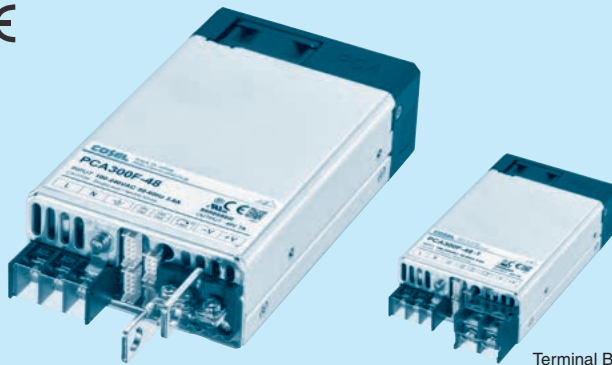


PCA300F

PC A 300 F -5 -□

① ② ③ ④ ⑤ ⑥



Example recommended EMI/EMC filter
NAC-06-472



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

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

- ① Series name
- ② Single output
- ③ Output wattage
- ④ Universal input
- ⑤ Output voltage
- ⑥ Optional *7
- C :with Coating
- G :Low leakage current
- T :Terminal Block Style
- I :with PMBus interface
- F2 :Reverse air exhaust type
- P3 :Master-slave Operation
- W1 :Alarm function

For option details, refer to instruction manual 6.1.

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

MODEL	PCA300F-5	PCA300F-12	PCA300F-15	PCA300F-24	PCA300F-32	PCA300F-48
MAX OUTPUT WATTAGE[W]	300	324	330	336	320	336
DC OUTPUT	5V 60A	12V 27A	15V 22A	24V 14A	32V 10A	48V 7A

SPECIFICATIONS

MODEL		PCA300F-5	PCA300F-12	PCA300F-15	PCA300F-24	PCA300F-32	PCA300F-48	
INPUT	VOLTAGE	[VAC] 85 - 264 1 φ						
		[VDC] *1 88 - 370						
	CURRENT[A]	ACIN 100V 3.8typ						
		ACIN 230V 1.6typ						
	FREQUENCY[Hz]	50/60 (45 - 66)						
	EFFICIENCY[%]	ACIN 100V	(Io=50%) 86typ	87typ	87typ	88typ	88typ	88typ
			(Io=100%) 87typ	88typ	88typ	89typ	89typ	89typ
		ACIN 230V	(Io=50%) 87typ	88typ	88typ	89typ	89typ	89typ
			(Io=100%) 89typ	90typ	90typ	91typ	91typ	91typ
	POWER FACTOR	ACIN 100V 0.98typ (Io=100%)						
ACIN 230V 0.95typ (Io=100%)								
INRUSH CURRENT[A]	ACIN 100V*2 20/40 typ (Io=100%) (Primary inrush current / Secondary inrush current) (More than 3 sec. to re-start)							
	ACIN 230V*2 40/40 typ (Io=100%) (Primary inrush current / Secondary inrush current) (More than 3 sec. to re-start)							
LEAKAGE CURRENT[ma]	0.5max (ACIN 240V 60Hz, Io=100%, According to IEC60601-1)							
OUTPUT	VOLTAGE[V]	5	12	15	24	32	48	
	CURRENT[A]	60	27	22	14	10	7	
	LINE REGULATION[mV]	20max	48max	60max	96max	128max	192max	
	LOAD REGULATION[mV]	40max	100max	120max	150max	150max	480max	
	RIPPLE[mVp-p]	0 to +50°C *3*4 160max	240max	240max	240max	320max	480max	
		-20 to 0°C *3 280max	320max	320max	320max	420max	640max	
	RIPPLE NOISE[mVp-p]	0 to +50°C *3*4 240max	300max	300max	300max	400max	600max	
		-20 to 0°C *3 320max	360max	360max	360max	480max	720max	
	TEMPERATURE REGULATION[mV]	0 to +50°C *4 50max	120max	150max	240max	320max	480max	
		-20 to +50°C *4 75max	180max	180max	290max	400max	600max	
	DRIFT[mV]	*5 20max	48max	60max	96max	128max	192max	
	START-UP TIME[ms]	700typ (ACIN 100/230V Io=100%)						
	HOLD-UP TIME[ms]	20typ (ACIN 230V Io=80%) / 16typ (ACIN 230V Io=100%)						
OUTPUT VOLTAGE ADJUSTMENT RANGE[V]	3.00 to 6.00	7.20 to 14.40	9.00 to 18.00	14.40 to 28.80	19.20 to 38.40	28.80 to 57.60		
OUTPUT VOLTAGE SETTING[V]	5.00 to 5.05	12.00 to 12.12	15.00 to 15.15	24.00 to 24.24	32.00 to 32.32	48.00 to 48.48		
PROTECTION CIRCUIT AND OTHERS	OVERCURRENT PROTECTION	Works over 105% of rating (Recovers automatically, Hiccup overcurrent)						
	OVERVOLTAGE PROTECTION[V]	6.25 to 7.00	15.00 to 16.80	18.75 to 21.00	30.00 to 33.60	40.00 to 44.80	60.00 to 67.20	
	REMOTE SENSING	Provided						
	REMOTE ON/OFF (RC)	Provided						
	DC_OK LAMP	LED (Blue)						
	ALARM LAMP	LED (Orange)						
COMMUNICATION FUNCTION	Provided (Extended UART)							
ISOLATION	INPUT-OUTPUT	AC4,000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (At Room Temperature) 2MOPP						
	INPUT-FG	AC2,000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (At Room Temperature) 1MOPP						
	OUTPUT-FG	AC500V 1minute, Cutoff current = 100mA, DC500V 50MΩ min (At Room Temperature)						
	OUTPUT-AUX·RC·PG·INFO·DS·ADDR0·ADDR1·ADDR2	AC500V 1minute, Cutoff current = 100mA, DC500V 50MΩ min (At Room Temperature)						
ENVIRONMENT	OPERATING TEMP., HUMIDITY AND ALTITUDE	-20 to +70°C, 20 - 90%RH (Non condensing)						
	STORAGE TEMP., HUMIDITY AND ALTITUDE	-20 to +75°C, 20 - 90%RH (Non condensing)						
	VIBRATION	10 - 55Hz 19.6m/s ² (2G) 3minutes period, 60minutes each along X, Y and Z axis						
	IMPACT	196.1m/s ² (20G) 11ms, once each X, Y and Z axis						
SAFETY AND NOISE REGULATIONS	AGENCY APPROVALS	UL62368-1, EN62368-1, C-UL (equivalent to CAN/CSA-C22.2 No.62368-1), ANSI/AAMI ES60601-1, EN60601-1 3rd, C-UL (equivalent to CAN/CSA-C22.2 No.60601-1), Complies with IEC60601-1-2 4th Ed.						
	CONDUCTED NOISE	Complies with FCC Part15 classB, VCCI-B, CISPR32-B, EN55011-B, EN55032-B						
	HARMONIC ATTENUATOR *6	Complies with IEC61000-3-2 (class A)						

SPECIFICATIONS

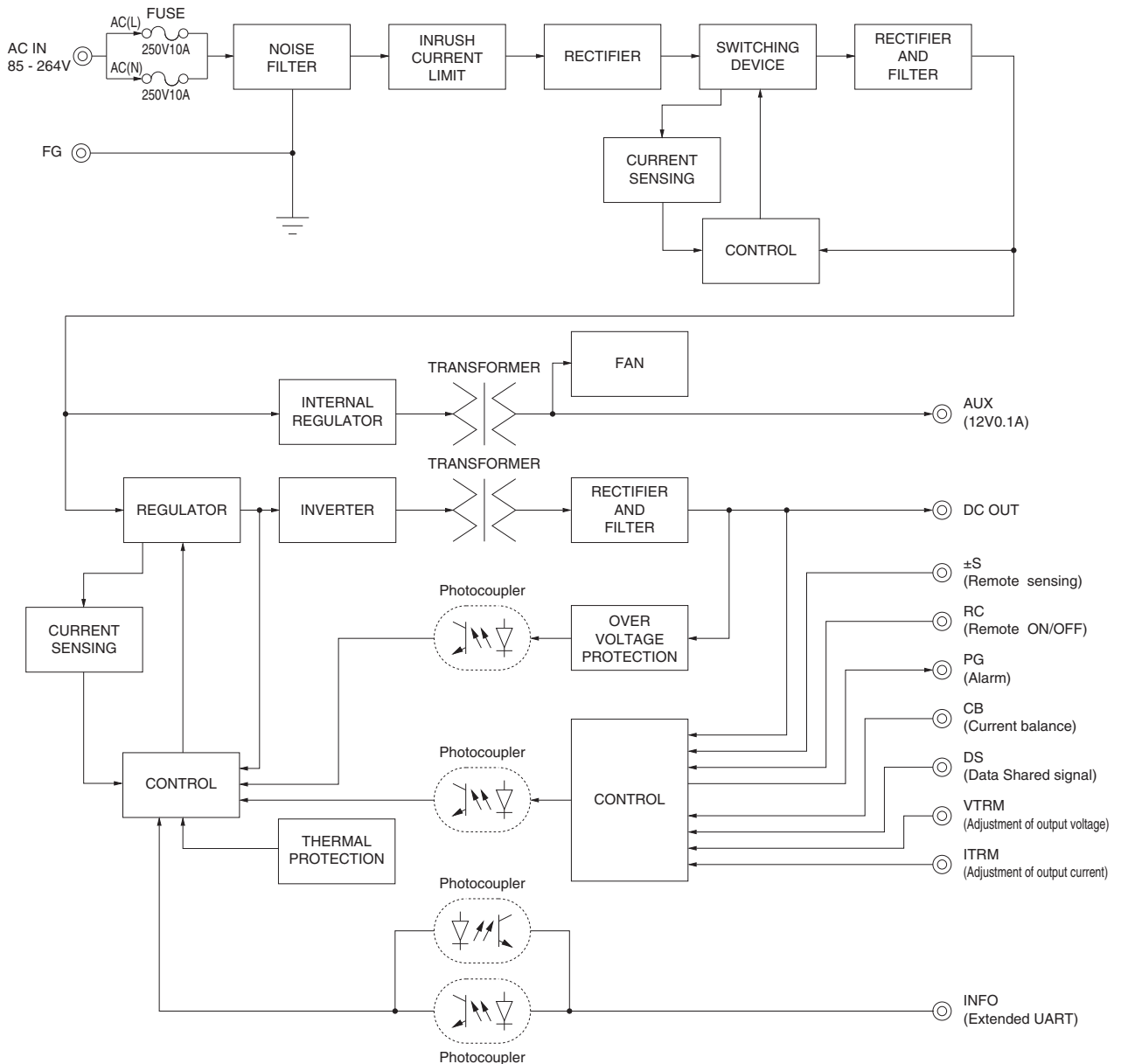
OTHERS	CASE SIZE/WEIGHT	89 X 41 X 152mm [3.50 X 1.61 X 5.98 inches] (without terminal block and screw) (W X H X D) / 840g max
	COOLING METHOD	Forced cooling (internal fan)

- *1 DC input safety agency approvals deleted.
- *2 The value is primary surge. The current of input surge to a built-in EMI/EMS Filter(0.2ms or less) is excluded.
- *3 Measured by 20MHz oscilloscope or Ripple-Noise meter (equivalent to KEISOKU-GIKEN:RM103). Please refer to the instruction manual 1.2.
- *4 5V output product, the maximum temperature of 40°C.
- *5 Drift is the change in DC output for an eight hours period after a half-hour warm-up at 25°C.
- *6 Please contact us about another class.
- *7 The listed options may affect the published standard specifications. Please contact us for detailed product specifications and safety approvals.
- * A sound may occur from power supply at pulse loading.

Features

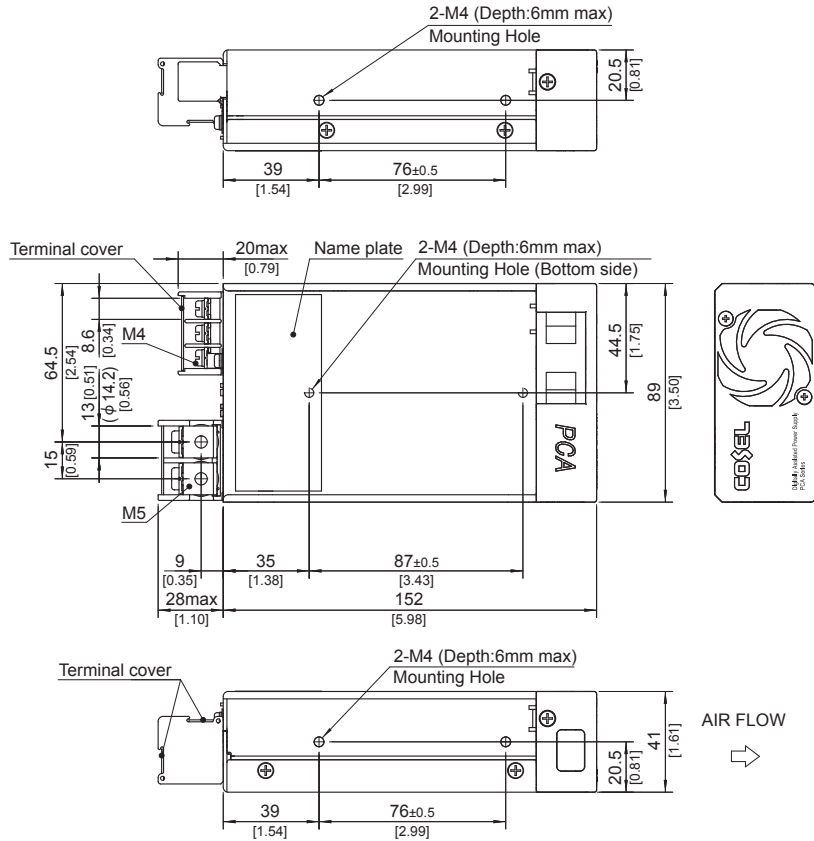
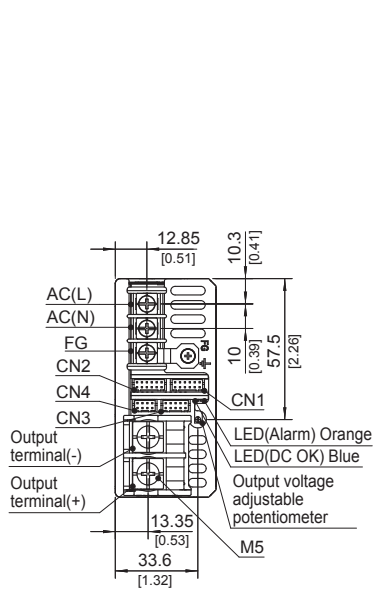
- Low profile (41mm, 1.61 inch = meet 1U height)
- Universal input 85 - 264VAC
- DC input 88 - 370VDC possible
- For medical electric equipment (ANSI/AAMI ES60601-1, EN60601-1 3rd, IEC60601-1-2 4th Ed.)
- Medical Isolation Grade 2MOPP
- With AUX output 12V 0.1A (Voltage adjustable range 5 - 12V)
- Constant current function
- Output voltage can be adjusted to near 0V (the item 2.6 on Instruction Manual)
- With various alarms
- Parallel Operation / N+1 Parallel Redundancy Operation possible
- Monitoring function and various setting values can be changed by communication (the item 2.11 on Instruction Manual)
- Complies with SEMI F47 (the item 2.1 on Instruction Manual)

Block diagram



External view

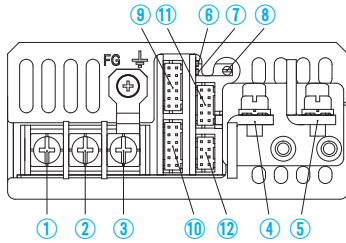
<PCA300F-□-T (Terminal Block Style) >



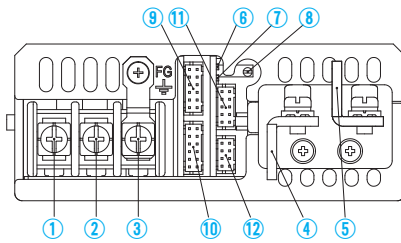
- ※ Tolerance : ±1 [±0.04]
- ※ Weight : 840g max
- ※ PCB Material / thickness : FR-4 / 1.6mm [0.06]
- ※ Chassis Material : Aluminum
- ※ Fan cover Material : PBT
- ※ Dimensions in mm, [] = inches
- ※ Mounting torque : 1.2N·m max
- ※ Input and output terminal screw tightening torque
 - M4 1.6N·m max
 - M5 2.5N·m max
- ※ Please connect safety ground to FG terminal on the unit.

Terminal Blocks

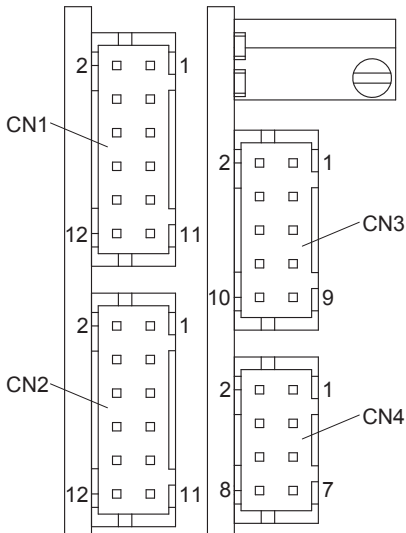
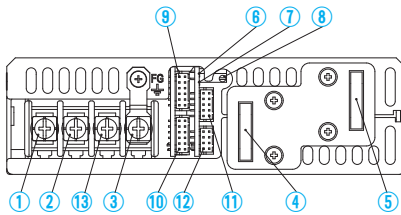
● PCA300F, PCA600F



● PCA1000F



● PCA1500F



Connector pin numbers

- ① AC (L) } Input Terminals 85 - 264VAC 1 φ 45 - 66Hz
- ② AC (N) } (M4) 88 - 370VDC (Excluding PCA1000F PCA1500F)
- ③ Frame ground (M4)
- ④ -Output
- ⑤ +Output
- ⑥ LED for fault condition detection (ALARM) Color : Orange
- ⑦ LED for output voltage confirmation (DC_OK) Color : Blue
- ⑧ Output voltage adjustable potentiometer
- ⑨ CN1
- ⑩ CN2
- ⑪ CN3
- ⑫ CN4
- ⑬ N.C.

Pin Configuration and Functions of CN1, CN2

Pin No.	Function	Ground level
1	+S	+Remote sensing
2	N.C.	No connection
3	N.C.	No connection
4	-S	-Remote sensing
5	VTRM	Adjustment of output voltage
6	COM	Common ground (for signal)
7	INFO	Extended UART signal
8	CB	Current Balance
9	DS	Data Shared signal
10	SGND	Signal ground
11	RC2	Remote ON/OFF
12	RCG	Remote ON/OFF ground

* Each terminal of CN1 and CN2 are connected inside the power supply.

Pin Configuration and Functions of CN3

Pin No.	Function	Ground level
1	AUX	Auxiliary output
2	AUXG	Auxiliary output ground
3	RC1	Remote ON/OFF
4	AUXG	Auxiliary output ground
5	PG	Alarm
6	PGG	Alarm ground
7	ITRM	Adjustment of output current
8	COM	Common ground (for signal)
9	VTRM_EN	Enable Vtrm
10	SLV_EN	Enable Slave mode *1

Pin Configuration and Functions of CN4

Pin No.	Function	Ground level
1	SDA	Serial data *2
2	SGND	Signal ground
3	SCL	Serial clock *2
4	SMBA	SMBAlert *2
5	ADDR0	Address bit 0
6	ADDR1	Address bit 1
7	ADDR2	Address bit 2
8	SGND	Signal ground

Matching connectors and terminals

Connector	Housing	Terminal	Mfr.
CN1 CN2	S12B-PHDSS PHDR-12VS	Reel : SPHD-002T-P0.5 Loose : BPHD-001T-P0.5 *3 BPHD-002T-P0.5 *3	J.S.T
CN3	S10B-PHDSS PHDR-10VS		
CN4	S8B-PHDSS PHDR-8VS		

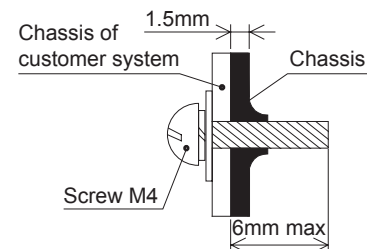
*1 For -P3 option.

*2 For -I option.

*3 The manufacturer prepares only the ratchet hand.

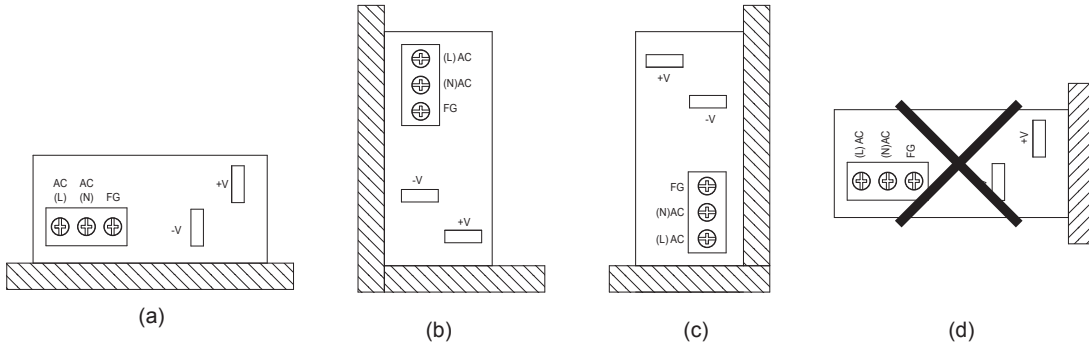
Assembling and Installation Method

■ Please observe the mounting screw length in right figure to obtain enough isolation between screws and internal components.



Assembling and Installation Method

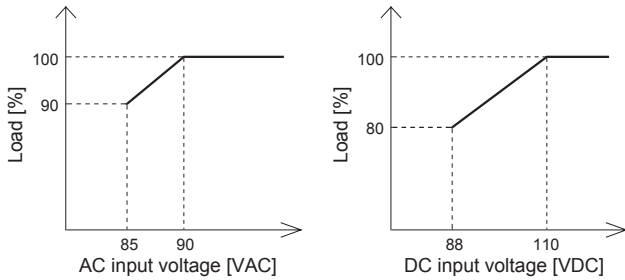
- Please do not block built-in fans and ventilation holes. When the power supply is mounted by screws, please consider its weight and set it in place. (Please see below.)
- Please avoid the D installation method in the following figure because it will cause stress on the mounting holes.
- If power supplies are used in a dusty environment, it might cause a failure. Please consider taking such countermeasures as installing an air filter near the suction area of the system to prevent a failure.



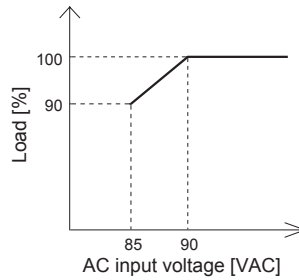
Derating

Input voltage Derating curve

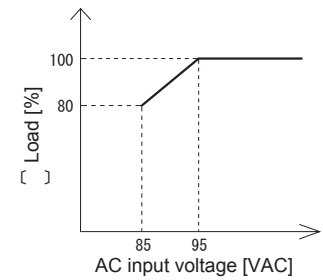
● PCA600F



● PCA1000F

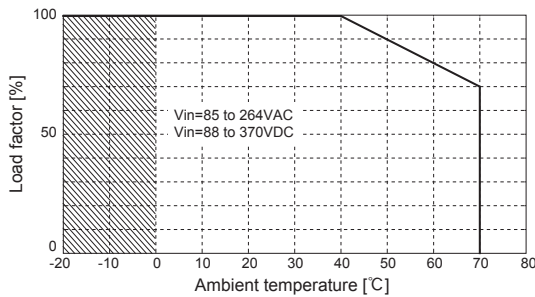


● PCA1500F



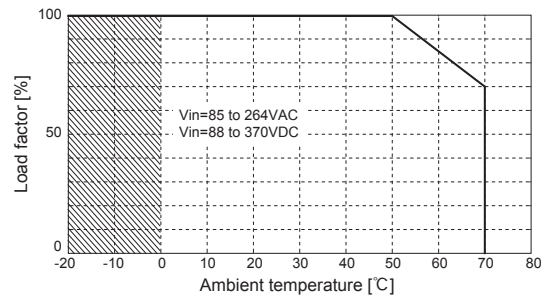
● PCA300F-5

Ambient Temperature Derating Curve



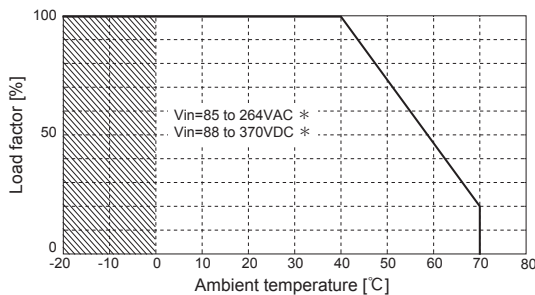
● PCA300F-12, -15, -24, -32, -48

Ambient Temperature Derating Curve



● PCA600F-5

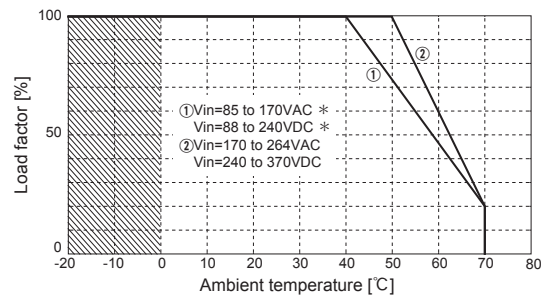
Ambient Temperature Derating Curve



*With derating due to input voltage

● PCA600F-12, -15, -24, -32, -48

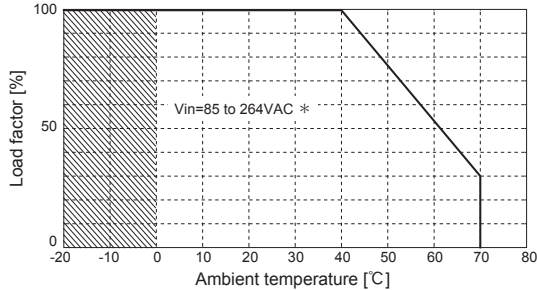
Ambient Temperature Derating Curve



*With derating due to input voltage

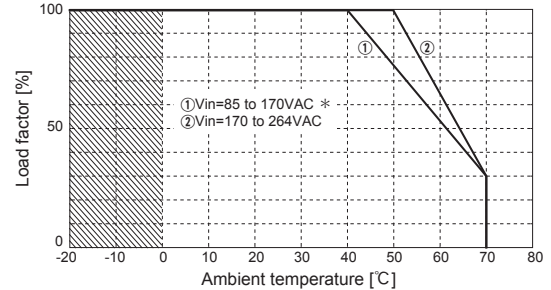
Derating

● PCA1000F-5, -12, -15
Ambient Temperature Derating Curve



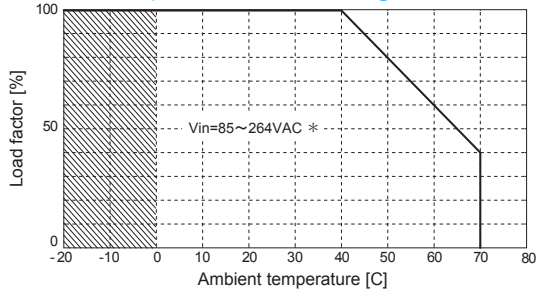
*With derating due to input voltage

● PCA1000F-24, -32, -48
Ambient Temperature Derating Curve



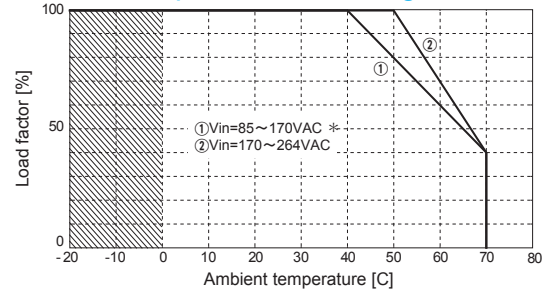
*With derating due to input voltage

● PCA1500F-5,-12,-15
Ambient Temperature Derating Curve



*With derating due to input voltage

● PCA1500F-24,-32,-48
Ambient Temperature Derating Curve



*With derating due to input voltage

- Specifications for ripple and ripple noise are different in the hatched area.
- The ambient temperature is defined as the temperature of the air at air-intake side of the power supply.

Instruction Manual

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

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

PCA



NOTICE



Basic Characteristics Data

Model	Circuit method	Switching frequency [kHz]	Input current [A]	Rated input fuse	Inrush current protection circuit	PCB/Pattern			Series/Parallel operation availability	
						Material	Single sided	Double sided	Series operation	Parallel operation
PCA300F	Active filter	15 - 400	3.8	250V 10A	Relay	FR-4	-	Yes	Yes	Yes
	Buck converter	88								
	Full - bridge converter	44								
PCA600F	Active filter	15 - 400	7.3	250V 16A	Relay	FR-4	-	Yes	Yes	Yes
	Buck converter	88								
	Full - bridge converter	44								
PCA1000F	Active filter	15 - 400	12.0	250V 20A	Relay	FR-4	-	Yes	Yes	Yes
	Buck converter	88								
	Full - bridge converter	44								
PCA1500F	Active filter	15 - 400	18.0	250V 31.5A	Relay	FR-4	-	Yes	Yes	Yes
	Buck converter	88								
	Full - bridge converter	44								

* The value of input current is at ACIN 100VAC and rated load.