77typ	81typ	80typ	81typ	82typ	83typ	84typ	84typ		
INPUT	EFFICIENCY[%]	ACIN 200V	78typ	83typ	82typ	83typ	84typ	85typ	86typ	86typ		
	POWER FACTOR(Io=100%)	ACIN 100V	0.98typ	0.99typ								
	POWER PACTOR(IO=100 %)	ACIN 200V		0.93typ								
	INRUSH CURRENT[A]		15typ (lo=100%									
	INNUSH CONNENT[A]	ACIN 200V	30typ (Io=100%) (At cold start) 0.4/0.75max (ACIN 100V/240V 60Hz, Io=100%, According to IEC60950-1,DENAN)									
	LEAKAGE CURRENT[1	mA]		CIN 100V/240V								
	VOLTAGE[V]		3.3	5	9	12	15	24	36	48		
	CURRENT[A]		15	15	8.4	6.3	5	3.2	2.1	1.6		
	LINE REGULATION[m)		20max	20max	36max	48max	60max	96max	144max	192max		
	LOAD REGULATION[m		40max	40max	100max	100max	120max	150max	240max	240max		
	RIPPLE[mVp-p]	0 to +50°C *1	80max	80max	120max	120max	120max	120max	150max	150max		
	1111 1 EE[1114 P-P]	-10 - 0℃ *1		140max	160max	160max	160max	160max	200max	200max		
	RIPPLE NOISE[mVp-p]	0 to +50°C <b>*</b> 1	120max	120max	150max	150max	150max	150max	250max	250max		
OUTPUT	HIFFEE NOISE[IIIVP-P]	-10 - 0℃ *1	160max	160max	180max	180max	180max	180max	300max	300max		
	TEMPERATURE REGULATION[mV]	0 to +50°C		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] 350										
	HOLD-UP TIME[ms]		20typ (ACIN 100V, Io=100%)									
	OUTPUT VOLTAGE ADJUSTMENT			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 SET		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		
DDOTECTION	OVERCURRENT PROT				ent and recovers		1		T			
PROTECTION CIRCUIT AND	OVERVOLTAGE PROTEC		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		
OTHERS	OPERATING INDICATION	ON	LED (Green)									
	REMOTE ON/OFF			ired external pov			/A: D =	. \				
	INPUT-OUTPUT · RC	*3				500V 50MΩmin						
ISOLATION	INPUT-FG					500V 50MΩmin	·					
	OUTPUT · RC-FG OPERATING TEMP., HUMID.AND	*3				00V 50MΩmin (						
	STORAGE TEMP.,HUMID.AND					(Non condensing		Juleet) max				
ENVIRONMENT	VIBRATION	ALIIIUDE		20 to +75°C, 20 - 90%RH (Non condensing) 9.000m (30.000feet) max 0 - 55Hz, 19.6m/s² (2G), 3minutes period, 60minutes each along X, Y and Z axis								
	IMPACT				each X, Y and Z		nig Λ, τ alid ∠ a	SIAIS				
	AGENCY APPROVALS (At only	ν ΔC innut)					e with DENLAN					
SAFETY AND NOISE	CONDUCTED NOISE	y AC IIIput/	UL60950-1, C-UL(CSA60950-1), EN60950-1, EN50178 Complies with DEN-AN  Complies with FCC Part15 classB, VCCI-B, CISPR22-B, EN55011-B, EN55022-B									
REGULATIONS	HARMONIC ATTENUAT	TOR	Compiles with IEC61000-3-2 *6									
	CASE SIZE/WEIGHT					hout terminal blo	rck) (MXHXD)	350g max (wit	h cover · 400a m	ax)		
OTHERS	COOLING METHOD		Convection	111 [1.20 \ 0.23 X	J.J. IIIGIES] (WIL	nout terrinial bio	ON (VVAIIAD) /	ooog max (wit	ii covei . 400g iii	un,		
	SSSEING WETTIOD		CONVECTION									

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

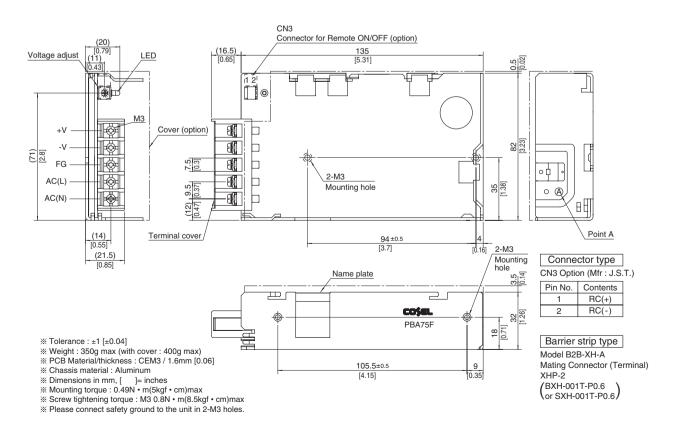
- \*5 Please contact us about safety approvals for the model with option.
- \*6 Please contact us about class C.
- Parallel operation with other model is not possible.
- Derating is required when operated with cover A sound may occur from power supply at peak loading.
- PBA/PBW-10





#### **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.



# PBA100F

100

c**¶**°us ≜ C€ **RoHS** eco

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.

- ①Series name ②Single output (3) Output wattage
- 4 Universal input
- ⑤Output voltage
- 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-

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.

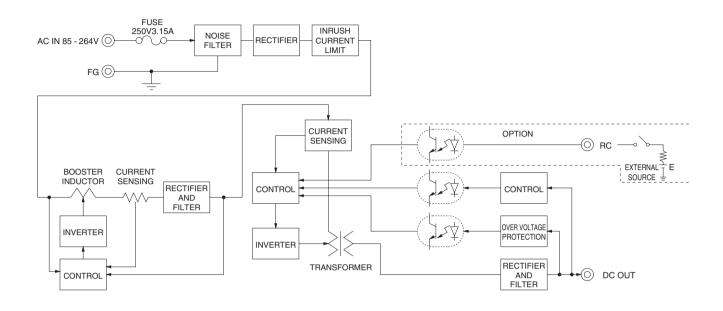
MODEL	PBA100F-3R3	PBA100F-5	PBA100F-9	PBA100F-12	PBA100F-15	PBA100F-24	PBA100F-36	PBA100F-48
MAX OUTPUT WATTAGE[W]	66	100	94.5	102	105	108	100.8	100.8
DC OUTPUT	3.3V 20A	5V 20A	9V 10.5A	12V 8.5A	15V 7A	24V 4.5A	36V 2.8A	48V 2.1A

	MODEL		PBA100F-3R3	PBA100F-5	PBA100F-9	PBA100F-12	PBA100F-15	PBA100F-24	PBA100F-36	PBA100F-48	
	VOLTAGE[V]		AC85 - 264 1 φ	or DC120 - 370	(AC50 or DC70	Please refer to	the instruction r	nanual 1.1 Input	voltage *4)		
	OUDDENTIAL	ACIN 100V	0.9typ	1.3typ							
	CURRENT[A]	ACIN 200V	0.5typ	0.7typ							
	FREQUENCY[Hz]		50/60 (47 - 63)								
	EEEIOJENOVIO/1	ACIN 100V	77typ	82typ	80typ	81typ	83typ	84typ	84typ	84typ	
INPUT	EFFICIENCY[%]	ACIN 200V	79typ	84typ	82typ	83typ	86typ	86typ	86typ	86typ	
		ACIN 100V	0.98typ	0.99typ							
	POWER FACTOR(Io=100%)	ACIN 200V	0.87typ	0.93typ							
		ACIN 100V	20typ (lo=100%	(At cold start)							
	INRUSH CURRENT[A]	ACIN 200V	40typ (lo=100%) (At cold start)								
	LEAKAGE CURRENT[i	nA]	0.4/0.75max (ACIN 100V/240V 60Hz, Io=100%, According to IEC60950-1,DENAN)								
	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[m\	/1	20max	20max	36max	48max	60max	96max	144max	192max	
	LOAD REGULATION[m	ıV]	40max	40max	100max	100max	120max	150max	240max	240max	
	DIDDLE COVERNIA	0 to +50°C *1	80max	80max	120max	120max	120max	120max	150max	150max	
	RIPPLE[mVp-p]	-10 - 0℃ *1	140max	140max	160max	160max	160max	160max	200max	200max	
	DIDDLE MOIOEL-M1	0 to +50°C *1	120max	120max	150max	150max	150max	150max	250max	250max	
OUTPUT	RIPPLE NOISE[mVp-p]	-10 - 0℃ *1	160max	160max	180max	180max	180max	180max	300max	300max	
	TEMPERATURE REQUIRATIONS	0 to +50℃	50max	50max	90max	120max	150max	240max	360max	480max	
	TEMPERATURE REGULATION[mV]	-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 10	00V, lo=100%)					•		
	HOLD-UP TIME[ms]		20typ (ACIN 10	0V, Io=100%)							
	OUTPUT VOLTAGE ADJUSTMENT	T 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	
	<b>OUTPUT VOLTAGE SET</b>	TING[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	
	OVERCURRENT PROT	ECTION	Works over 105	% of rated curre	ent and recovers	automatically					
PROTECTION	OVERVOLTAGE PROTEC	TION[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	
CIRCUIT AND	OPERATING INDICATION	ON	LED (Green)								
OTHERS	REMOTE SENSING		Optional (Only	-3R3, -5 Option	-K)						
	REMOTE ON/OFF		Optional (Requ	ired external pov	ver source)						
	INPUT-OUTPUT · RC	*3	AC3,000V 1mir	ute, Cutoff curre	ent = 10mA, DC	500V 50MΩmin	(At Room Tempe	erature)			
ISOLATION	INPUT-FG		AC2,000V 1mir	ute, Cutoff curre	ent = 10mA, DC	500V 50MΩmin	(At Room Tempe	erature)			
	OUTPUT · RC-FG	*3	AC500V 1minu	te, Cutoff curren	t = 100mA, DC5	00V 50MΩmin (	At Room Tempe	rature)			
	OPERATING TEMP.,HUMID.AND	ALTITUDE	-10 to +71°C (F	lefer to "Derating	ı"), 20 - 90%RH	(Non condensing	g) 3,000m (10,00	Ofeet) max			
ENVIRONMENT	STORAGE TEMP., HUMID. AND	ALTITUDE	-20 to +75°C, 2	0 - 90%RH (Nor	condensing) 9,	000m (30,000fee	et) max				
ENVIRONMENT	VIBRATION		10 - 55Hz, 19.6m/s <sup>2</sup> (2G), 3minutes period, 60minutes each along X, Y and Z axis								
	IMPACT		196.1m/s <sup>2</sup> (200	i), 11ms, once e	ach X, Y and Z	axis					
SAFETY AND	AGENCY APPROVALS (At only	AC input)	UL60950-1, C-UL(CSA60950-1), EN60950-1, EN50178 Complies with DEN-AN								
NOISE	CONDUCTED NOISE		Complies with I	FCC Part15 clas	sB, VCCI-B, CIS	PR22-B, EN550	11-B, EN55022-	В			
REGULATIONS	HARMONIC ATTENUAT	ΓOR	Complies with IEC61000-3-2 *6								
OTHERS	CASE SIZE/WEIGHT		32×93×147m	m [1.26 × 3.66 ×	5.79 inches] (wit	nout terminal blo	ck) (W×H×D)	/ 440g max (wit	h cover : 500g m	ax)	
OTHERS	COOLING METHOD		Convection								

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

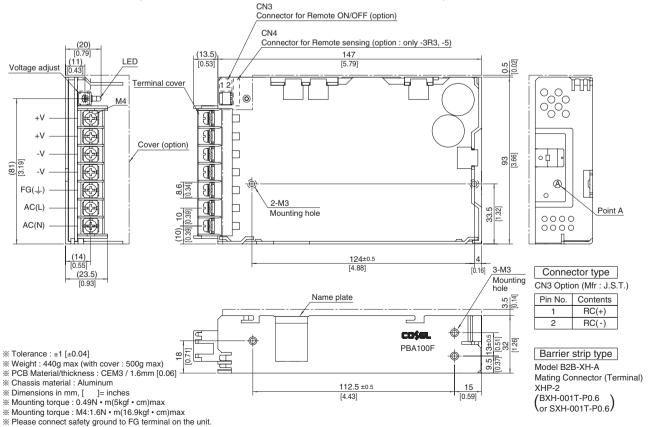
- \*5 Please contact us about safety approvals for the model with option.
- \*6 Please contact us about class C.
- Parallel operation with other model is not possible.
- Derating is required when operated with cover A sound may occur from power supply at peak loading.





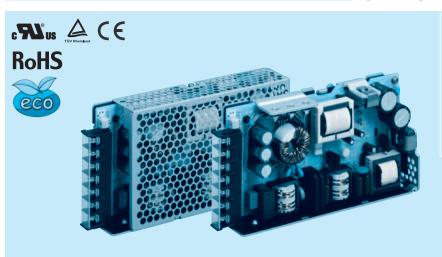
#### **External view**

\* 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.



# PBA150F

150



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.

- ①Series name ②Single output
- (3) Output wattage
- 4 Universal input
- ⑤Output voltage
- 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-

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.

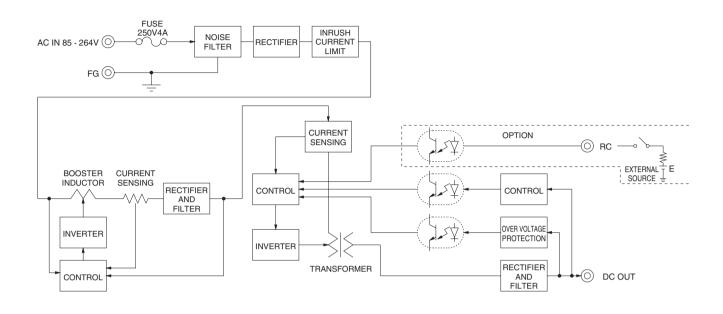
MODEL	PBA150F-3R3	PBA150F-5	PBA150F-9	PBA150F-12	PBA150F-15	PBA150F-24	PBA150F-36	PBA150F-48
MAX OUTPUT WATTAGE[W]	99	150	150.3	156	150	156	154.8	158.4
DC OUTPUT	3.3V 30A	5V 30A	9V 16.7A	12V 13A	15V 10A	24V 6.5A	36V 4.3A	48V 3.3A

	MODEL		PBA150F-3R3	PBA150F-5	PBA150F-9	PBA150F-12	PBA150F-15	PBA150F-24	PBA150F-36	PBA150F-48	
	VOLTAGE[V]		AC85 - 264 1 φ	or DC120 - 370	0 (AC50 or DC7	Please refer to	the instruction r	nanual 1.1 Input	voltage *4)		
	CURRENT[A]	ACIN 100V	1.3typ	2.0typ							
	CURRENT[A]	ACIN 200V	0.7typ	1.0typ							
	FREQUENCY[Hz]		50/60 (47 - 63)								
	EEEICIENCVI9/1	ACIN 100V	80typ	83typ	82typ	83typ	84typ	85typ	85typ	85typ	
INPUT	EFFICIENCY[%]	ACIN 200V	82typ	86typ	85typ	86typ	87typ	88typ	88typ	88typ	
	POWER FACTOR(Io=100%)	ACIN 100V	0.98typ	0.99typ							
	POWER FACTOR(IO=100%)	ACIN 200V	0.87typ	0.93typ							
	INRUSH CURRENT[A]	ACIN 100V	20typ (lo=100%	(At cold start)							
	INNUSTI CURRENT[A]	ACIN 200V	40typ (lo=100%	(At cold start)							
	LEAKAGE CURRENT[r	nA]	0.4/0.75max (A	CIN 100V/240V	60Hz, lo=100%,	According to IE	C60950-1,DENA	N)			
	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[m\	/]	20max	20max	36max	48max	60max	96max	144max	192max	
	LOAD REGULATION[m	ıV]	40max	40max	100max	100max	120max	150max	240max	240max	
	RIPPLE[mVp-p]	0 to +50°C <b>*</b> 1	80max	80max	120max	120max	120max	120max	150max	150max	
	nirrectinivp-bl	-10 - 0℃ *1	140max	140max	160max	160max	160max	160max	200max	200max	
	RIPPLE NOISE[mVp-p]	0 to +50°C <b>*</b> 1	120max	120max	150max	150max	150max	150max	250max	250max	
OUTPUT	HIPPLE NOISE[IIIVP-P]	-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	
	TEMPERATURE REGULATION[IIIV]	-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 10								
	HOLD-UP TIME[ms]		20typ (ACIN 10								
	OUTPUT VOLTAGE ADJUSTMENT		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 SET		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	
	OVERCURRENT PROT										
PROTECTION	OVERVOLTAGE PROTEC		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	NC	LED (Green)								
OTHERS	REMOTE SENSING			-3R3, -5 Option							
	REMOTE ON/OFF			ired external pov							
	INPUT-OUTPUT · RC	*3				500V 50MΩmin	·				
ISOLATION	INPUT-FG					500V 50MΩmin					
	OUTPUT · RC-FG	*3				00V 50MΩmin (					
	OPERATING TEMP.,HUMID.AND					(Non condensing		00feet) max			
ENVIRONMENT	STORAGE TEMP., HUMID. AND	ALTITUDE				000m (30,000fee					
	VIBRATION		10 - 55Hz, 19.6m/s² (2G), 3minutes period, 60minutes each along X, Y and Z axis								
	IMPACT		196.1m/s <sup>2</sup> (20G), 11ms, once each X, Y and Z axis								
SALLITAND	AGENCY APPROVALS (At only	/ AC input)									
NOISE	CONDUCTED NOISE		Complies with FCC Part15 classB, VCCI-B, CISPR22-B, EN55011-B, EN55022-B								
REGULATIONS	HARMONIC ATTENUAT	,									
OTHERS	CASE SIZE/WEIGHT			m [1.34 × 3.66 ×	6.61 inches] (wit	hout terminal blo	ock) (W×H×D)	/ 560g max (wit	h cover : 630g m	ax)	
	COOLING METHOD		Convection								

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

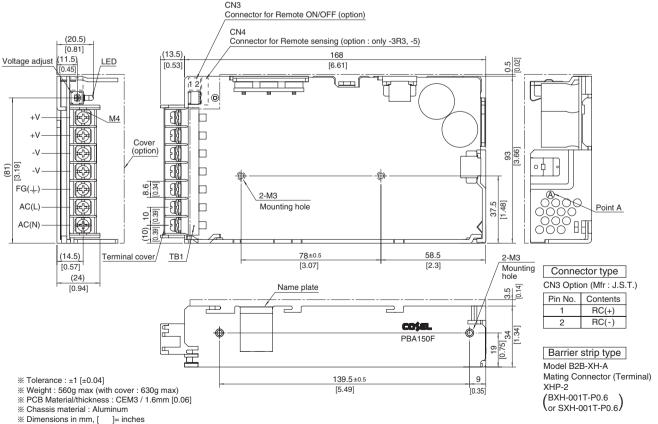
- \*5 Please contact us about safety approvals for the model with option.
- \*6 Please contact us about class C.
- Parallel operation with other model is not possible.
- Derating is required when operated with cover A sound may occur from power supply at peak loading.





#### **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.



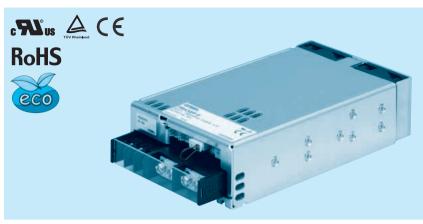
June 25, 2020

PBA/PBW-15

Mounting torque: M4:1.6N • m(16.9kgf • cm)max
 Keep drawing current per pin below 20A for TB1.
 Please connect safety ground to FG terminal on the unit.

# PBA300F

300



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.

①Series name ②Single output

(3) Output wattage 4 Universal input

⑤Output voltage

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

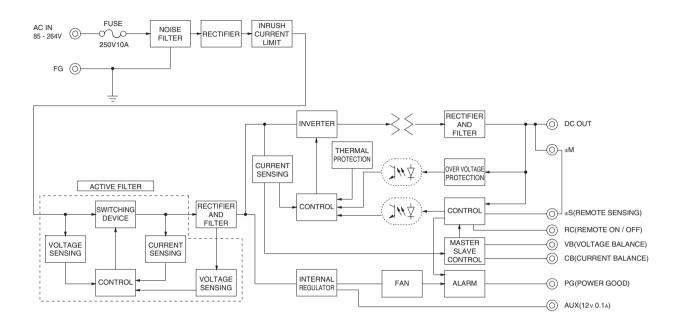
\*Make sure necessary tests will be carried out on your end equipment with the power supply installed in accordance with any required EMC/EMI regulations.

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
ACIN 100V		3.3V 60A	5V 60A	7.5V 40A	12V 27A	15V 22A	24V 14A	36V 9A	48V 7A
DC OUTPUT	ACIN 200V *3	3.3V 60A	5V 60A	7.5V 40A	12V 27A	15V 22A	24V 14(16.5)A	36V 9A	48V 7A

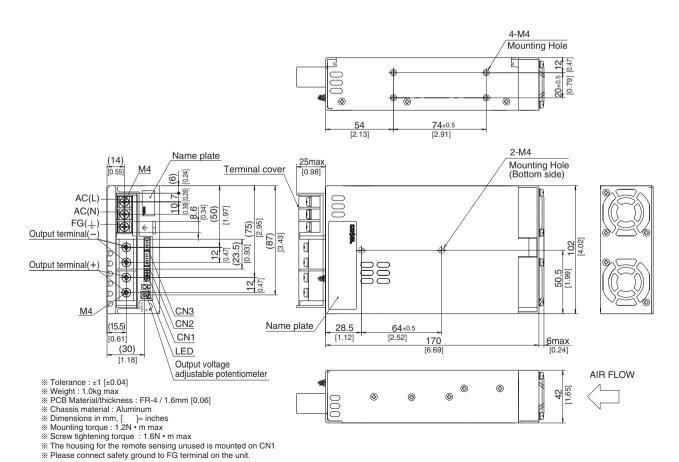
	MODEL		PBA300F-3R3	PBA300F-5	PBA300F-7R5	PBA300F-12	PBA300F-15	PBA300F-24	PBA300F-36	PBA300F-48
	VOLTAGE[V]		AC85 - 264 1 φ	or DC120 - 35	0 (AC50 or DC70	Please refer to	the instruction r	nanual 7. option	*4)	
	CURRENT[A]	ACIN 100V	3typ	4.1typ						
	CONNENT[A]	ACIN 200V	1.6typ	2typ						
	FREQUENCY[Hz]		50/60 (47 - 63)							
	EFFICIENCY[%]	ACIN 100V	68typ	74typ	76typ	78typ	78typ	79typ	81typ	79typ
INPUT	EFFICIENCY[%]	ACIN 200V	71typ	77typ	79typ	81typ	81typ	82typ	84typ	82typ
	POWER FACTOR	ACIN 100V	0.98typ (lo=100	)%)						
	POWER FACTOR	ACIN 200V	0.95typ (lo=100	)%)						
	INRUSH CURRENT[A]	ACIN 100V			rush current /Se					
	INNUSH CONNENT[A]	ACIN 200V			rush current /Se				start)	
	LEAKAGE CURRENT[1	nA]	0.45/0.75max (	ACIN 100V/240	√ 60Hz, lo=100%	According to I	EC60950-1,DEN	AN)		
	VOLTAGE[V]		3.3	5	7.5	12	15	24	36	48
	CURRENT[A]	ACIN 100V	60	60	40	27	22	14	9	7
	CURRENT[A]	ACIN 200V *3	60	60	40	27	22	14(16.5)	9	7
	LINE REGULATION[m\	/]	20max	20max	36max	48max	60max	96max	144max	192max
	LOAD REGULATION[m	ıV]	40max	40max	60max	100max	120max	150max	150max	300max
	DIDDI Elm\/m m1	0 to +50°C *1	80max	80max	120max	120max	120max	120max	150max	150max
	RIPPLE[mVp-p]	-20 - 0°C *1	140max	140max	160max	160max	160max	160max	160max	400max
OUTPUT	RIPPLE NOISE[mVp-p]	0 to +50°C *1	120max	120max	150max	150max	150max	150max	200max	200max
OUTPUT	RIPPLE NOISE[IIIVP-P]	-20 - 0°C *1	160max	160max	180max	180max	180max	180max	240max	500max
	TEMPERATURE REGULATION[mV]	0 to +50℃	40max	50max	75max	120max	150max	240max	360max	480max
	TEMPERATURE REGULATION[IIIV]	-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, lo=100%)	*Start-up time is	500ms typ for less	than 1minute of	applying input aga	in from turning off	the input voltage.
	HOLD-UP TIME[ms]		20typ (ACIN 10							
	OUTPUT VOLTAGE ADJUSTMENT		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 SET	TING[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
	OVERCURRENT PROT				ent or 101% of p					
PROTECTION	OVERVOLTAGE PROTEC		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
CIRCUIT AND	OPERATING INDICATION	ON	LED (Green)							
OTHERS	REMOTE SENSING		Provided							
	REMOTE ON/OFF		Provided							
	INPUT-OUTPUT · RC				ent = 10mA, DC					
ISOLATION	INPUT-FG				ent = 10mA, DC					
	OUTPUT · RC · AUX-F	G			t = 100mA, DC5					
	OUTPUT-RC · AUX				t = 100mA, DC5					
	OPERATING TEMP.,HUMID.AND				g"), 20 - 90%RH			Ofeet) max		
ENVIRONMENT	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 196.1m/s² (20G), 11ms, once each X, Y and Z axis							
	IMPACT									
SAFETY AND	AGENCY APPROVALS (At only	AC input)								
NOISE REGULATIONS	CONDUCTED NOISE		Complies with FCC Part15 classB, VCCI-B, CISPR22-B, EN55011-B, EN55022-B  Complies with IEC61000-3-2 *6							
NEGULATIONS	HARMONIC ATTENUAT	TOR								
OTHERS	CASE SIZE/WEIGHT				x 6.69 inches] (w	ithout terminal b	lock and screw)	(W×H×D) /1.0	kg max	
	OOLING METHOD Forced cooling (internal fan)									

- Measured by 20MHz oscilloscope or Ripple-Noise meter(equivalent to KEISOKU-GIKEN
- Drift is the change in DC output for an eight hour period after a half-hour warm-up at  $25\,^{\circ}\!\text{C}$ . \*3 () means peak current. Peak loading for 10s. And Duty 35% max, refer to Instruction manual
- $\divideontimes 4$  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.



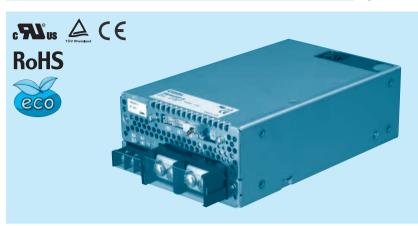


#### **External view**



# PBA600F

600



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.

- ①Series name ②Single output
- (3) Output wattage
- 4 Universal input
- ⑤Output voltage
- 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

\*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 ACIN 200V *3		3.3V 120A	5V 120A	7.5V 80A	12V 53A	15V 43A	24V 27A	36V 18A	48V 13A
		3.3V 120A	5V 120A	7.5V 80A	12V 53A	15V 43A	24V 27(31)A	36V 18A	48V 13A

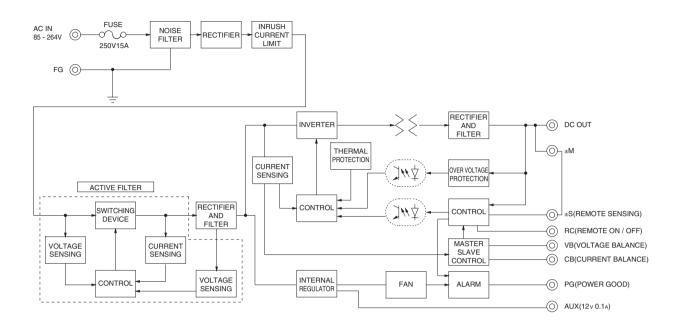
#### **SPECIFICATIONS**

	MODEL		PBA600F-3R3					PBA600F-24	PBA600F-36	PBA600F-48
	VOLTAGE[V]		AC85 - 264 1 φ	or DC120 - 35	0 (AC50 or DC70	Please refer to	the instruction n	nanual 7. option	<b>*</b> 5)	
	CURRENT[A]	ACIN 100V	5.8typ	8.2typ						
	CORNENT[A]	ACIN 200V		4.1typ						
	FREQUENCY[Hz]		50/60 (47 - 63)							
	EFFICIENCY[%]	ACIN 100V	70typ	75typ	76typ	79typ	79typ	81typ	82typ	81typ
INPUT	EFFICIENCT[/6]	ACIN 200V		77typ	79typ	82typ	82typ	84typ	84typ	83typ
	POWER FACTOR		0.98typ (lo=100							
	POWER FACTOR		0.95typ (lo=100							
	INRUSH CURRENT[A]				rush current /Se					
	INNOSTI CONNENT[A]	ACIN 200V			rush current /Se				start)	
	LEAKAGE CURRENT[r	nA]	0.45/0.75max (	ACIN 100V/240V	√ 60Hz, lo=100%	According to II	EC60950-1, DEN	NAN)		
	VOLTAGE[V]		3.3	5	7.5	12	15	24	36	48
	CURRENT[A]	ACIN 100V	120	120	80	53	43	27	18	13
	CONNENT[A]	ACIN 200V *3	120	120	80	53	43	27(31)	18	13
	LINE REGULATION[m\	/]	20max	20max	36max	48max	60max	96max	144max	192max
	LOAD REGULATION[m	V]	40max	40max	60max	100max	120max	150max	150max	300max
	RIPPLE[mVp-p]	0 to +50°C *1	80max	80max	120max	120max	120max	120max	150max	150max
	nirrectimyp-bl	-20 - 0℃ *1	140max	140max	160max	160max	160max	160max	160max	400max
ОИТРИТ	RIPPLE NOISE[mVp-p]	0 to +50°C *1	120max	120max	150max	150max	150max	150max	200max	200max
0011-01	MIFFEE NOISE[IIIVP-P]	-20 - 0℃ *1	160max	160max	180max	180max	180max	180max	240max	500max
	I TEMPERATURE REGILI ATTONIMVI E	0 to +50℃	40max	50max	75max	120max	150max	240max	360max	480max
	TEMPERATURE REGULATION[IIIV]	-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]				*Start-up time is	500ms typ for less	than 1minute of	applying input aga	in from turning off	the input voltage.
	HOLD-UP TIME[ms]		20typ (ACIN 10							
	OUTPUT VOLTAGE ADJUSTMENT		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 SET		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
	OVERCURRENT PROT				ent or 101% of p					
PROTECTION	OVERVOLTAGE PROTECT		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
CIRCUIT AND OTHERS		ON	LED (Green)							
OTHERS	REMOTE SENSING		Provided							
	REMOTE ON/OFF		Provided				,			
	INPUT-OUTPUT · RC				ent = 10mA, DC5					
ISOLATION	INPUT-FG	_			ent = 10mA, DC5	· · · · · · · · · · · · · · · · · · ·				
	OUTPUT · RC · AUX-F	G			t = 100mA, DC5					
	OUTPUT-RC · AUX				t = 100mA, DC5					
	OPERATING TEMP.,HUMID.AND				g"), 20 - 90%RH			00feet) max		
ENVIRONMENT	STORAGE TEMP.,HUMID.AND	ALTITUDE			n condensing) 9,					
	VIBRATION		10 - 55Hz, 19.6m/s² (2G), 3minutes period, 60minutes each along X, Y and Z axis							
	IMPACT		196.1m/s <sup>2</sup> (20G), 11ms, once each X, Y and Z axis							
SAFETY AND	AGENCY APPROVALS (At only	AC input)								
NOISE REGULATIONS	CONDUCTED NOISE		Complies with FCC Part15 classB, VCCI-B, CISPR22-B, EN55011-B, EN55022-B  Complies with IEC61000-3-2 *7							
	HARMONIC ATTENUAT	UR								
OTHERS	CASE SIZE/WEIGHT				7.48 inches] (with	nout terminal blo	ck and screw) (\	$N \times H \times D$ ) /1.6kg	g max	
	COOLING METHOD		Forced cooling	(internal fan)						

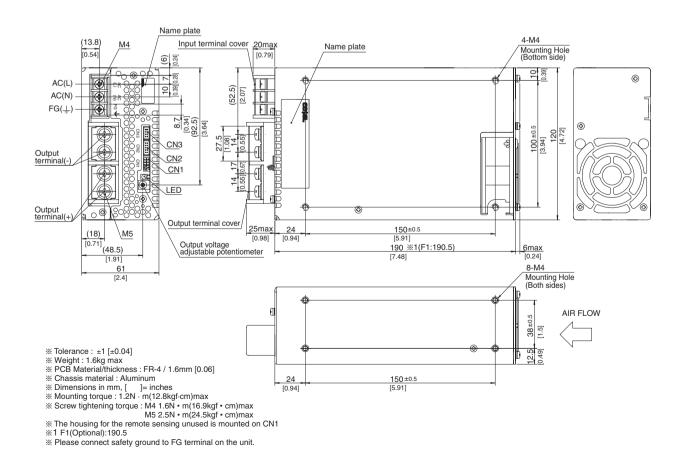
- Measured by 20MHz oscilloscope or Ripple-Noise meter(equivalent to KEISOKU-GIKEN
- Drift is the change in DC output for an eight hour period after a half-hour warm-up at 25°C. \*3 () means peak current. Peak loading for 10s. And Duty 35% max, refer to Instruction manual
- Overvoltage protection circuit 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.

PBA/PBW-18





#### **External view**



# **PBA1000F**

1000



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.

- ①Series name ②Single output (3) Output wattage
- 4 Universal input
- ⑤Output voltage
- 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

\*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
ACIN 100V		3.3V 200A	5V 200A	7.5V 134A	12V 88A	15V 70A	24V 44A	36V 29A	48V 22A
DC OUTPUT	ACIN 200V *3	3.3V 200A	5V 200A	7.5V 134A	12V 88A	15V 70A	24V 44(51)A	36V 29A	48V 22A

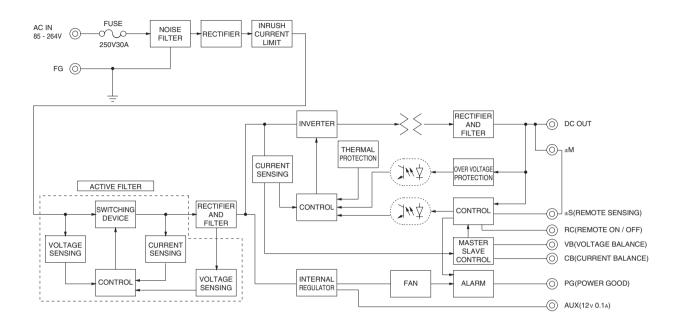
#### **SPECIFICATIONS**

	MODEL		PBA1000F-3R3	PBA1000F-5	PBA1000F-7R5	PBA1000F-12	PBA1000F-15	PBA1000F-24	PBA1000F-36	PBA1000F-48
	VOLTAGE[V]		AC85 - 264 1 φ	or DC120 - 35	0 (AC50 or DC70	Please refer to	the instruction n	nanual 7. option	*5)	
	CUDDENTIAL	ACIN 100V	9typ	13typ						
	CURRENT[A]	ACIN 200V	5typ	7typ						
	FREQUENCY[Hz]		50/60 (47 - 63)							
	EEEIOIENOVIO/1	ACIN 100V	74typ	79typ	80typ	82typ	82typ	84typ	84typ	84typ
INPUT	EFFICIENCY[%]	ACIN 200V	76typ	81typ	83typ	84typ	84typ	86typ	86typ	86typ
		ACIN 100V	0.98typ (lo=100	)%)			, , , , , , , , , , , , , , , , , , , ,	, , ,	, , ,	71
	POWER FACTOR	ACIN 200V	0.95typ (lo=100	)%)						
		ACIN 100V	20/40typ (lo=10	00%) (Primary ir	rush current /Se	condary inrush o	urrent) (More tha	an 10 sec. to re-	start)	
	INRUSH CURRENT[A]	ACIN 200V	40/40typ (lo=10	00%) (Primary ir	rush current /Se	condary inrush o	current) (More that	an 10 sec. to re-	start)	
	LEAKAGE CURRENT[r	nA]	0.5/1.0max (AC	IN 100V/240V (	60Hz, lo=100%, /	According to IEC	60950-1, DENAI	N)		
	VOLTAGE[V]		3.3	5	7.5	12	15	24	36	48
		ACIN 100V	200	200	134	88	70	44	29	22
	CURRENT[A]	ACIN 200V *3	200	200	134	88	70	44(51)	29	22
	LINE REGULATION[m\	/1	20max	20max	36max	48max	60max	96max	144max	192max
	LOAD REGULATION[m		40max	40max	60max	100max	120max	150max	150max	300max
	-	0 to +50°C *1	80max	80max	120max	120max	120max	120max	150max	150max
	RIPPLE[mVp-p]	-20 - 0°C *1	140max	140max	160max	160max	160max	160max	160max	400max
		0 to +50℃ *1	120max	120max	150max	150max	150max	150max	200max	200max
OUTPUT	RIPPLE NOISE[mVp-p]	-20 - 0℃ *1	160max	160max	180max	180max	180max	180max	240max	500max
	TEMPEDATURE RECUI ATIONSVI	0 to +50℃	40max	50max	75max	120max	150max	240max	360max	480max
	TEMPERATURE REGULATION[mV]	-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, lo=100%)	*Start-up time is	500ms typ for less	than 1minute of a	applying input aga	in from turning off	the input voltage.
	HOLD-UP TIME[ms]		20typ (ACIN 10	0/200V, lo=100	%)					
	OUTPUT VOLTAGE ADJUSTMENT	T 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
	<b>OUTPUT VOLTAGE SET</b>	TING[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
	OVERCURRENT PROT	ECTION	Works over 105	5% of rated curr	ent or 101% of p	eak current and	recovers automa	atically		
PROTECTION	OVERVOLTAGE PROTECT	ION[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
CIRCUIT AND	OPERATING INDICATION	NC	LED (Green)							
OTHERS	REMOTE SENSING		Provided							
	REMOTE ON/OFF		Provided							
	INPUT-OUTPUT · RC		AC3,000V 1mir	ute, Cutoff curr	ent = 25mA, DC5	500V 50MΩmin	(At Room Tempe	erature)		
ISOLATION	INPUT-FG		AC2,000V 1mir	ute, Cutoff curr	ent = 25mA, DC5	500V 50MΩmin	(At Room Tempe	erature)		
ISOLATION	OUTPUT · RC · AUX-F0	G	AC500V 1minu	te, Cutoff currer	t = 100mA, DC5	00V 50MΩmin (	At Room Tempe	rature)		
	OUTPUT-RC · AUX		AC500V 1minu	te, Cutoff currer	t = 100mA, DC5	00V 50MΩmin (	At Room Tempe	rature)		
	OPERATING TEMP., HUMID. AND	ALTITUDE	-20 to +71℃ (F	Refer to "Derating	g"), 20 - 90%RH	(Non condensing	g) 3,000m (10,00	00feet) max		
ENVIRONMENT	STORAGE TEMP., HUMID. AND	ALTITUDE	-20 to +75°C, 2	0 - 90%RH (No	n condensing) 9,	000m (30,000fee	et) max			
ENVIRONMENT	VIBRATION		10 - 55Hz, 19.6	m/s <sup>2</sup> (2G), 3m	nutes period, 60	minutes each ald	ong X, Y and Z a	ixis		
	IMPACT		196.1m/s <sup>2</sup> (20G), 11ms, once each X, Y and Z axis							
SAFETY AND	AGENCY APPROVALS (At only	AC input)								
NOISE	CONDUCTED NOISE		Complies with FCC Part15 classB, VCCI-B, CISPR22-B, EN55011-B, EN55022-B							
REGULATIONS	HARMONIC ATTENUAT									
OTHERS	CASE SIZE/WEIGHT				9.45 inches] (with	nout terminal blo	ck and screw) (V	$V \times H \times D$ ) /2.2kg	g max	
UTILITO	COOLING METHOD		Forced cooling	(internal fan)						

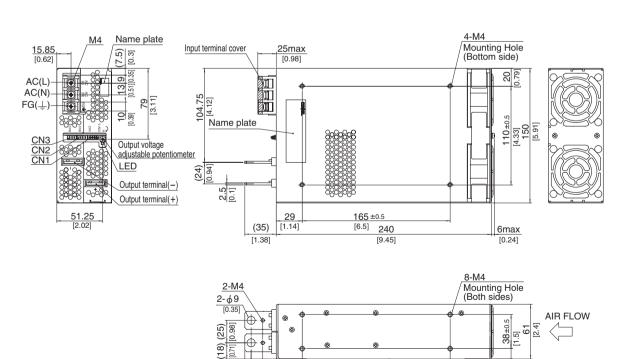
- \*1 Measured by 20MHz oscilloscope or Ripple-Noise meter(equivalent to KEISOKU-GIKEN
  - Ripple and ripple noise is measured on measuring board with capacitor of 22  $\mu\,\text{F}$  within 150mm from the output terminal.
- \*2 Drift is the change in DC output for an eight hour period after a half-hour 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.
- Please contact us about class C.
- A sound may occur from power supply at pulse loading.

PBA/PBW-20





#### **External view**



- X 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.

(25)8

7

[0.28] [0.51]

29

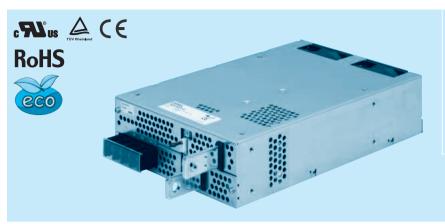
[1.14]

165±0.5

[6.5]

# **PBA1500F**

A 1500 F -5



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.

- ①Series name ②Single output (3) Output wattage 4 Universal input
- ⑤Output voltage
- 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

\*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	48V 32A
DC OUTPUT	ACIN 200V *3	3.3V 300A	5V 300A	7.5V 200A	12V 125A	15V 100A	24V 70(105)A	36V 47(70)A	48V 35A

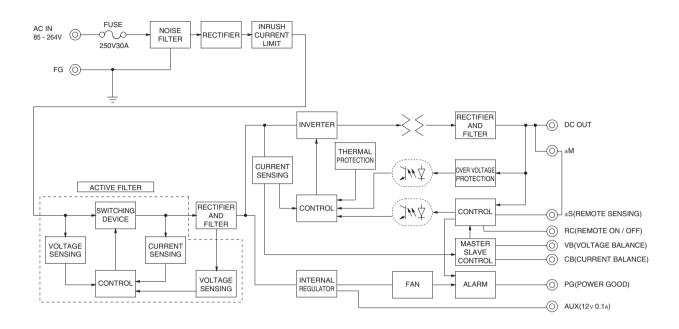
#### **SPECIFICATIONS**

	MODEL		PBA1500F-3R3	PBA1500F-5	PBA1500F-7R5	PBA1500F-12	PBA1500F-15	PBA1500F-24	PBA1500F-36	PBA1500F-48		
	VOLTAGE[V]		AC85 - 264 1 φ	or DC120 - 37	0 (AC50 or DC70	Please refer to	the instruction n	nanual 7. option	<b>*</b> 5)			
	CURRENT[A]	ACIN 100V	15typ	19typ								
	CORRENT[A]	ACIN 200V	8typ	10typ								
	FREQUENCY[Hz]		50/60 (47 - 63)									
	EEEIOIENOVIO/1	ACIN 100V	72typ	77typ	81typ	81typ	83typ	84typ	84typ	84typ		
INPUT	EFFICIENCY[%]	ACIN 200V	75typ	81typ	83typ	84typ	86typ	87typ	87typ	87typ		
		ACIN 100V	0.98typ (Io=100	)%)								
	POWER FACTOR	ACIN 200V	0.95typ (Io=100	)%)								
	INDUCUI QUIDDENITIAL	ACIN 100V	20/40typ (lo=10	00%) (Primary in	rush current /Se	condary inrush c	current) (More that	an 10 sec. to re-	start)			
	INRUSH CURRENT[A]	ACIN 200V	40/40typ (lo=10	00%) (Primary in	rush current /Se	condary inrush c	urrent) (More that	an 10 sec. to re-	start)			
	LEAKAGE CURRENT[r	nA]	0.9/1.5max (AC	IN 100V/240V 6	60Hz, lo=100%, /	According to IEC	60950-1, DENA	N)				
	VOLTAGE[V]		3.3	5	7.5	12	15	24	36	48		
		ACIN 100V	300	300	200	125	100	65	42	32		
	CURRENT[A]	ACIN 200V *3	300	300	200	125	100	70(105)	47(70)	35		
	LINE REGULATION[m\	/1	20max	20max	36max	48max	60max	96max	144max	192max		
İ	LOAD REGULATION[m	-	40max	40max	60max	100max	120max	150max	150max	300max		
	_	0 to +50°C *1	80max	80max	120max	120max	120max	120max	150max	150max		
	RIPPLE[mVp-p]	-20 - 0℃ *1	140max	140max	160max	160max	160max	160max	160max	400max		
		0 to +50°C *1	120max	120max	150max	150max	150max	150max	200max	200max		
OUTPUT	RIPPLE NOISE[mVp-p]	-20 - 0°C *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]			00/200V, lo=100	%)							
	HOLD-UP TIME[ms]		20typ (ACIN 10	yp (ACIN 100/200V, Io=100%)								
	OUTPUT VOLTAGE ADJUSTMENT	T 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 SET	TING[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		
	OVERCURRENT PROT	ECTION	Works over 105	% of rated curre	ent or 101% of p	eak current and	recovers automa	atically				
PROTECTION	OVERVOLTAGE PROTECT	ION[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		
CIRCUIT AND	OPERATING INDICATION	ON	LED (Green)			•	•					
OTHERS	REMOTE SENSING		Provided									
	REMOTE ON/OFF		Provided									
	INPUT-OUTPUT · RC		AC3,000V 1mir	ute, Cutoff curre	ent = 25mA, DC5	500V 50MΩmin	(At Room Tempe	erature)				
ISOLATION	INPUT-FG		AC2,000V 1mir	ute, Cutoff curre	ent = 25mA, DC5	500V 50MΩmin	(At Room Tempe	erature)				
ISOLATION	OUTPUT · RC · AUX-F	G	AC500V 1minu	te, Cutoff curren	t = 100mA, DC5	$00V~50M\Omega$ min (	At Room Tempe	rature)				
	OUTPUT-RC · AUX		AC500V 1minu	te, Cutoff curren	t = 100mA, DC5	$00V~50M\Omega$ min (	At Room Tempe	rature)				
	OPERATING TEMP., HUMID. AND	ALTITUDE	-20 to +71°C (F	Refer to "Derating	g"), 20 - 90%RH	(Non condensing	g) 3,000m (10,00	Ofeet) max				
ENVIRONMENT	STORAGE TEMP., HUMID. AND	ALTITUDE	-20 to +75°C, 2	0 - 90%RH (Noi	n condensing) 9,	000m (30,000fee	et) max					
ENVIRONMENT	VIBRATION		10 - 55Hz, 19.6m/s² (2G), 3minutes period, 60minutes each along X, Y and Z axis									
	IMPACT		196.1m/s <sup>2</sup> (20G), 11ms, once each X, Y and Z axis									
SAFETY AND	AGENCY APPROVALS (At only											
NOISE	CONDUCTED NOISE		Complies with FCC Part15 classB, VCCI-B, CISPR22-B, EN55011-B, EN55022-B, additional EMI/EMC Filter required for meeting class B									
REGULATIONS	HARMONIC ATTENUAT	TOR	Complies with IEC61000-3-2 *7  178 x 61 x 268mm [7.01 x 2.4 x 10.55 inches] (without terminal block and screw) (W x H x D) /3.4kg max									
OTHERS	CASE SIZE/WEIGHT				10.55 inches] (w	thout terminal bl	ock and screw)	$(W \times H \times D) / 3.4k$	g max			
O.I.E.IIO	COOLING METHOD		Forced cooling	(internal fan)								

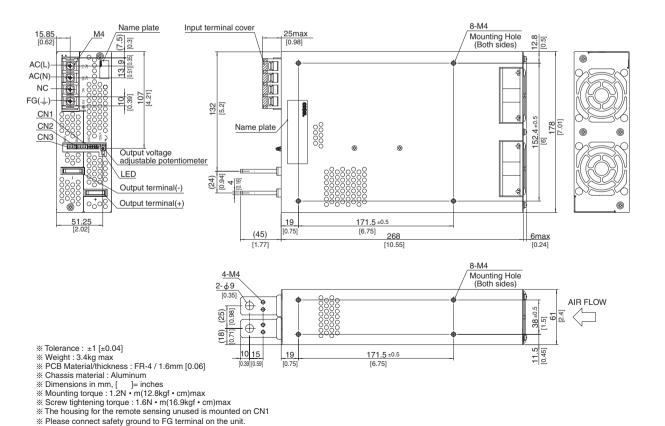
- Measured by 20MHz oscilloscope or Ripple-Noise meter(equivalent to KEISOKU-GIKEN
  - Ripple and ripple noise is measured on measuring board with capacitor of 22  $\mu\,\text{F}$  within 150mm from the output terminal.
- \*2 Drift is the change in DC output for an eight hour period after a half-hour 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.
- Please contact us about class C.
- A sound may occur from power supply at pulse loading.

PBA/PBW-22 June 25, 2020





#### **External view**



A 1500





①Series name ②Single output

(3) Output wattage Triple input phase

⑤Output voltage

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

\*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

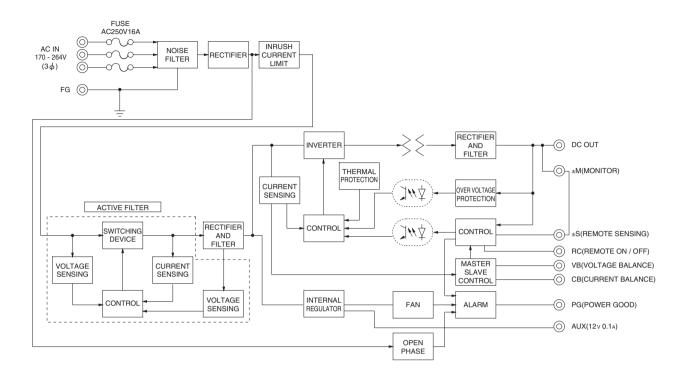
#### **SPECIFICATIONS**

	MODEL		PBA1500T-5	PBA1500T-12	PBA1500T-24	PBA1500T-48				
	VOLTAGE[V]		AC170 - 264 3φ (AC100 Pleas	se refer to the instruction manua	Il 7. option 🖈5)					
	CURRENT[A]	ACIN 200V	6typ							
	FREQUENCY[Hz]		50/60 (47 - 63)							
INPUT	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 in	nrush current /Secondary inrush	current) (More than 10 sec. to re	e-start)				
	LEAKAGE CURRENT[I	nA]	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[m\	/]	20max	48max	96max	192max				
	LOAD REGULATION[m	ıV]	40max	100max	150max	300max				
	DIDDI E[m\/n n]	0 to +50°C *1	80max	120max	120max	150max				
	RIPPLE[mVp-p]	-20 - 0°C *1	140max	160max	160max	400max				
	DIDDLE NOICEIMVa al	0 to +50°C *1	120max	150max	150max	200max				
OUTPUT	RIPPLE NOISE[mVp-p]	-20 - 0℃ *1	160max	180max	180max	500max				
	TEMPERATURE REGULATION[mV]	0 to +50℃	50max	120max	240max	480max				
	TEMPERATURE REGULATION[IIIV]	-20 to +50℃	75max	180max	290max	600max				
	DRIFT[mV]	*2	20max	48max	96max	192max				
	START-UP TIME[ms]		300typ(ACIN 200V, Io=100%) >	* Start-up time is 500ms typ for les	s than 1 minute of applying input aga	ain from turning off the input voltage.				
	HOLD-UP TIME[ms]		20typ (ACIN 200V, Io=100%)							
	OUTPUT VOLTAGE ADJUSTMENT	T RANGE[V]	3.96 - 6.00	8.25 - 13.20	16.50 - 26.40	38.40 - 56.00				
	OUTPUT VOLTAGE SET	TING[V]	5.00 - 5.15	12.00 - 12.48	24.00 - 24.96	48.00 - 49.92				
	OVERCURRENT PROT	ECTION	Works over 105% of rated curr	ent or 101% of peak current an	d recovers automatically					
PROTECTION	OVERVOLTAGE PROTECT	ION[V] *4	Vo+1.0 - 2.0	Vo+2.4 - 4.8	Vo+4.8 - 9.6	Vo+2.0 - 12.0				
CIRCUIT AND	OPERATING INDICATION	ON	LED (Green)							
OTHERS	REMOTE SENSING		Provided							
	REMOTE ON/OFF		Provided							
	INPUT-OUTPUT · RC		AC3,000V 1minute, Cutoff curr	ent = 25mA, DC500V 50M $\Omega$ mi	n (At Room Temperature)					
ISOLATION	INPUT-FG		AC2,000V 1minute, Cutoff curr	ent = $25\text{mA}$ , DC500V $50\text{M}\Omega\text{mi}$	n (At Room Temperature)					
ISOLATION	OUTPUT · RC · AUX-F	G	AC500V 1minute, Cutoff currer	nt = 100mA, DC500V 50M $\Omega$ mir	(At Room Temperature)					
	OUTPUT-RC · AUX		AC500V 1minute, Cutoff currer	nt = 100mA, DC500V 50M $\Omega$ mir	(At Room Temperature)					
	OPERATING TEMP., HUMID. AND	ALTITUDE	-20 to +71°C (Refer to "Derating	g"), 20 - 90%RH (Non condensi	ng) 3,000m (10,000feet) max					
ENVIRONMENT	STORAGE TEMP., HUMID. AND	ALTITUDE	-20 to +75℃, 20 - 90%RH (No	n condensing) 9,000m (30,000f	eet) max					
LIVINONWLIVI	VIBRATION		10 - 55Hz, 19.6m/s <sup>2</sup> (2G), 3m	inutes period, 60minutes each a	along X, Y and Z axis					
	IMPACT		196.1m/s <sup>2</sup> (20G), 11ms, once	each X, Y and Z axis						
SAFETY AND NOISE	AGENCY APPROVALS (At only	AC input)	·							
REGULATIONS	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							
UTILLIO	COOLING METHOD	·								

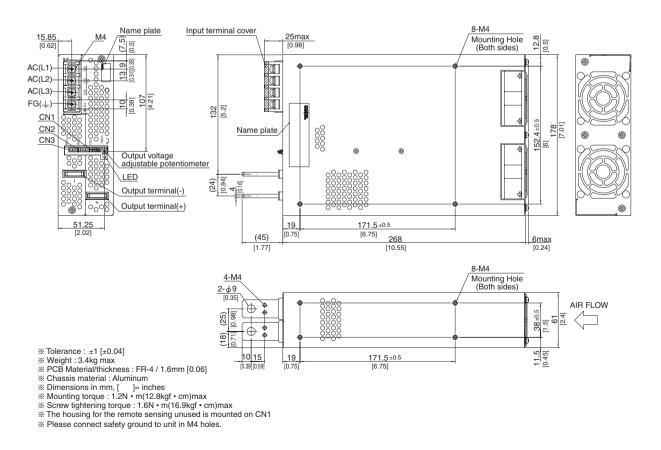
- Measured by 20MHz oscilloscope or Ripple-Noise meter(equivalent to KEISOKU-GIKEN :RM101).
  - Ripple and ripple noise is measured on measuring board with capacitor of 22 µ F within 150mm from the output terminal.
- \*2 Drift is the change in DC output for an eight hour period after a half-hour warm-up 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.
- Please contact us about safety approvals for the model with option.
  - A sound may occur from power supply at pulse loading.

PBA/PBW-24





#### **External view**



### PBW15F

15





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.

- ①Series name ②Dual output
- (3) Output wattage 4 Universal input
- ⑤Output voltage
- 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 N1:with DIN rail
- 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.

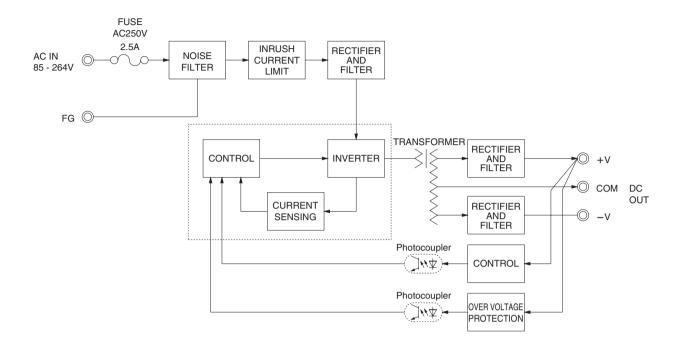
MODEL		PBW15F-12	PBW15F-15
MAX OUTPUT WATTAGE[W] *5		16.8	15.0
	VOLTAGE[V] *6	±12 ( +24 )	±15 (+30)
-	CURRENT1[A]	0.7	0.5
	CURRENT2[A] *5	1.4	1.0

	MODEL		PBW15F-12		PBW15F-15			
	VOLTAGE[V]		AC85 - 264 1 φ or DC110 - 37	0 (AC50 or DC70 Please refer to	the instruction manual 1.1 Input	voltage *8)		
		ACIN 100V	0.40typ (CURRENT1)					
	CURRENT[A]	ACIN 200V	0.20typ (CURRENT1)					
	FREQUENCY[Hz]		50/60 (47 - 440) or DC					
INPUT	ACIN 100V		74typ (CURRENT1)		78typ (CURRENT1)			
	EFFICIENCY[%]	ACIN 200V	77typ (CURRENT1)		80typ (CURRENT1)			
	INDUCUI CURRENTIAL		15typ (CURRENT1) (At cold sta					
	INRUSH CURRENT[A]		30typ (CURRENT1) (At cold start)					
	LEAKAGE CURRENT[r			/ 60Hz, lo=100%, According to	IEC60950-1,DENAN)			
	VOLTAGE[V]		±12	/ ( +24V reference number )	±15	/ ( +30V reference number )		
	CURRENT1[A]		0.7	/ 0.7	0.5	/ 0.5		
	CURRENT2[A]	*5	1.4	/ -	1.0	/ -		
	LINE REGULATION[m\	/] * <sup>*9</sup>	60max	/ 96max	60max	/ 96max		
	LOAD REGULATION 1	[mV] *11	600max	/ 150max	600max	/ 150max		
	LOAD REGULATION 2	[mV] *11	750max	/ -	750max	/ -		
	DIDDI E[m\/m m]	0 to +50°C <b>*</b> 1	120max	/ 240max	120max	/ 240max		
	RIPPLE[mVp-p]	-10 - 0℃ *1	160max	/ 320max	160max	/ 320max		
OUTPUT	RIPPLE NOISE[mVp-p]	0 to +50°C *1	150max	/ 300max	150max	/ 300max		
	RIPPLE NOISE[mvp-p]	-10 - 0℃ *1	180max	/ 360max	180max	/ 360max		
	TEMPERATURE REGULATION[mV]	0 to +50℃	120max		150max			
	TEMPERATURE REGULATION[IIIV]	-10 to +50℃	150max		180max			
	DRIFT[mV]	*2	2 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	FRANGE[V]	9.60 - 13.2 (+V and -V are simultaneously adjusted)		13.2 - 16.5 (+V and -V are sim	ultaneously adjusted)		
	<b>OUTPUT VOLTAGE SET</b>	TING[V]	11.5 - 12.5 (+V and -V CURRE	NT1)	14.4 - 15.6 (+V and -V CURRE	ENT1)		
	OVERCURRENT PROT	ECTION	Works over 105% of rated curre	ent and recovers automatically				
PROTECTION CIRCUIT AND	OVERVOEIAGE I HOTEC		16.8 - 24.0		20.0 - 29.0			
OTHERS	OPERATING INDICATION	NC	LED (Green)					
	REMOTE ON/OFF		None					
	INPUT-OUTPUT		AC3,000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (At Room Temperature)					
ISOLATION	INPUT-FG		AC2,000V 1minute, Cutoff current = 10mA, DC500V 50M $\Omega$ min (At Room Temperature)					
	OUTPUT-FG		AC500V 1minute, Cutoff current = 25mA, DC500V 50M $\Omega$ 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					
ENVIRONMENT	STORAGE TEMP.,HUMID.AND	ALTITUDE						
LINVINONIVILINI	VIBRATION		10 - 55Hz, 19.6m/s² (2G). 3minutes period, 60minutes each along X, Y and Z axis					
	IMPACT		196.1m/s <sup>2</sup> (20G), 11ms, once e					
SAFETY AND	AGENCY APPROVALS (At only	/ AC input)	UL60950-1, C-UL(CSA60950-1					
NOISE	CONDUCTED NOISE			sB, VCCI-B, CISPR22-B, EN550				
REGULATIONS	HARMONIC ATTENUAT	OR		Not built-in to active filter *7) *1				
OTHERS	CASE SIZE/WEIGHT			.35 inches] (without terminal blo	ck) $(W \times H \times D)$ / 200g max (with	cover : 235g max)		
UTITENS	COOLING METHOD		Convection					

- \*1 Measured by 20MHz oscilloscope or Ripple-Noise meter(equivalent to KEISOKU-GIKEN: RM101).
- Drift is the change in DC output for an eight hour period after a half-hour warm-up at 25°C.
- 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.
  - The sum of +power -power must be less than output power.
- \*6 ±12,±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.

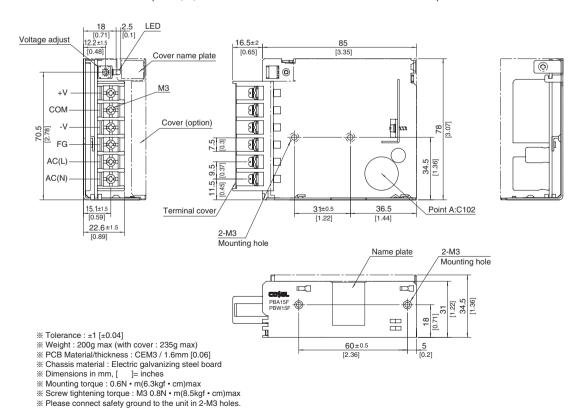
- \*10 Please contact us about safety approvals for the model with option.
- \*11 Please contact us about dynamic load and input response.
- \*12 Please contact us about class C.
- Parallel operation with other model is not possible.
- Derating is required when operated with cover.
- A sound may occur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





#### **External view**

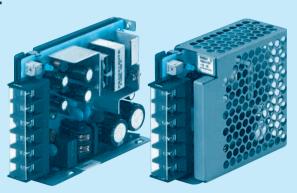
※ External size of option T,J1,N1 and V is different from standard model and refer to 7 Option of instruction manual for details.



### PBW30F

30





### 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.

- ①Series name ②Dual output
- (3) Output wattage 4 Universal input
- ⑤Output voltage
- 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
- N1:with DIN rail
- 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.

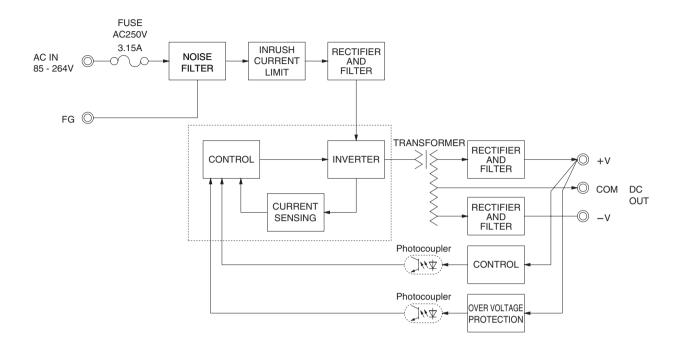
MODEL		PBW30F-5	PBW30F-12	PBW30F-15
MAX OUTPUT WATTAGE[W] *5		15	31.2	30.0
DC OUTPUT	VOLTAGE[V] *6	±5 ( +10 )	±12 ( +24 )	±15 (+30)
	CURRENT1[A]	1.5	1.3	1.0
	CURRENT2[A] * 5	2.0	1.7	1.4

	MODEL		PBW30F-5		PBW30F-12		PBW30F-15			
	VOLTAGE[V]		AC85 - 264 1 φ c	r DC110 - 370 (AC50 or	DC70 Please refe	r to the instruction manua	1.1 Input voltage *	8)		
		ACIN 100V	0.4tvp (CURREN	Γ1)	0.7typ (CURREN	IT1)				
	CURRENT[A]	ACIN 200V	0.25typ (CURREN	JT1)	0.4typ (CURREN	IT1)				
	FREQUENCY[Hz]	1	50/60 (47 - 440) or DC							
INPUT	ACIN 100V		75typ (CURRENT		77typ (CURREN	T1)	78typ (CURRENT1)			
	EFFICIENCY[%]	ACIN 200V	75typ (CURRENT1)		81typ (CURREN	T1)	79typ (CURRENT1)			
			15typ (CURRENT		71 (12	,	1 - 71			
			30typ (CURRENT							
	LEAKAGE CURRENT[			IN 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]		1.5	/ 1.5	1.3	/ 1.3	1.0	/ 1.0		
	CURRENT2[A]	*5	2.0	/ -	1.7	/ -	1.4	/ -		
	LINE REGULATION[m\	<b>/</b> ] **19	20max	/ 36max	60max	/ 96max	60max	/ 96max		
	LOAD REGULATION 1	[mV] ***	250max	/ 100max	600max	/ 150max	600max	/ 150max		
	LOAD REGULATION 2	[mV] ***	500max	/ -	750max	/ -	750max	/ -		
		0 to +50°C *1	80max	/ 240max	120max	/ 240max	120max	/ 240max		
	RIPPLE[mVp-p]	-10 - 0℃ *1	140max	/ 320max	160max	/ 320max	160max	/ 320max		
OUTPUT		0 to +50°C *1	120max	/ 300max	150max	/ 300max	150max	/ 300max		
	RIPPLE NOISE[mVp-p]	-10 - 0℃ *1	160max	/ 360max	180max	/ 360max	180max	/ 360max		
		0 to +50℃	50max		120max		150max			
	TEMPERATURE REGULATION[mV]	-10 to +50℃	60max		150max		180max			
	DRIFT[mV]	*2	2 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, lo=100%)							
	OUTPUT VOLTAGE ADJUSTMENT	T RANGE[V]	4.99 - 6.00 (+V and -V are simultaneously adjusted) 9.60 - 13.2 (+V and -V are s		V are simultaneously adjusted)	13.2 - 16.5 (+V and -V ar	e simultaneously adjusted)			
	<b>OUTPUT VOLTAGE SET</b>	TING[V]	4.99 - 5.30 (+V a	nd -V CURRENT1)	11.5 - 12.5 (+V and -V CURRENT1)		14.4 - 15.6 (+V and -V CURRENT1)			
	OVERCURRENT PROT	ECTION	Works over 105% of rated current and recovers automatically							
PROTECTION CIRCUIT AND	OVERVOLTAGE PROTEC	TION[V]	6.90 - 10.0		16.8 - 24.0		20.0 - 29.0			
OTHERS	OPERATING INDICATION	NC	LED (Green)							
	REMOTE ON/OFF		None							
	INPUT-OUTPUT		AC3,000V 1minute, Cutoff current = 10mA, DC500V 50M $\Omega$ min (At Room Temperature)							
ISOLATION	INPUT-FG		AC2,000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (At Room Temperature)							
	OUTPUT-FG		AC500V 1minute,	Cutoff current = 25mA,	DC500V 50M $\Omega$ m	in (At Room Temperature)	)			
	OPERATING TEMP., HUMID. AND					sing) 3,000m (10,000feet)	) max			
ENVIRONMENT	STORAGE TEMP.,HUMID.AND	ALTITUDE	-20 to +75°C, 20 - 90%RH (Non condensing) 9,000m (30,000feet) max							
ENVIRONMENT	VIBRATION		10 - 55Hz, 19.6m	/s² (2G), 3minutes period	d, 60minutes each	along X, Y and Z axis				
	IMPACT		196.1m/s <sup>2</sup> (20G),	11ms, once each X, Y a	nd Z axis					
SAFETY AND	AGENCY APPROVALS (At only	AC input)		(CSA60950-1), EN60950						
NOISE	CONDUCTED NOISE			C Part15 classB, VCCI-E						
REGULATIONS	HARMONIC ATTENUAT	ГOR		C61000-3-2 (Not built-in t	,					
OTHERS	CASE SIZE/WEIGHT		31 × 78 × 103mm	[1.22 × 3.07 × 4.06 inches	] (without terminal	block) (W x H x D) / 270	g max (with cover : 31	0g max)		
OTHERS	COOLING METHOD		Convection							

- \*1 Measured by 20MHz oscilloscope or Ripple-Noise meter(equivalent to KEISOKU-GIKEN: RM101).
- Drift is the change in DC output for an eight hour period after a half-hour warm-up at 25°C.
- 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.
- 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.

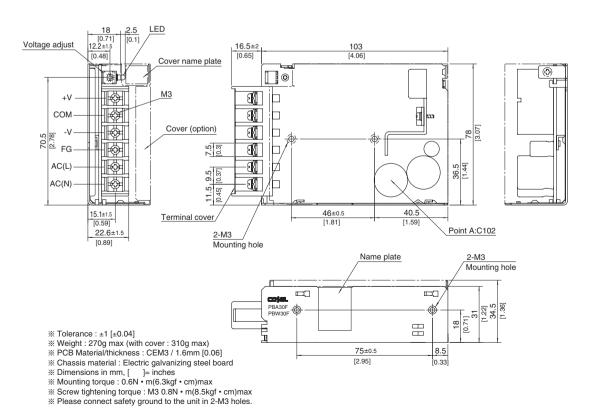
- \*10 Please contact us about safety approvals for the model with option.
- \*11 Please contact us about dynamic load and input response.
- \*12 Please contact us about class C.
- Parallel operation with other model is not possible.
- Derating is required when operated with cover.
- A sound may occur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





#### **External view**

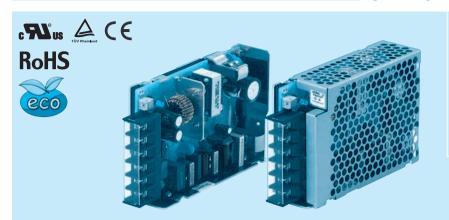
\*\* External size of option T,J1,N1 and V is different from standard model and refer to 7 Option of instruction manual for details.



### PBW50F

Ordering information

**50** 



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

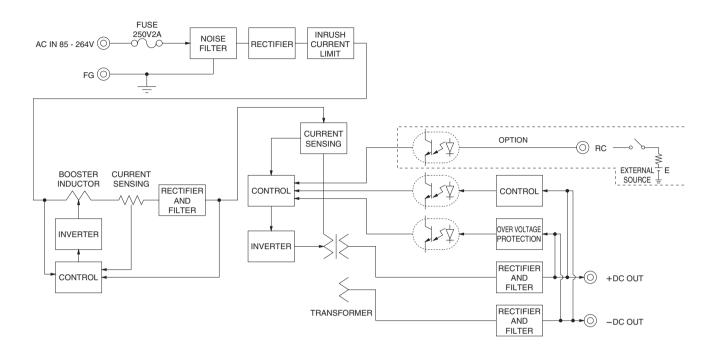
- 1) Series name 2) Dual output
- (3) Output wattage
- 4 Universal input
- ⑤Output voltage
- Optional \*9
   C:with Coating
  - G:Low leakage current (0.15mA max / ACIN 240V)
  - E:Low leakage current and EMI class A (0.5mA max / ACIN 240V) T:Vertical terminal block
- J1 :VH (J.S.T.) connector type R:with Remote ON/OFF
- N :with Cover N1 :with DIN rail
- 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		PBW50F-5	PBW50F-12	PBW50F-15
MAX OUTPUT WATTAGE[W] *6		30	50.4	51
	VOLTAGE[V] *8	±5 (+10)	±12 ( +24 )	±15 (+30)
DC OUTPUT	CURRENT1[A]	3.0	2.1	1.7
	CURRENT2[A] <b>*</b> €	4.0	2.7	2.4

	MODEL		PBW50F-5		PBW50F-12		PBW50F-15				
	VOLTAGE[V]		AC85 - 264 1 $\phi$ or DC120 - 370 (AC50 or DC70 Please refer to the instruction manual 1.1 Input voltage $*3$ )								
	OUDDENTIAL	ACIN 100V	0.45typ (CURRE	0.45typ (CURRENT1) 0.70typ (CURRENT1)							
	CURRENT[A]	ACIN 200V	0.30typ (CURRE	NT1)	0.40typ (CURRENT1)						
	FREQUENCY[Hz]		50/60 (47 - 63)								
INPUT	EFFICIENCY[%] ACIN 100V ACIN 200V		76typ (CURRENT1)		81typ (CURRENT1)		81typ (CURRENT1)				
			77typ (CURREN	T1)	83typ (CURRENT1)		83typ (CURRENT1)				
			0.98typ		0.99typ						
	POWER FACTOR(IO=100%)	ACIN 200V			0.93typ						
	INRUSH CURRENT[A]	ACIN 100V	15typ (CURREN	T1) (At cold start)							
	INNUSTI CUNNENT[A]	ACIN 200V	30typ (CURREN	0typ (CURRENT1) (At cold start)							
	LEAKAGE CURRENT[r	nA]	0.40/0.75max (A	CIN 100V/240V 60Hz, lo=	:100%, According to IE	C60950-1,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]	*6	4.0	/ -	2.7	/ -	2.4	/ -			
	LINE REGULATION[m\		20max 250max	/ 36max	48max	/ 96max	60max	/ 96max			
	LOAD REGULATION 1	AD REGULATION 1[mV] *4		/ 100max	600max	/ 150max	600max	/ 150max			
	LOAD REGULATION 2	[mV] *5	500max	/ -	750max	/ -	750max	/ -			
	RIPPLE[mVp-p]	0 to +50°C *1	80max	/ 240max	120max	/ 240max	120max	/ 240max			
	MIFFEE[IIIVP-P]	-10 - 0℃ *1	140max	/ 320max	160max	/ 320max	160max	/ 320max			
OUTPUT	RIPPLE NOISE[mVp-p]	0 to +50°C *1	120max	/ 300max	150max	/ 300max	150max	/ 300max			
		-10 - 0℃ *1	160max	/ 360max	180max	/ 360max	180max	/ 360max			
	TEMPERATURE REGULATION[mV]	0 to +50℃			120max		150max				
		-10 to +50℃			150max		180max				
	DRIFT[mV]	*2	20max         48max         60max								
	START-UP TIME[ms]		350typ(ACIN 100V, Io=100%)								
	HOLD-UP TIME[ms]		20typ (ACIN 100								
	OUTPUT VOLTAGE ADJUSTMENT		,	V are simultaneously adjusted)	9.60 - 13.2 (+V and -V are		13.2 - 16.5 (+V and -V are simultaneously adjusted)				
	OUTPUT VOLTAGE SET			and -V CURRENT1)	11.5 - 12.5 (+V and -	V CURRENT1)	14.4 - 15.6 (+V and -	V CURRENT1)			
PROTECTION	OVERCURRENT PROT			Works over 105% of rated current and recovers automatically							
CIRCUIT AND	OVERVOLTAGE PROTEC		6.90 - 10.0   16.8 - 24.0   20.0 - 29.0								
OTHERS	OPERATING INDICATION	ON	LED (Green)								
	REMOTE ON/OFF		Optional (Required external power source)								
	INPUT-OUTPUT · RC	*7	AC3,000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (At Room Temperature)								
ISOLATION	INPUT-FG		AC2,000V 1minute, Cutoff current = 10mA, DC500V 50M $\Omega$ min (At Room Temperature)								
	OUTPUT · RC-FG	*/	AC500V 1minute, Cutoff current = 100mA, DC500V 50M $\Omega$ min (At Room Temperature)								
	OPERATING TEMP.,HUMID.AND										
<b>ENVIRONMENT</b>	STORAGE TEMP.,HUMID.AND	ALIIIUDE	-20 to +75°C, 20 - 90%RH (Non condensing) 9,000m (30,000feet) max  10 - 55Hz, 19.6m/s² (2G), 3minutes period, 60minutes each along X, Y and Z axis								
	VIBRATION IMPACT			1/52 (2G), 3minutes perio , 11ms, once each X, Y a		ng ∧, Y and ∠ axis					
		. AC innut)		, 11ms, once each X, Y a L(CSA60950-1), EN60950		with DEN AN					
SAFETY AND NOISE	AGENCY APPROVALS (At only CONDUCTED NOISE	AC IIIput)		CC Part15 classB, VCCI-E							
	HARMONIC ATTENUAT	TOP.	Complies with FC		o, CIOPHZZ-B, EN550	11-D, EN55022-B					
	CASE SIZE/WEIGHT	UK		1.22 × 3.23 × 4.72 inches	1 (without terminal black	W (M < U < D) / 000	a may (with agree: 20	Ea may)			
OTHERS				[1.22 X 3.23 X 4.72 Inches	ij (without terminal bloc	ж) (vv х н х D) / 280	y max (with cover: 32	by max)			
	COOLING METHOD		Convection								

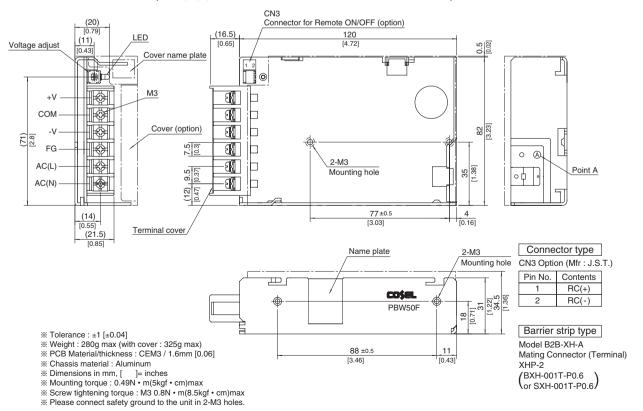
- \*1 Measured by 20MHz oscilloscope or Ripple-Noise meter(equivalent to KEISOKU-GIKEN : RM101).
- \*2 Drift is the change in DC output for an eight hour period after a half-hour warm-up at 25°C.
- \*3 Derating is required.
- Figures for 0 to rated current 1.The current not measured side is fixed.
- \*5 Figures for 0 to rated current 2. The current not measured
- The sum of +power -power must be less than output power. RC is applied to remote ON/OFF option. RC is isolated with input/output and FG.
- \*8  $\pm 5, \pm 12, \pm 15$  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.





#### **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.

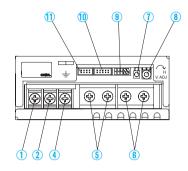


### **COSEL** | PBA·PBW-series

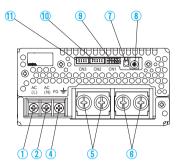
#### **Terminal Blocks**

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

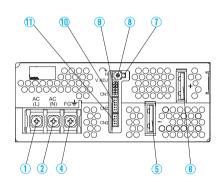
#### PBA300F



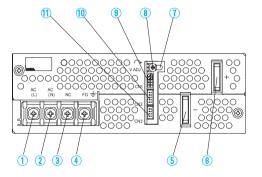
#### PBA600F



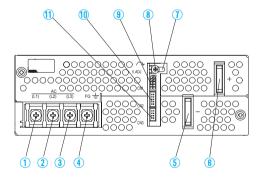
#### PBA1000F



#### PBA1500F



#### PBA1500T



#### \*PBA300F - 1500F

①AC (L) ] Input Terminals AC85 - 264V  $\phi$ 47 - 63Hz

②AC (N) ∫ (M4)

3NC

④Frame ground (M4 ±)

⑤-Output

**®**+Output

**7LED** 

Output voltage adjustable potentiometer

9CN1

10CN2 Connectors

①CN3

\*Please see Optional Parts for dedicated harnesses.

#### \*PBA1500T

1)AC (L1)

2AC (L2)

(3)AC (L3)

④Frame ground (M4 ±)

⑤-Output

(6)+Output

(7)LED

Output voltage adjustable potentiometer

9CN1

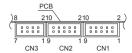
10CN2 Connectors

①CN3

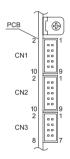


#### Terminal Blocks

#### 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

		0					
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)					

<sup>\*</sup>Common signs among CN1, CN2 and CN3 such as -S represent the same potential.

#### Matching connecters and terminals on CN1, CN2 and CN3

Connector		Housing		Terminal	
CN CN	S10B_PHDSS	PHDR-10VS	Reel	: SPHD-002T-P0.5 : BPHD-001T-P0.5	
CN	S8B-PHDSS	PHDR-08VS	Loose	. 6600-0011-60.3	

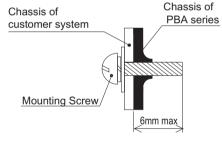
#### **Assembling and Installation Method**

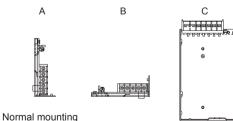
#### Installation Method

■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".



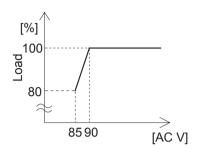


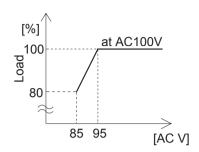
#### PBA300F, PBA600F, PBA1000F, PBA1500F and PBA1500T

- ■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.

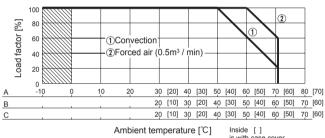
#### Derating

▶PBA10F, PBA15F, PBW15F, PBA30F, PBW30F ▶PBA1500F Input voltage Derating Curve Input voltage Derating Curve

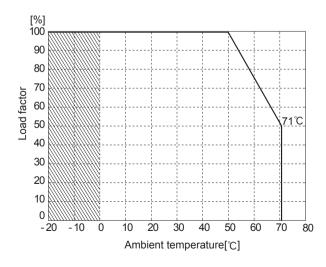




●PBA10F, PBA15F, PBW15F, PBA30F, PBW30F, PBA50F, PBW50F, PBA75F, PBA100F, PBA150F Ambient temperature derating curve



- ■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.

### PBA·PBW-series



#### **Instruction Manual**

◆ It is neccessary 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







#### **Basic Characteristics Data**

Madal	Oliver it we allow it	Switching	Input current	Rated	Inrush current	PCB/Pattern			Series/Parallel operation availability	
Model	Circuit method	frequency [kHz]	[A]	input fuse	protection circuit	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	250V 3.15A	Thermistor	CEM-3	Yes		Yes	*1
DDAEOE	Active filter	60 - 550	0.7	050)/ 04	Theymieter	CEMA	Vaa		Vaa	.0.4
PBA50F	Forward converter	130	0.7	250V 2A	Thermistor	CEM-3	Yes		Yes	*1
DDAZEE	Active filter	60 - 550		Th	OFMO	V		V	.0.4	
PBA75F	Forward converter	120		0501/ 0.454	Thermistor	CEM-3	Yes		Yes	*1
DDA400E	Active filter	60 - 550	4.0	250V 3.15A	Theoremiates	OEMO	.,		V	
PBA100F	Forward converter	120	1.3	Thermistor	CEM-3	Yes		Yes	*1	
DDA4505	Active filter	60 - 550	2.0	250V 4A	Thermistor	CEM-3	Yes		Yes	ate 4
PBA150F	Forward converter	120								*1
DD 4 000E	Active filter	230		250V 10A	SCR	FR-4		\/		V
PBA300F	Forward converter	330	4.1					Yes	Yes	Yes
DDAGGGE	Active filter	130	0.0	050)/ 454	SCR	FR-4		V	Voo	Voc
PBA600F	Forward converter	330	8.2	250V 15A				Yes	Yes	Yes
DDA4000E	Active filter	130	40		000	FD 4		V	.,	
PBA1000F	Forward converter	280	13	0501/ 004	SCR	FR-4		Yes	Yes	Yes
DD 445005	Active filter	130	40	250V 30A	000	ED 4		V	V	V
PBA1500F	Forward converter	200	19		SCR	FR-4		Yes	Yes	Yes
DDA4500T	Active filter	130		0501/ 404	000	ED 4		V	V	V
PBA1500T	Forward converter	200	6	250V 16A	SCR	FR-4		Yes	Yes	Yes
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
DDWEOT	Active filter	60 - 550	0.7	050)/ 04	They was interest	OEM 0	.,		Vaa	.0.4
PBW50F	Forward converter	130	0.7	250V 2A	Thermistor	CEM-3	Yes		Yes	*1

<sup>\*1</sup> Refer to Series/Parallel Operation of Instruction Manual.

<sup>\*</sup> The value of input current is at ACIN 100V and rated load, ACIN 200V 3  $\phi$  and rated load in PBA1500T.