

\*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 $\phi$ or DC110 - 370 (AC5	0 or DC70 Please refer to the instruct	tion manual 2.1 Input voltage *3)
		ACIN 100V	0.30typ (lo=100%)		· · · · · · · · · · · · · · · · · · ·
	CURRENT[A]	ACIN 200V	0.20typ (lo=100%)		
	FREQUENCY[Hz]		50/60 (47 - 440) or DC		
VPUT		ACIN 100V	74typ	76typ	77typ
	EFFICIENCY[%]	ACIN 200V	74typ	76typ	77typ
		ACIN 100V	15typ (lo=100%)		·
	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
		0 to +50°C *1	80max	120max	120max
	RIPPLE[mVp-p]	-10 - 0℃ *1	140max	160max	160max
		0 to +50°C *1	120max	150max	150max
UTPUT	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 applyi	ng input again from turning off the input volta
	HOLD-UP TIME[ms]	-	20typ (ACIN 100V, Io=100%)		
	OUTPUT VOLTAGE ADJUSTMEN	T RANGE[V]	4.50 - 5.50	10.0 - 13.2	19.2 - 27.0
	OUTPUT VOLTAGE SET	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	
ROTECTION	OVERVOLTAGE PROTEC	TION[V]	5.75 - 7.00	15.0 - 18.0	30.0 - 37.0
IRCUIT AND	OPERATING INDICA	TION	LED (Green)		ł
	REMOTE ON/OFF		None		
	INPUT-OUTPUT		AC3,000V 1minute, Cutoff current = 1	0mA, DC500V 50MΩmin (At Room T	emperature)
SOLATION	INPUT-FG		AC2,000V 1minute, Cutoff current = 1	0mA, DC500V 50MΩmin (At Room T	emperature)
	OUTPUT-FG		AC500V 1minute, Cutoff current = 25r	mA, DC500V 50M $\Omega$ min (At Room Ter	nperature)
	OPERATING TEMP.,HUMID.AND	) ALTITUDE	-10 to +71℃ (Required Derating), 20	- 90%RH (Non condensing) 3,000m (	10,000feet) max
	STORAGE TEMP., HUMID.AND	ALTITUDE	-20 to +75°C, 20 - 90%RH (Non cond	ensing) 9,000m (30,000feet) max	
VIRONMENT	VIBRATION		10 - 55Hz, 19.6m/s2 (2G), 3minutes p	eriod, 60minutes each along X, Y and	d Z axis
	IMPACT		196.1m/s <sup>2</sup> (20G), 11ms, once each X	, Y and Z axis	
AFETY AND	AGENCY APPROVALS (At onl	y AC input)	UL60950-1, C-UL(CSA60950-1), EN6	0950-1, EN50178 Complies with DEN	I-AN
OISE	CONDUCTED NOISE	E	Complies with FCC Part15 classB, VC	CCI-B, CISPR22-B, EN55011-B, EN55	5022-B
EGULATIONS	HARMONIC ATTENU	JATOR	Complies with IEC61000-3-2 (Not buil		
	CASE SIZE/WEIGHT	•	31 × 78 × 68mm [1.22 × 3.07 × 2.68 inc	thes] (without terminal block) (W×H×	D) / 150g max (with cover : 180g max
DTHERS	COOLING METHOD		Convection		

\*

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

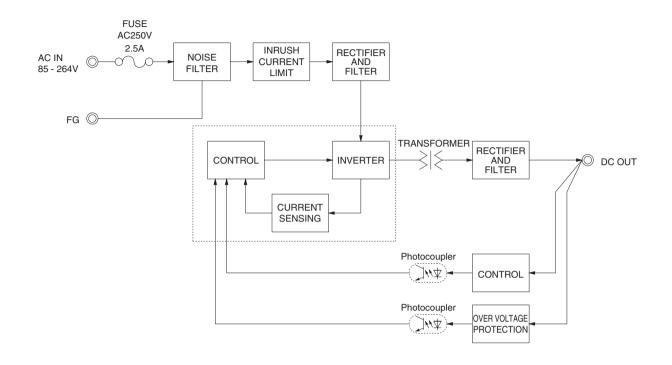
\*6 Please contact us about dynamic load and input response.
\*7 Please contact us about class C.

Parallel operation with other model is not possible \*

Derating is required when operated with cover. A sound may occur from power supply at peak loading.

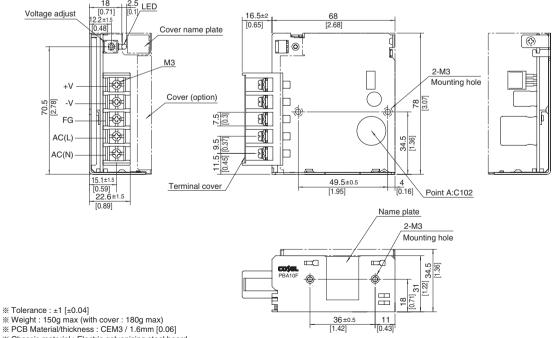
<sup>\*</sup> 

**Block diagram** 



#### **External view**

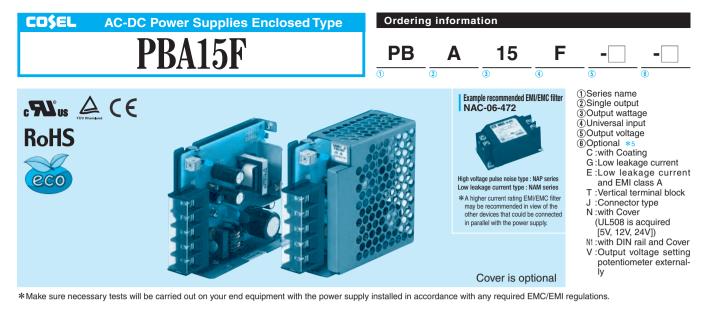
% External size of option T,J,N,N1 and V is different from standard model and refer to 7 Option of instruction manual for details.



% Chassis material : Electric galvanizing steel board

Dimensions in mm, [ ]= inches
 Mounting torque : 0.6N • m(6.3kgf • cm)max
 Screw tightening torque : M3 0.8N • m(8.5kgf • cm)max

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



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

	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	ne instruction ma	anual 2.1 Input vo	oltage *3)
OUTPUT INPUT EF INF LE VO CU INF LE VO CU LIN LE VO CU LIN LE VO CU LIN LE VO CU UI LIN LE VO CU UI LIN LO RIF BP TEM DR STJ HO OUTPUT RIP DR STJ HO OUTPUT RIP TEM DR STJ HO OUT PROTECTION OV OV PROTECTION OV PROTECTION OV OV PROTECTION OV PROTECTION OV OV PROTECTION OV OV PROTECTION OV OV PROTECTION OV OV PROTECTION OV OV PROTECTION OV OV OV PROTECTION OV OV OV OV PROTECTION OV OV OV OV OV OV OV OV OV OV	CURRENT[A]	ACIN 100V	0.30typ (lo=100%)	0.4typ (lo=100%	(6)				
	CORRENT[A]	ACIN 200V	0.15typ (lo=100%)	0.2typ (lo=100%	6)				
	FREQUENCY[Hz]		50/60 (47 - 440)	) or DC					
		ACIN 100V	68typ	74typ	75typ	75typ	77typ	75typ	75typ
	EFFICIENCY[%]	ACIN 200V	68typ	75typ	77typ	78typ	80typ	78typ	78typ
		ACIN 100V	15typ (lo=100%	) (At cold start)				•	
	INRUSH CURRENT[A]	ACIN 200V	30typ (lo=100%	) (At cold start)					
	LEAKAGE CURREN	T[mA]	0.15/0.30max (A	ACIN 100V/240V	60Hz, lo=100%,	According to IE	C60950-1,DENA	N)	
	VOLTAGE[V]		3.3	5	9	12	15	24	48
	CURRENT[A]		3	3	1.7	1.3	1	0.7	0.35
	LINE REGULATION	mV] *6	20max	20max	36max	48max	60max	96max	192max
	LOAD REGULATION	[mV] *6	40max	40max	100max	100max	120max	150max	240max
	RIPPLE[mVp-p]	0 to +50℃ *1	80max	80max	120max	120max	120max	120max	150max
	RIPPLE[mvp-p]	-10 - 0℃ *1	140max	140max	160max	160max	160max	160max	200max
		0 to +50℃ *1	120max	120max	150max	150max	150max	150max	250max
UTPUT	RIPPLE NOISE[mVp-p]	-10 - 0℃ *1	160max	160max	180max	180max	180max	180max	300max
OUTPUT INPUT EF INPUT INPUT EF INPUT EF INPUT INPUT EF INPUT INPUT EF INPUT INPUT EF INPUT INPUT EF INPUT INPUT INPUT EF INPUT INPUT INPUT INPUT EF INPUT INO	TEMPERATURE REGULATION[mV]	0 to +50℃	50max	50max	90max	120max	150max	240max	480max
		-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-u	up time is 700ms typ	o for less than 1minu	te of applying input	again from turning	off the input volta
	HOLD-UP TIME[ms]		20typ (ACIN 10	0V, lo=100%)					
	OUTPUT VOLTAGE ADJUSTMENT	T 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 - 49.9
	OVERCURRENT PROT	ECTION	Works over 105	% of rated currer	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
	OPERATING INDICA	TION	LED (Green)						
-	<b>REMOTE ON/OFF</b>		None						
	INPUT-OUTPUT			ute, Cutoff currer					
OLATION	INPUT-FG		AC2,000V 1min	ute, Cutoff currer	nt = 10mA, DC50	DOV 50M $_{\Omega}$ min (A	At Room Tempera	ature)	
	OUTPUT-FG		AC500V 1minut	e, Cutoff current	= 25mA, DC500	V 50MΩmin (At	Room Temperati	ure)	
	OPERATING TEMP.,HUMID.AND	ALTITUDE	-10 to +71℃ (R	equired Derating	), 20 - 90%RH (I	Non condensing)	3,000m (10,000	feet) max	
	STORAGE TEMP.,HUMID.AND	ALTITUDE	-20 to +75°C, 20	) - 90%RH (Non	condensing) 9,0	00m (30,000feet)	max		
	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	), 11ms, once ea	ich X, Y and Z a	xis			
AFETY AND	AGENCY APPROVALS (At only	y AC input)	UL60950-1, C-L	JL(CSA60950-1),	EN60950-1, EN	50178 Complies	with DEN-AN		
OISE	CONDUCTED NOISE			CC Part15 class			1-B, EN55022-B		
EGULATIONS	HARMONIC ATTENU	IATOR		EC61000-3-2 (No					
THERE	CASE SIZE/WEIGHT		31 x 78 x 85mm	[1.22×3.07×3.3	35 inches] (witho	ut terminal block	(WXHXD) / 2	00g max (with co	over : 235g max
INCHO	COOLING METHOD		Convection						

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

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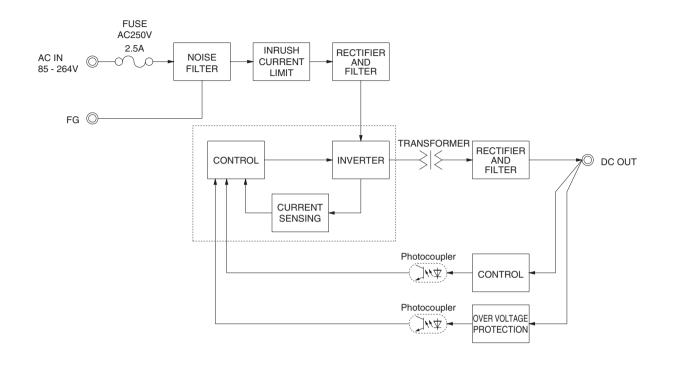
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\*

Parallel operation with other model is not possible \*

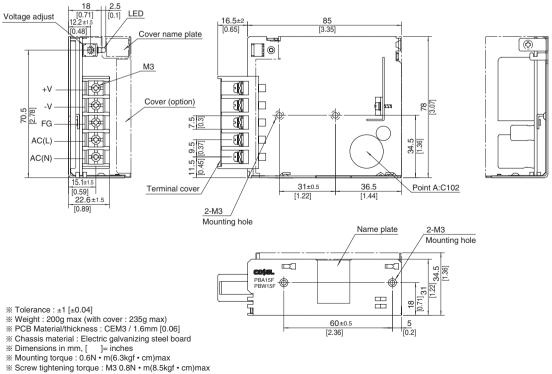
Derating is required when operated with cover. A sound may occur from power supply at peak loading. \*

**Block diagram** 

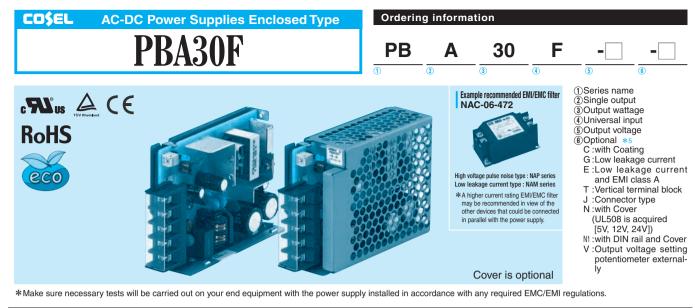


#### **External view**

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



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



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

	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 t	he instruction ma	anual 2.1 Input vo	oltage *3)
		ACIN 100V	0.50typ (lo=100%)	0.70typ (lo=100	%)				
OUTPUT INPUT EF INF LE VO CU FR INF LE VO CU CU LIN LO CU CU CU CU CU CU CU CU CU CU	CURRENT[A]	ACIN 200V	0.30typ (lo=100%)	0.40typ (lo=100	1%)				
	FREQUENCY[Hz]		50/60 (47 - 440)	or DC					
NPUT		ACIN 100V	68typ	74typ	75typ	76typ	78typ	78typ	79typ
	EFFICIENCY[%]	ACIN 200V	69typ	77typ	77typ	78typ	81typ	81typ	81typ
		ACIN 100V	15typ (lo=100%	) (At cold start)					1
	INRUSH CURRENT[A]	ACIN 200V	30typ (lo=100%	) (At cold start)					
	LEAKAGE CURREN	T[mA]	0.30/0.65max (A	ACIN 100V/240V	60Hz, lo=100%,	According to IE	C60950-1,DENA	N)	
	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
		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
		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
		0 to +50℃	50max	50max	90max	120max	150max	240max	480max
INPUT INPUT INPUT IN IN IN IN IN IN IN IN IN IN	TEMPERATURE REGULATION[mV] -10 to +5		60max	60max	120max	150max	180max	290max	600max
	DRIFT[mV] *		20max	20max	36max	48max	60max	96max	192max
	START-UP TIME[ms]		200typ(ACIN 100V	lo=100%) *Start-u	up time is 700ms ty	p for less than 1min	ute of applying input	again from turning	off the input volta
	HOLD-UP TIME[ms]		20typ (ACIN 10	0V, lo=100%)	· · · ·				
	OUTPUT VOLTAGE ADJUSTMEN	T 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 - 49.9
	OVERCURRENT PROT	ECTION	Works over 105	% of rated curre	nt and recovers a	automatically			
	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
	<b>OPERATING INDICA</b>	TION	LED (Green)						
	REMOTE ON/OFF		None						
	INPUT-OUTPUT		AC3,000V 1min	ute, Cutoff currer	nt = 10mA, DC50	00V 50MΩmin (A	At Room Tempera	ature)	
OLATION	INPUT-FG		AC2,000V 1min	ute, Cutoff currer	nt = 10mA, DC50	$00V 50M\Omega$ min (A	At Room Tempera	ature)	
	OUTPUT-FG		AC500V 1minut	e, Cutoff current	= 25mA, DC500	V 50MΩmin (At	Room Temperat	ure)	
	OPERATING TEMP.,HUMID.AND	ALTITUDE	-10 to +71℃ (R	equired Derating	), 20 - 90%RH (I	Non condensing)	3,000m (10,000	feet) max	
	STORAGE TEMP.,HUMID.AND	ALTITUDE	-20 to +75℃, 20	) - 90%RH (Non	condensing) 9,0	00m (30,000feet)	max		
WIRONMENT	VIBRATION		10 - 55Hz, 19.6	m/s² (2G), 3min	utes period, 60m	ninutes each alon	g X, Y and Z axi	is	
	IMPACT		196.1m/s <sup>2</sup> (20G	), 11ms, once ea	ach X, Y and Z a	xis	-		
	AGENCY APPROVALS (At only	y AC input)	UL60950-1, C-L	JL(CSA60950-1),	EN60950-1, EN	50178 Complies	with DEN-AN		
OISE	CONDUCTED NOISE		Complies with F	CC Part15 class	B, VCCI-B, CISF	PR22-B, EN5501	1-B, EN55022-B		
EGULATIONS	HARMONIC ATTENU	JATOR		EC61000-3-2 (No					
	CASE SIZE/WEIGHT		31 x 78 x 103mr	n [1.22 × 3.07 × 4	.06 inches] (with	out terminal bloc	k) (W×H×D) / 2	270g max (with c	over : 310g ma
JINERS	COOLING METHOD		Convection	-				2	5

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

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\*6 Please contact us about dynamic load and input response.
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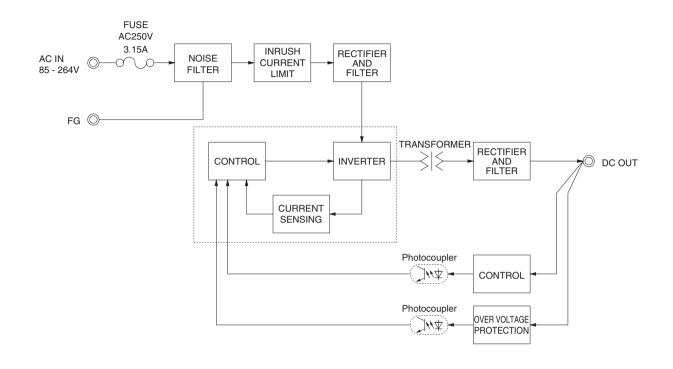
\* Parallel operation with other model is not possible

\*

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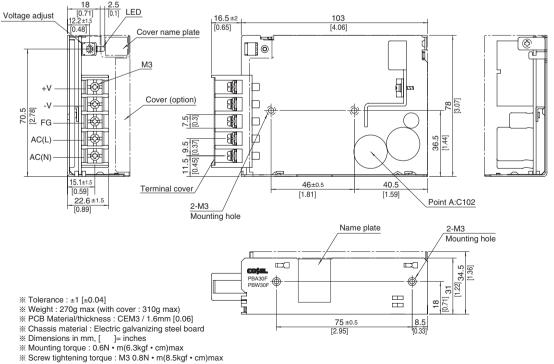
PBA30F | CO\$EL

**Block diagram** 

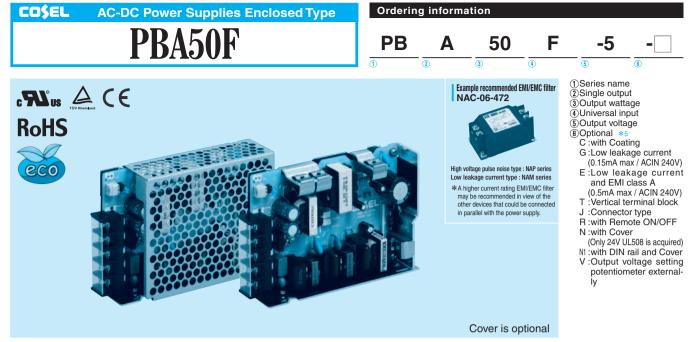


#### **External view**

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



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



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

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

# **SPECIFICATIONS**

	MODEL		PBA50F-3R3	PBA50F-5	PBA50F-9	PBA50F-12	PBA50F-15	PBA50F-24	PBA50F-36	PBA50F-48
	VOLTAGE[V]		AC85 - 264 1 ¢	or DC120 - 37	0 (AC50 or DC7	0 Please refer to	the instruction r	nanual 2.1 Input	voltage *4)	
		ACIN 100V	0.5typ	0.7typ						
	CURRENT[A]	ACIN 200V	0.3typ	0.4typ						
	FREQUENCY[Hz]		50/60 (47 - 63)							
		ACIN 100V	75typ	80typ	79typ	80typ	81typ	82typ	83typ	83typ
IPUT	EFFICIENCY[%]	ACIN 200V	76typ	82typ	81typ	82typ	83typ	84typ	85typ	85typ
		ACIN 100V		0.99typ		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,				
	POWER FACTOR(IO=100%)	ACIN 200V	0.87typ	0.93typ						
		ACIN 100V	15typ (lo=100%	(At cold start)						
			30typ (lo=100%							
					60Hz, lo=100%	According to IE	C60950-1,DENA	N)		
			3.3	5	9	12	15	24	36	48
			10	10	5.6	4.3	3.5	2.2	1.4	1.1
		/1	20max	20max	36max	48max	60max	96max	144max	192max
		-	40max	40max	100max	100max	120max	150max	240max	240max
	<b>L</b>	0 to +50°C *1	80max	80max	120max	120max	120max	120max	150max	150max
	RIPPLE[mVp-p]	-10 - 0°C *1	140max	140max	160max	160max	160max	160max	200max	200max
		0 to +50°C *1	120max	120max	150max	150max	150max	150max	250max	250max
	RIPPLE NOISE[mVp-p]	-10 - 0°C *1	160max	160max	180max	180max	180max	180max	300max	300max
VOLTAGE[V]           CURRENT[A]           FREQUENCY[Hz]           EFFICIENCY[%]           POWER FACTOR(Io=100%)           INRUSH CURRENT[A]           LEAKAGE CURRENT[A]           UOLTAGE[V]           CURRENT[A]           LINE REGULATION[mv           LOAD REGULATION[m           RIPPLE[mVp-p]           OUTPUT	0 to +50℃		50max	90max	120max	150max	240max	360max	480max	
	TEMPERATURE REGULATION[mV]	-10 to +50℃	60max	60max	120max	150max	180max	290max	450max	600max
	DBIFT[mV]	*2	20max	20max	36max	48max	60max	96max	144max	192max
		42	350typ(ACIN 10		Joomax	Fornax	oomax	Joinax	ITTINAX	TJZINAX
			20typ (ACIN 10							
			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
			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 - 49.9
			Works over 105				10.00 10.00	24.00 24.00	00.00 07.44	+0.00 +0.0
ROTECTION			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
IRCUIT AND			LED (Green)	5.75 7.00	11.5 14.0	10.0 10.0	20.0 20.0	00.0 - 07.0	40.0 00.0	30.0 - 03.0
THERS				ired external por	wer source)					
		*3				500V 50M () min	(At Room Temp	araturo)		
		40					(At Room Temp			
OLAHON		*3					(At Room Tempe			
							g) 3,000m (10,00			
						,000m (30,000fe				
VIRONMENT		ALIIIODL	-		0.		ong X, Y and Z a	vio		
	-			a), 11ms, once e			ong A, Tanu Za	1712		
		(AC input)					es with DEN-AN			
		AC Input)					011-B, EN55022-	D		
				EC61000-3-2 *		3F NZZ-D, EN350	JII-D, EN00022-	D		
	TIATIMONIO ATTENOA	UR				thout torminal bl	ock) (WXHXD)	( 000g may (		21
THERS				m [1.22 x 3.23 x	4.12 Inches] (WI	inout terminal blo	$\mathcal{D}(\mathbf{K}) (\mathbf{W} \times \mathbf{H} \times \mathbf{D})$	∠oug max (Wit	i cover : 325g m	ax)
	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. Applicable when Remote ON/OFF(optional) is added. RC is insulated with input, output and \*2

\*3 FG.

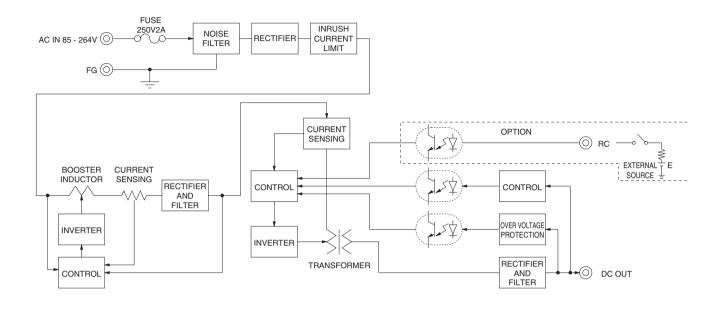
\* Parallel operation with other model is not possible.

Derating is required when operated with cover. \* A sound may occur from power supply at peak loading.

\*6 Please contact us about class C.

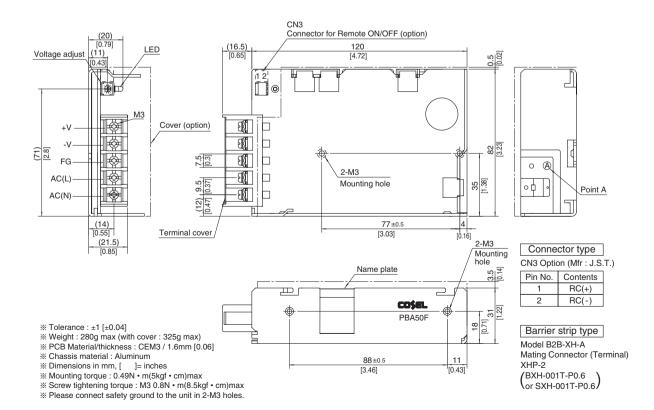
\*4 Derating is required.

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#### **External view**

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



<b>CO\$EL</b> AC-DC Power Supplies Enclosed Type	Ordering	informa	ition			
PBA75F	<b>PB</b>	<b>A</b>	<b>75</b>	<b>F</b>	<b>-5</b>	•
<image/> <image/> <image/> <section-header><section-header><section-header><image/></section-header></section-header></section-header>		High vo Low le *A hi may othe	nple recommended E CC-06-472	: NAP series NAM series MI/EMC filter view of the pe connected	(0.15mA i E :Low le and EM (0.5mA n T :Vertical J :Connec R :with Re N :with Co (Only 24V Ni :with DII V :Output	put ttage nput tage ks5 ating kage current max / ACIN 240V) akage current II class A nax / ACIN 240V) terminal block tor type mote ON/OFF
			Cover is op	otional		

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

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

# **SPECIFICATIONS**

	MODEL		PBA75F-3R3	PBA75F-5	PBA75F-9	PBA75F-12	PBA75F-15	PBA75F-24	PBA75F-36	PBA75F-48
	VOLTAGE[V]		AC85 - 264 1 ¢	or DC120 - 37	) (AC50 or DC7	0 Please refer to	the instruction r	nanual 2.1 Input	voltage *4)	
		ACIN 100V	0.7typ	1.0typ					-	
	CURRENT[A]	ACIN 200V	0.4typ	0.5typ						
	FREQUENCY[Hz]		50/60 (47 - 63)							
		ACIN 100V	77typ	81typ	80typ	81typ	82typ	83typ	84typ	84typ
NPUT	EFFICIENCY[%]	ACIN 200V	78typ	83typ	82typ	83typ	84typ	85typ	86typ	86typ
		ACIN 100V	0.98typ	0.99typ						
	POWER FACTOR(Io=100%)	ACIN 200V	0.87typ	0.93typ						
		ACIN 100V	15typ (lo=100%	b) (At cold start)						
	INRUSH CURRENT[A]	ACIN 200V	30typ (lo=100%	b) (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]		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	īV]	40max	40max	100max	100max	120max	150max	240max	240max
		0 to +50°C *1	80max	80max	120max	120max	120max	120max	150max	150max
	RIPPLE[mVp-p]	-10 - 0°C *1	140max	140max	160max	160max	160max	160max	200max	200max
		0 to +50°C *1	120max	120max	150max	150max	150max	150max	250max	250max
DUTPUT	RIPPLE NOISE[mVp-p]	-10 - 0°C *1	160max	160max	180max	180max	180max	180max	300max	300max
		0 to +50℃	50max	50max	90max	120max	150max	240max	360max	480max
	TEMPERATURE REGULATION[mV]	-10 to +50°C	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, 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
	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	36.00 - 37.44	48.00 - 49.92
	OVERCURRENT PROT	ECTION	Works over 105	5% of rated curre	ent and recovers	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	43.0 - 50.0	58.0 - 65.0
THERS	OPERATING INDICATIO	ON	LED (Green)							
	REMOTE ON/OFF		Optional (Requ	ired external pov	ver source)					
	INPUT-OUTPUT · RC	*3				500V 50M $\Omega$ min				
SOLATION	INPUT-FG		AC2,000V 1mir	ute, Cutoff curre	ent = 10mA, DC	500V 50M $\Omega$ min	(At Room Temp	erature)		
	OUTPUT · RC-FG	*3	AC500V 1minu	te, Cutoff curren	t = 100mA, DC5	500V 50MΩmin	At Room Tempe	rature)		
	OPERATING TEMP., HUMID.AND	ALTITUDE	-10 to +71℃ (F	Required Deratin	g), 20 - 90%RH	(Non condensing	g) 3,000m (10,00	00feet) max		
NVIRONMENT	STORAGE TEMP.,HUMID.AND	ALTITUDE	-20 to +75℃, 2	0 - 90%RH (Nor	n condensing) 9	000m (30,000fee	et) max			
	VIBRATION		10 - 55Hz, 19.6	6m/s² (2G), 3mi	nutes period, 60	minutes each ale	ong X, Y and Z a	axis		
	IMPACT		196.1m/s <sup>2</sup> (200	a), 11ms, once e	ach X, Y and Z	axis				
AFETY AND	AGENCY APPROVALS (At only	y AC input)	UL60950-1, C-	JL(CSA60950-1	), EN60950-1, E	N50178 Complie	es with DEN-AN			
IOISE	CONDUCTED NOISE		Complies with	-CC Part15 clas	sB, VCCI-B, CI	SPR22-B, EN550	11-B, EN55022-	В		
REGULATIONS	HARMONIC ATTENUAT	FOR	Complies with	EC61000-3-2 *	6					
OTHERS	CASE SIZE/WEIGHT		32 x 82 x 135m	m [1.26 x 3.23 x	5.31 inches] (wi	hout terminal blo	ock) (WXHXD)	350g max (wit	h cover : 400g m	ax)
JIIIENS	COOLING METHOD		Convection							

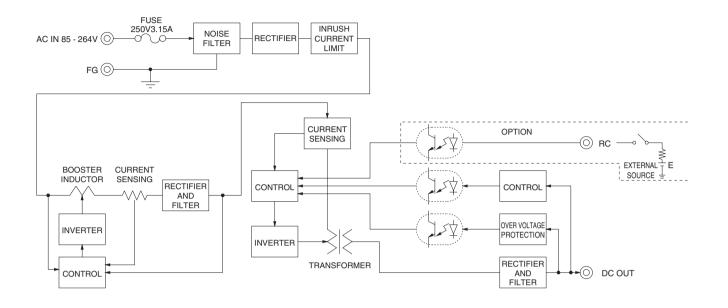
\*1 Measured by 20MHz oscilloscope or Ripple-Noise meter(equivalent to KEISOKU-GIKEN :RM101).

2 Drift is the change in DC output for an eight hour period after a half-hour warm-up at 25°C.
 \*3 Applicable when Remote ON/OFF(optional) is added. RC is insulated with input, output and FG.

\*4 Derating is required.

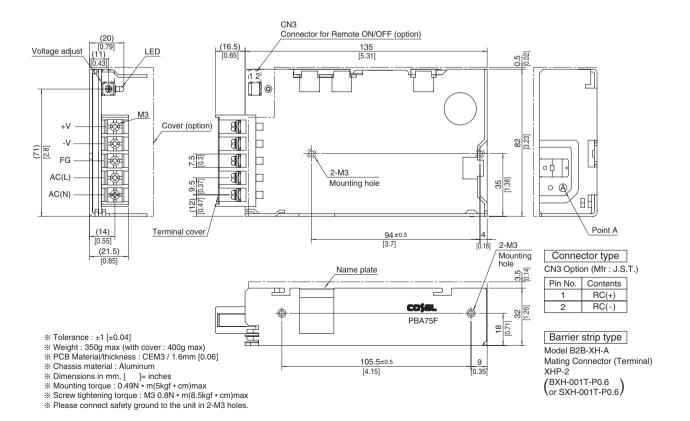
\*5 Please contact us about safety approvals for the model with option.
\*6 Please contact us about class C.
\* Parallel operation with other model is not possible.
\* Derating is required when operated with cover.
\* A sound may occur from power supply at peak loading.



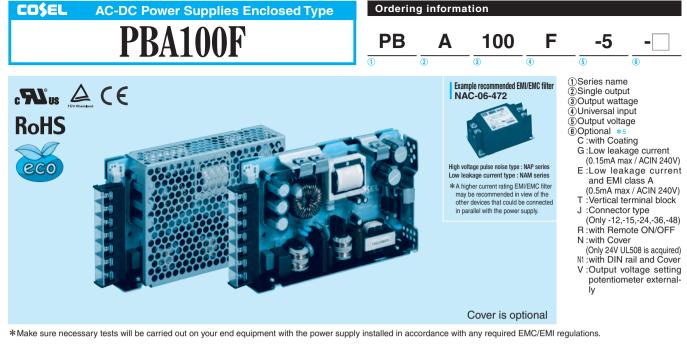


#### **External view**

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



PBA/PBW-11



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 - 37	0 (AC50 or DC7	0 Please refer to	the instruction r	nanual 2.1 Input	voltage *4)			
INPUT	CURRENTIA	ACIN 100V										
	CORRENT[A]	ACIN 200V	0.5typ	0.7typ								
	FREQUENCY[Hz]		50/60 (47 - 63)									
		ACIN 100V	77typ	82typ	80typ	81typ	83typ	84typ	84typ	84typ		
	EFFICIENCY[%]	ACIN 200V	79typ	84typ	82typ	83typ	86typ	86typ	86typ	86typ		
	POWER FACTOR(Io=100%)	ACIN 100V	0.98typ	0.99typ								
		ACIN 200V										
	INRUSH CURRENT[A]	ACIN 100V	20typ (lo=100%) (At cold start)									
	ACIN 20		40typ (lo=100%) (At cold start)									
	LEAKAGE CURRENT[mA]		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[mV]		20max	20max	36max	48max	60max	96max	144max	192max		
	LOAD REGULATION[mV]		40max	40max	100max	100max	120max	150max	240max	240max		
	RIPPLE[mVp-p]	0 to +50°C *1	80max	80max	120max	120max	120max	120max	150max	150max		
OUTPUT	RIPPLE[IIIvp-p]	-10 - 0°C *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		
		-10 - 0°C *1	160max	160max	180max	180max	180max	180max	300max	300max		
	TEMPERATURE REGULATION[mV]	0 to +50℃	50max	50max	90max	120max	150max	240max	360max	480max		
		-10 to +50℃	60max	60max	120max	150max	180max	290max	450max	600max		
	DRIFT[mV]	*2	20max	20max	36max	48max	60max	96max	144max	192max		
	START-UP TIME[ms]		350typ(ACIN 100V, lo=100%)									
	HOLD-UP TIME[ms]		20typ (ACIN 100V, lo=100%)									
	OUTPUT VOLTAGE ADJUSTMENT RANGE[V]		2.85 - 3.63	4.00 - 5.50	7.50 - 10.0	10.0 - 13.2	13.2 - 18.0	19.2 - 27.0	28.8 - 39.6	39.0 - 53.0		
	OUTPUT VOLTAGE SETTING[V]		3.20 - 3.40	5.00 - 5.15	9.00 - 9.36	12.00 - 12.48	15.00 - 15.60	24.00 - 24.96	36.00 - 37.44	48.00 - 49.92		
	OVERCURRENT PROTECTION		Works over 105	% of rated curr	ent and recover	s automatically						
ROTECTION	OVERVOLTAGE PROTECTION[V]		4.00 - 5.25	5.75 - 7.00	11.5 - 14.0	15.0 - 18.0	20.0 - 25.0	30.0 - 37.0	43.0 - 50.0	58.0 - 65.0		
IRCUIT AND	OPERATING INDICATION		LED (Green)									
DTHERS	REMOTE SENSING		Optional (Only -3R3, -5 Option -K)									
	REMOTE ON/OFF		Optional (Required external power source)									
	INPUT-OUTPUT · RC	*3	AC3.000V 1minute, Cutoff current = 10mA, DC500V 50M $\Omega$ min (At Room Temperature)									
SOLATION	INPUT-FG		AC2.000V 1minute, Cutoff current = 10mA, DC500V 50MΩmin (At Room Temperature)									
	OUTPUT · RC-FG *		a AC500V 1minute, Cutoff current = 100mA, DC500V 50MΩmin (At Room Temperature)									
	OPERATING TEMP.,HUMID.AND ALTITUDE		-10 to +71°C (Required Derating), 20 - 90%RH (Non condensing) 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									
INVIRONMENT	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> (20G), 11ms, once each X, Y and Z axis									
AFETY AND	AGENCY APPROVALS (At only AC input)		UL60950-1, C-UL(CSA60950-1), EN60950-1, EN50178 Complies with DEN-AN									
IOISE	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		32×93×147mm [1.26×3.66×5.79 inches] (without terminal block) (W×H×D) / 440g max (with cover : 500g 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. Applicable when Remote ON/OFF(optional) is added. RC is insulated with input, output and \*2

\*3 FG.

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

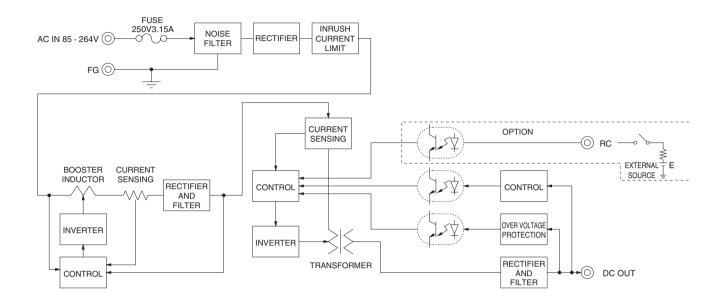
\* Parallel operation with other model is not possible.

Derating is required when operated with cover.

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

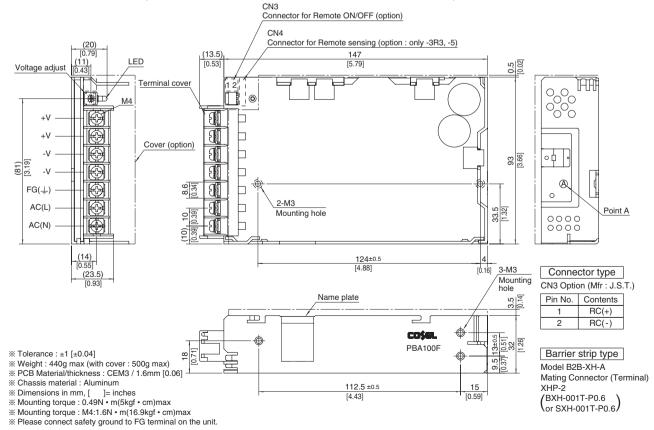
\*4 Derating is required.

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#### **External view**





<b>PB</b> <sup>®</sup> <sup>®</sup>	Ex	a ample recommended EH IAC-06-472	Al/EMC filter	-5 - (5) (6) (1) Series name (2) Single output (3) Output wattage (4) Universal input (5) Output voltage (6) Optional *5
			AI/EMC filter	<ul> <li>②Single output</li> <li>③Output wattage</li> <li>④Universal input</li> <li>⑤Output voltage</li> </ul>
	Low *A m	leakage current type : N higher current rating EM way be recommended in v her devices that could b parallel with the power s	IAM series IV/EMC filter view of the e connected supply.	<ul> <li>(b) Option as 3</li> <li>C: with Coating</li> <li>G: Low leakage curren (0.15mA max / ACIN 24</li> <li>E: Low leakage curr and EMI class A (0.5mA max / ACIN 24</li> <li>T: Vertical terminal blo</li> <li>J: Connector type (Only -12, -15, -24, -36, R: with Remote ON/OF</li> <li>N: with Cover (Only 24V UL508 is acqu</li> <li>N1: with DIN rail and Cc</li> <li>V: Output voltage set potentiometer exter ly</li> </ul>
ir	istalled in accor	Low *A	Low leakage current type : N *A higher current train EM may be recommended in other devices that could be in parallel with the powers Cover is op	With voltage pulse noise type : NAP series two leakage current type : NAP series         A higher current rating EM/EMC filter may be recommended in view of the other devices that could be connected in parallel with the power supply.           Second S

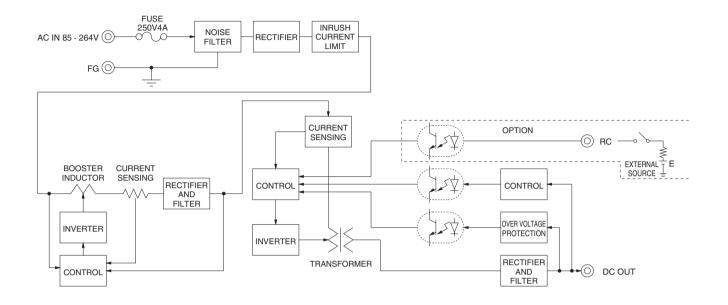
MODEL	PBA150F-3R3	PBA150F-5	PBA150F-9	PBA150F-12	PBA150F-15	PBA150F-24	PBA150F-36	PBA150F-48
MAX OUTPUT WATTAGE[W]	99	150	150.3	156	150	156	154.8	158.4
DC OUTPUT	3.3V 30A	5V 30A	9V 16.7A	12V 13A	15V 10A	24V 6.5A	36V 4.3A	48V 3.3A

	MODEL		PBA150F-3R3	PBA150F-5	PBA150F-9	PBA150F-12	PBA150F-15	PBA150F-24	PBA150F-36	PBA150F-48		
	VOLTAGE[V]		AC85 - 264 1 $\phi$ or DC120 - 370 (AC50 or DC70 Please refer to the instruction manual 2.1 Input voltage *4)									
	CURRENT[A] ACIN 100V ACIN 200V		1.3typ 2.0typ									
			0.7typ	1.0typ								
	FREQUENCY[Hz]		50/60 (47 - 63)									
	EFFICIENCY[%]	ACIN 100V	80typ	83typ	82typ	83typ	84typ	85typ	85typ	85typ		
INPUT		ACIN 200V	82typ	86typ	85typ	86typ	87typ	88typ	88typ	88typ		
	POWER FACTOR(lo=100%)	ACIN 100V	0.98typ	0.99typ								
		ACIN 200V	0.87typ 0.93typ									
		ACIN 100V	20typ (lo=100%) (At cold start)									
	INRUSH CURRENT[A]		40typ (lo=100%) (At cold start)									
	LEAKAGE CURRENT[mA]		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]		30	30	16.7	13	10	6.5	4.3	3.3		
	LINE REGULATION[mV]		20max	20max	36max	48max	60max	96max	144max	192max		
	LOAD REGULATION[m	nV]	40max	40max	100max	100max	120max	150max	240max	240max		
	RIPPLE[mVp-p] RIPPLE NOISE[mVp-p]	0 to +50°C *1	80max	80max	120max	120max	120max	120max	150max	150max		
ουτρυτ		-10 - 0°C *1	140max	140max	160max	160max	160max	160max	200max	200max		
		0 to +50°C *1	120max	120max	150max	150max	150max	150max	250max	250max		
		-10 - 0℃ *1	160max	160max	180max	180max	180max	180max	300max	300max		
	TEMPERATURE REGULATION[mV]	0 to +50°C	50max	50max	90max	120max	150max	240max	360max	480max		
		-10 to +50℃	60max	60max	120max	150max	180max	290max	450max	600max		
	DRIFT[mV]	*2	20max	20max	36max	48max	60max	96max	144max	192max		
	START-UP TIME[ms]		350typ(ACIN 100V, Io=100%)									
	HOLD-UP TIME[ms]		20typ (ACIN 100V, Io=100%)									
	OUTPUT VOLTAGE ADJUSTMENT	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		
	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	36.00 - 37.44	48.00 - 49.92		
	OVERCURRENT PROT	ECTION	Works over 105	% of rated curr	ent and recover	s 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		
	OPERATING INDICATION		LED (Green)									
OTHERS	REMOTE SENSING		Optional (Only -3R3, -5 Option -K)									
	REMOTE ON/OFF		Optional (Required external power source)									
	INPUT-OUTPUT · RC	*3	a AC3,000V 1minute, Cutoff current = 10mA, DC500V 50MΩmin (At Room Temperature)									
ISOLATION	INPUT-FG		AC2,000V 1minute, Cutoff current = 10mA, DC500V 50MΩmin (At Room Temperature)									
	OUTPUT · RC-FG *3		$_{\odot}$ AC500V 1minute, Cutoff current = 100mA, DC500V 50M $_{\Omega}$ min (At Room Temperature)									
	OPERATING TEMP.,HUMID.AND ALTITUDE											
	STORAGE TEMP., HUMID.AND ALTITUDE											
	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> (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 ATTENUATOR		Complies with IEC61000-3-2 *6									
OTHERS	CASE SIZE/WEIGHT		34×93×168mm [1.34×3.66×6.61 inches] (without terminal block) (W×H×D) / 560g max (with cover : 630g max)									
5LIIO	COOLING METHOD		Convection									

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

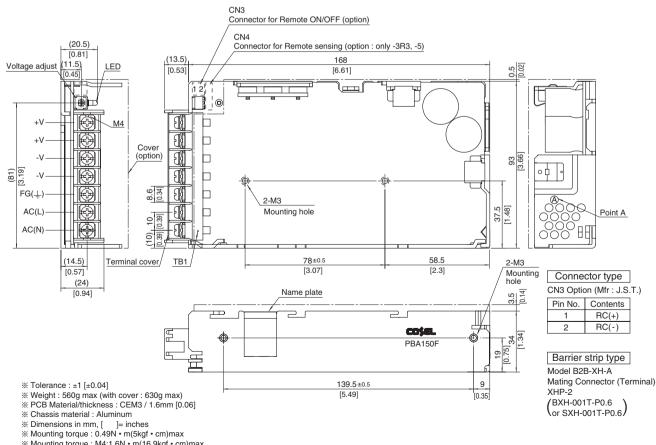
\*5 Please contact us about safety approvals for the model with option.
\*6 Please contact us about class C.
\* Parallel operation with other model is not possible.
\* Derating is required when operated with cover.
\* A sound may occur from power supply at peak loading.

PBA150F | COSEL



**External view** 

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



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.

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