

Medical
electric
equipmentPower
Factor
Correction

World wide

Safety
Approvals

EMI

Inrush
current
limiting

OCP

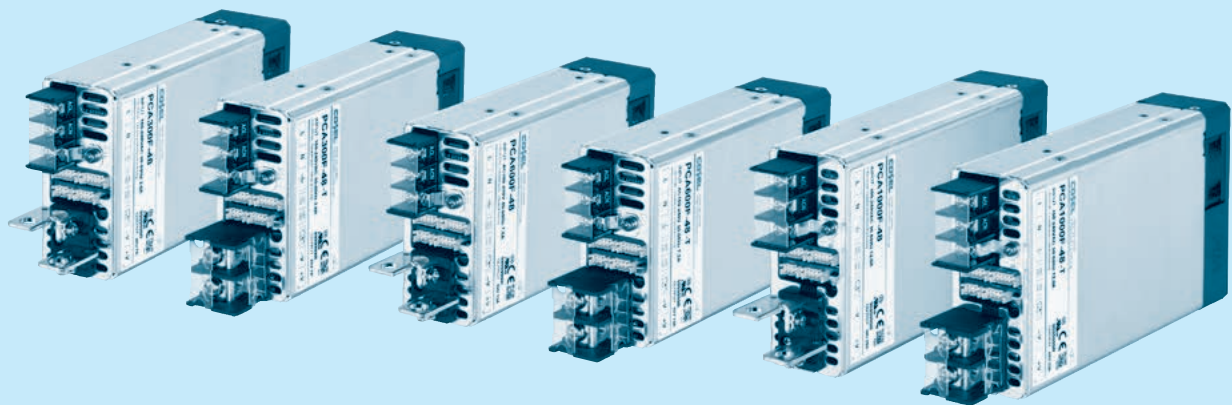


OVP

Remote
ON/OFFParallel
Operation

1U

PCA-series



PCA300F

PCA600F

PCA1000F

Feature

Low profile (41mm, 1.61 inch = meet to 1U height)
 Universal input 85 - 264VAC
 (Refer to "Derating", when using at 85 - 90VAC)
 DC input 88 - 370VDC possible : Excluding PCA1000F
 (Refer to "Derating", when using at 88 - 110VDC)
 For medical electric equipment
 (ANSI/AAMI ES60601-1, EN60601-1 3rd)
 Medical Isolation Grade 2MOPP
 With AUX output 12V 0.1A (Voltage variable range 5 - 12V)
 Constant current regulation
 Output voltage can be varied to near 0V (Refer to item 2.6)
 With various alarms
 Parallel Operation / N+1 Parallel Redundancy Operation possible
 Monitoring function by communication and various setting
 values can be changed (Refer to item 2.11)

Safety agency approval

· UL62368-1, C-UL (CSA62368-1), EN62368-1,
 ANSI/AAMI ES60601-1, EN60601-1 3rd

Up to 5-year warranty (Refer to Instruction Manual)

CE marking

Low Voltage Directive
 RoHS Directive

EMI

- PCA300F, PCA600F
 Complies with FCC-B, CISPR32-B, EN55011-B, EN55032-B,
 VCCI-B
- PCA1000F
 Complies with FCC-A, CISPR32-A, EN55011-A, EN55032-A,
 VCCI-A

EMS Compliance : EN61204-3, EN61000-6-2

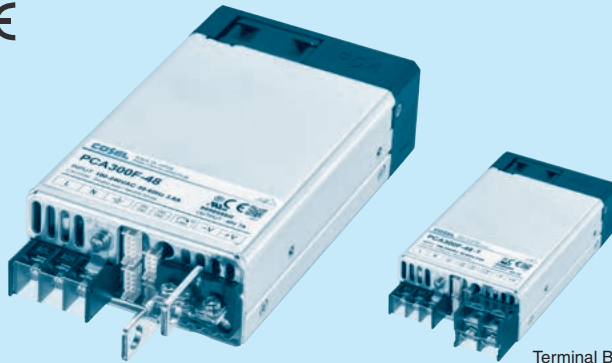
IEC60601-1-2 (2014), EN60601-1-2 (2015)

EN61000-4-2
 EN61000-4-3
 EN61000-4-4
 EN61000-4-5
 EN61000-4-6
 EN61000-4-8
 EN61000-4-11

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
* 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
		ACIN 100V (Io=100%)	87typ	88typ	88typ	89typ	89typ
		ACIN 230V (Io=50%)	87typ	88typ	88typ	89typ	89typ
		ACIN 230V (Io=100%)	89typ	90typ	90typ	91typ	91typ
OUTPUT	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)				
	VOLTAGE[V]		5	12	15	24	32
	CURRENT[A]		60	27	22	14	10
	LINE REGULATION[mV]		20max	48max	60max	96max	128max
	LOAD REGULATION[mV]		40max	100max	120max	150max	150max
	RIPPLE[mVp-p]	0 to +50℃ *3*4	160max	240max	240max	240max	320max
PROTECTION CIRCUIT AND OTHERS		-20 to 0℃ *3	280max	320max	320max	320max	420max
	RIPPLE NOISE[mVp-p]	0 to +50℃ *3*4	240max	300max	300max	300max	400max
		-20 to 0℃ *3	320max	360max	360max	360max	480max
		0 to +50℃ *4	50max	120max	150max	240max	320max
		-20 to +50℃ *4	75max	180max	180max	290max	400max
	TEMPERATURE REGULATION[mV]						
	DRIFT[mV]	*5	20max	48max	60max	96max	128max
	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
ISOLATION	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				
	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
	REMOTE SENSING		Provided				
	REMOTE ON/OFF (RC)		Provided				
	DC_OK LAMP		LED (Blue)				
	ALARM LAMP		LED (Orange)				
	COMMUNICATION FUNCTION		Provided (Extended UART)				
	INPUT-OUTPUT		AC4,000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (At Room Temperature) 2MOPP				
ENVIRONMENT	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)				
	OPERATING TEMP., HUMIDITY AND ALTITUDE		-20 to +70℃, 20 - 90%RH (Non condensing)				
	STORAGE TEMP., HUMIDITY AND ALTITUDE		-20 to +75℃, 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		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.				
	AGENCY APPROVALS						
	CONDUCTED NOISE		Complies with FCC Part15 classB, VCCI-B, CISPR32-B, EN55011-B, EN55032-B				
ENVIRONMENT	HARMONIC ATTENUATOR *6		Complies with IEC61000-3-2 (class A)				

SPECIFICATIONS

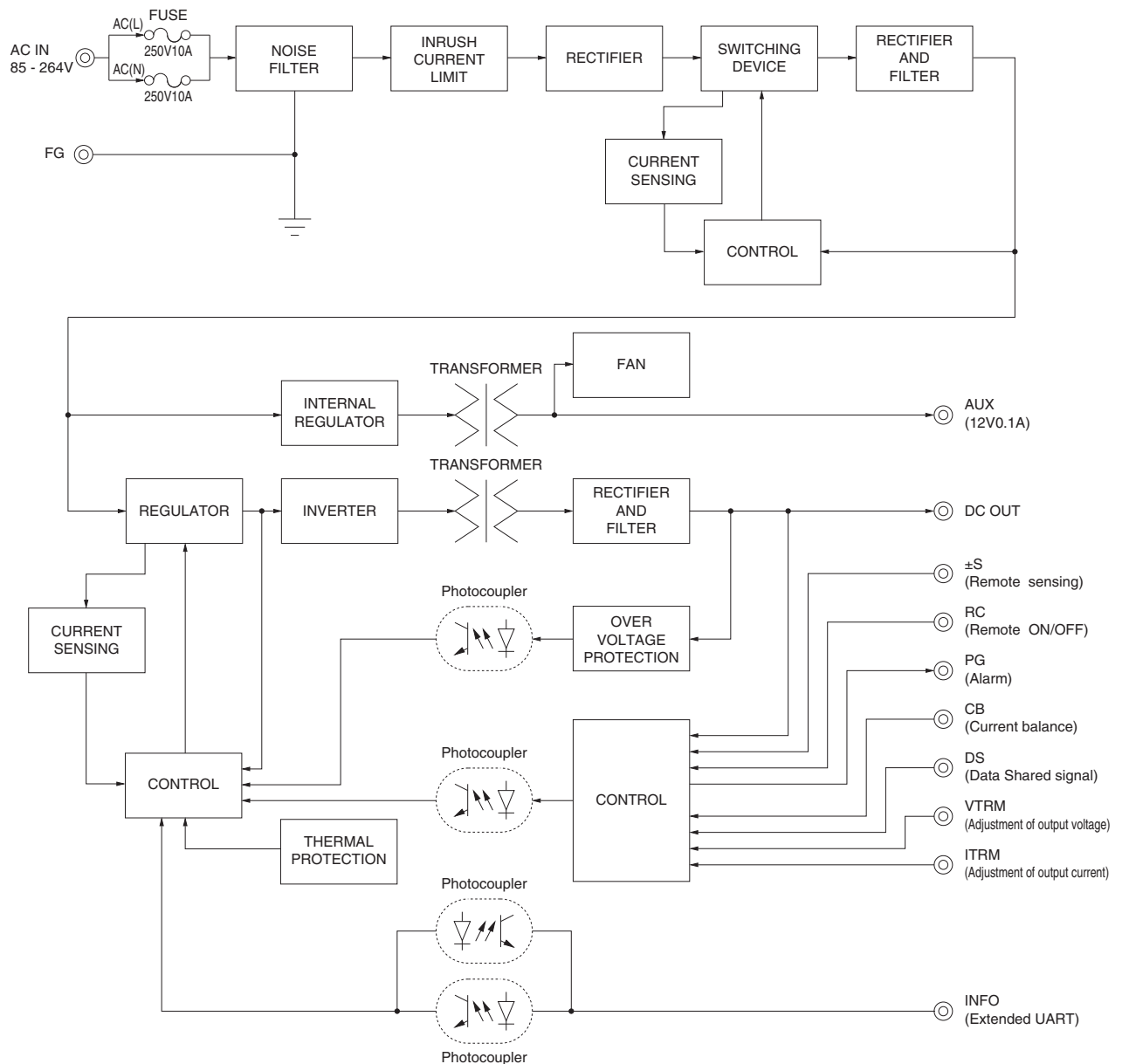
OTHERS	CASE SIZE/WEIGHT	89 X 41 X 152mm [3.50 X 1.61 X 5.98 inches] (without terminal block and screw) (W X H X D) / 840g max
	COOLING METHOD	Forced cooling (internal fan)

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

Features

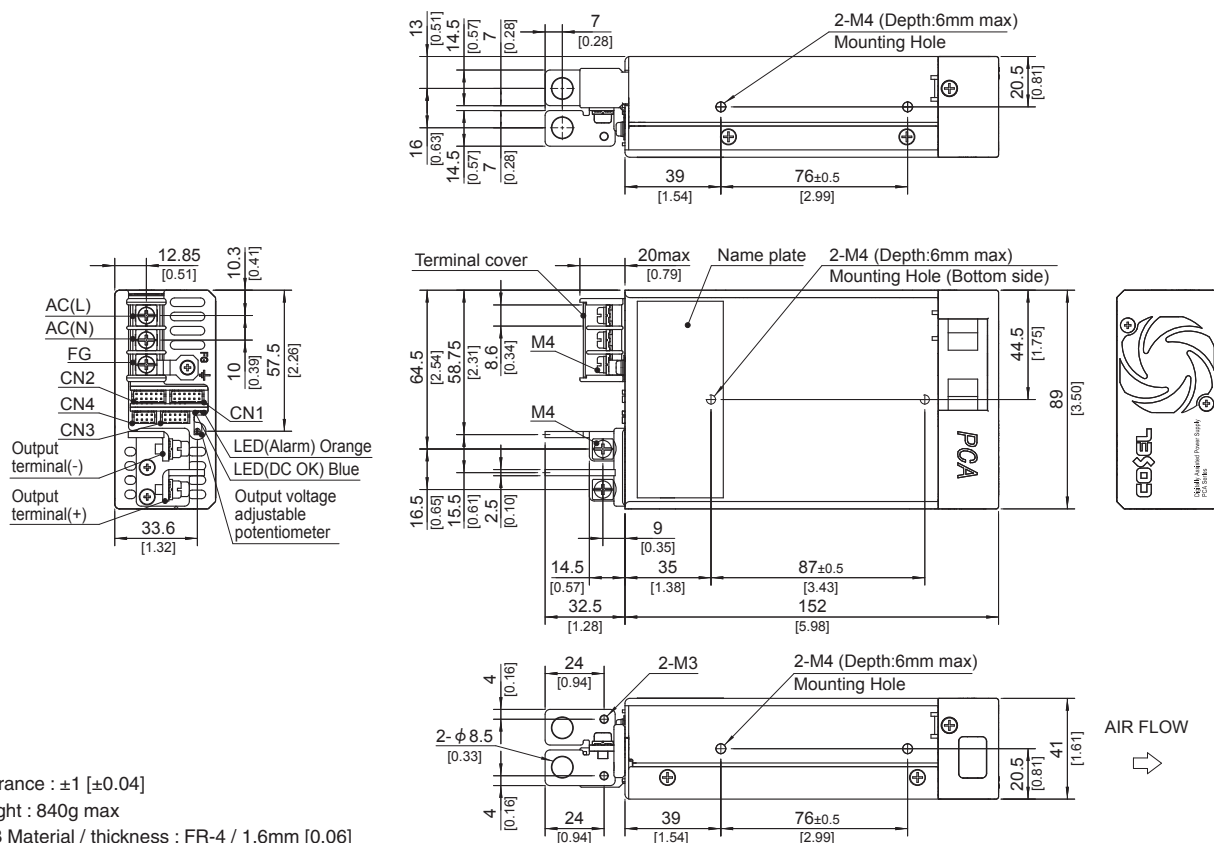
- Low profile (41mm, 1.61 inch = meet to 1U height)
- Universal input 85 - 264VAC
- DC input 88 - 370VDC possible
- For medical electric equipment (ANSI/AAMI ES60601-1, EN60601-1 3rd, IEC60601-1-2 4th Ed.)
- Medical Isolation Grade 2MOPP
- With AUX output 12V 0.1A (Voltage variable range 5 - 12V)
- Constant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

Block diagram



External view

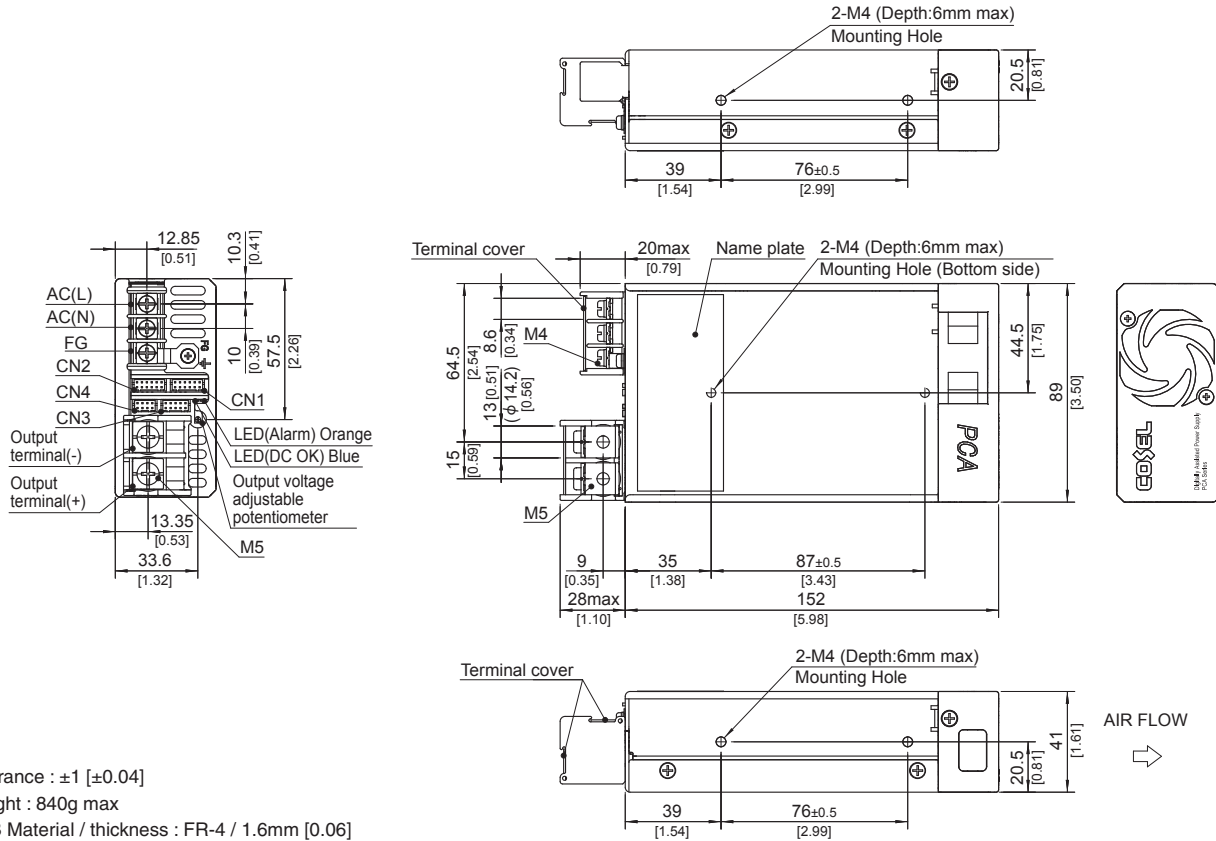
<PCA300F-□ (Bus Bar Style) >



- ※ 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
 - M3 0.6N·m max
 - M4 1.6N·m max
- ※ Please connect safety ground to FG terminal on the unit.

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.

PCA600F

PC

A

600

F

-5

-□

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⑥



RoHS



2MOPP



Terminal Block Style

Example recommended EMI/EMC filter
NAC-16-472



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

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

- ① Series name
- ② Single output
- ③ Output wattage
- ④ Universal input
- ⑤ Output voltage
- ⑥ Optional *7
- C : with Coating
- G : Low leakage current
- T : Terminal Block Style
- (Only 12V, 15V, 24V, 32V and 48V)
- 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	PCA600F-5	PCA600F-12	PCA600F-15	PCA600F-24	PCA600F-32	PCA600F-48
MAX OUTPUT WATTAGE[W]	600	636	645	648	640	624
DC OUTPUT	5V 120A	12V 53A	15V 43A	24V 27A	32V 20A	48V 13A

SPECIFICATIONS

	MODEL		PCA600F-5	PCA600F-12	PCA600F-15	PCA600F-24	PCA600F-32	PCA600F-48	
INPUT	VOLTAGE	[VAC]	85 - 264 1 φ (Output derating is required at less than 90V. Refer to “Derating”)						
		[VDC] *1	88 - 370 (Output derating is required at less than 110V. Refer to “Derating”)						
	CURRENT[A]	ACIN 100V	7.3typ						
		ACIN 230V	3.2typ						
	FREQUENCY[Hz]		50/60 (45 - 66)						
	EFFICIENCY[%]	ACIN 100V	(Io=50%)	90typ	91typ	91typ	91typ	91typ	91typ
			(Io=100%)	89typ	90typ	90typ	91typ	91typ	91typ
		ACIN 230V	(Io=50%)	92typ	92typ	92typ	93typ	93typ	93typ
			(Io=100%)	91typ	92typ	92typ	93typ	93typ	93typ
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]		120	53	43	27	20	13	
	LINE REGULATION[mV]		20max	48max	60max	96max	128max	192max	
	LOAD REGULATION[mV]		40max	100max	120max	150max	150max	480max	
	RIPPLE[mVp-p]	0 to +50℃ *3*4	160max	240max	240max	240max	320max	480max	
		-20 to 0℃ *3	280max	320max	320max	320max	420max	640max	
	RIPPLE NOISE[mVp-p]	0 to +50℃ *3*4	240max	300max	300max	300max	400max	600max	
		-20 to 0℃ *3	320max	360max	360max	360max	480max	720max	
	TEMPERATURE REGULATION[mV]	0 to +50℃ *4	50max	120max	150max	240max	320max	480max	
		-20 to +50℃ *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)					
ENVIRONMENT	OUTPUT - AUX - RC - PG - INFO - DS - ADDR0 - ADDR1 - ADDR2			AC500V 1minute, Cutoff current = 100mA, DC500V 50MΩ min (At Room Temperature)					
	OPERATING TEMP.,HUMIDITY.AND ALTITUDE			-20 to +70℃, 20 - 90%RH (Non condensing)					
	STORAGE TEMP.,HUMIDITY.AND ALTITUDE			-20 to +75℃, 20 - 90%RH (Non condensing)					
	VIBRATION			10 - 55Hz 19.6m/s ² (2G) 3minutes period, 60minutes each along X, Y and Z axis					
SAFETY AND NOISE REGULATIONS	IMPACT			196.1m/s ² (20G) 11ms, once each X, Y and Z axis					
	AGENCY APPROVALS			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.

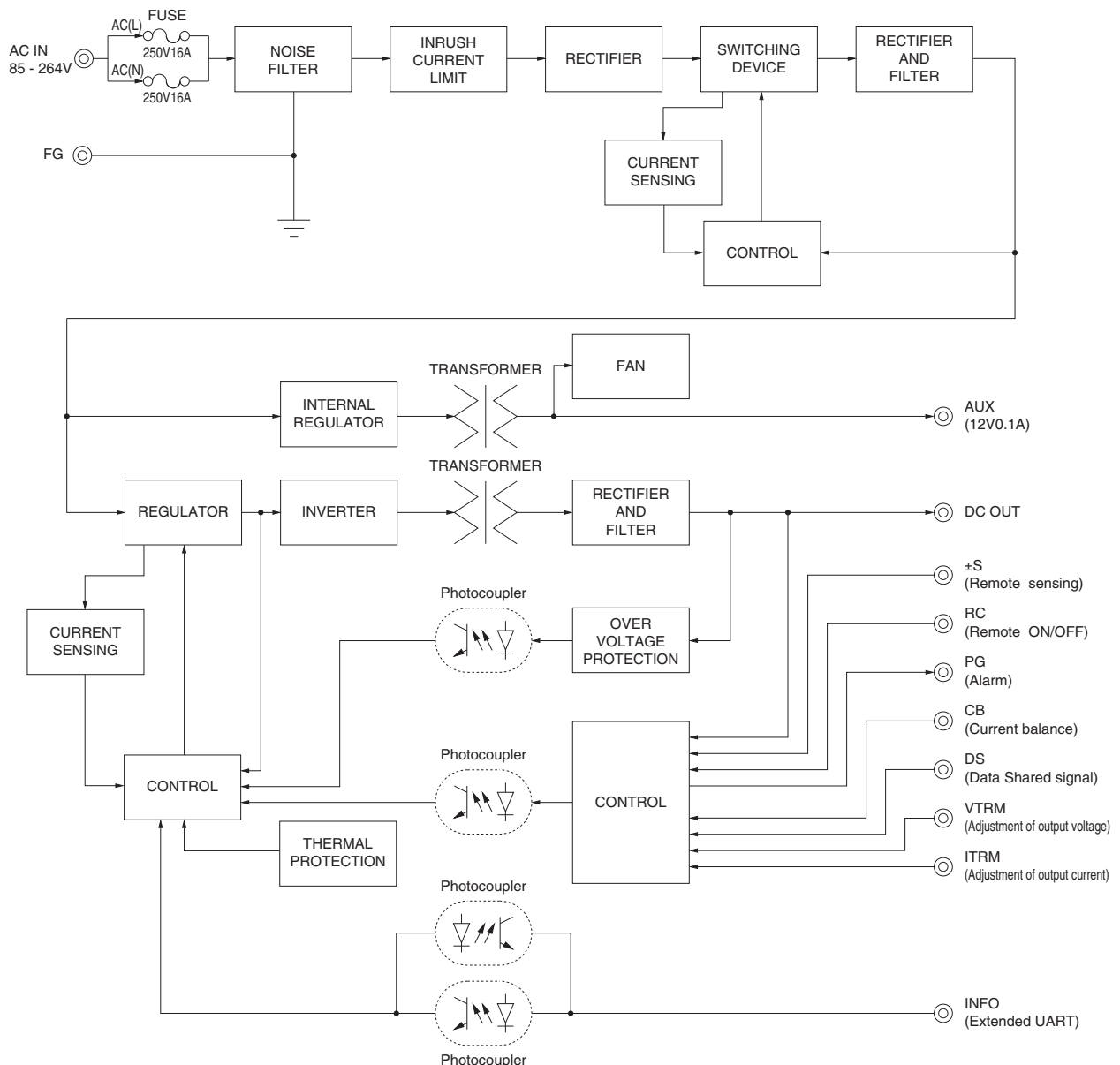
*7 The listed options may affect the published standard specifications. Please contact us for detailed product specifications and safety approvals.

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

Features

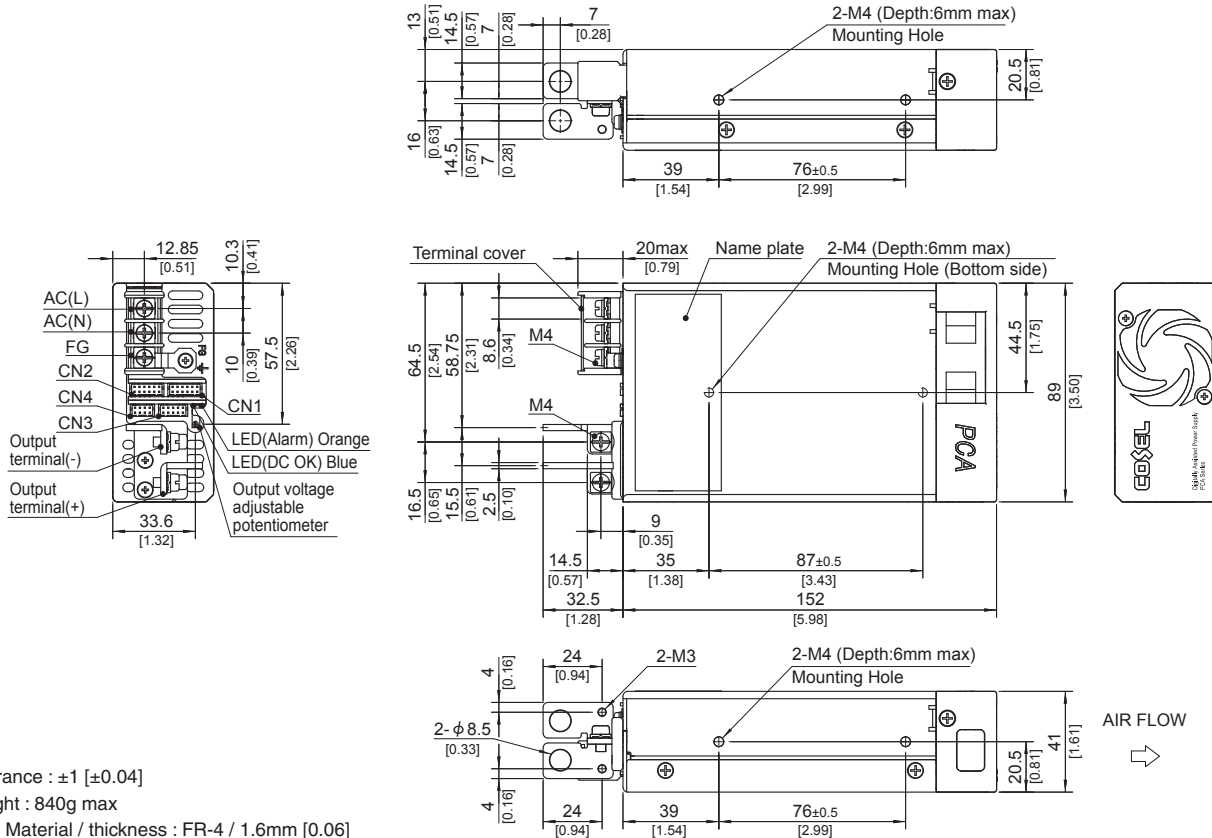
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|--|---|
| <ul style="list-style-type: none"> · Low profile (41mm, 1.61 inch = meet to 1U height) · Universal input 85 - 264VAC (Refer to “Derating”, when using at 85 - 90VAC) · DC input 88 - 370VDC possible (Refer to when using at 88 - 110VDC) · For 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 variable range 5 - 12V) · Constant current regulation | <ul style="list-style-type: none"> · Output voltage can be varied to near 0V (Refer to Instruction Manual item 2.6) · With various alarms · Parallel Operation / N+1 Parallel Redundancy Operation possible · Monitoring function by communication and various setting values can be changed (Refer to Instruction Manual item 2.11) · Complies with SEMI F47 (Refer to Instruction Manual item 2.1) |
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Block diagram



External view

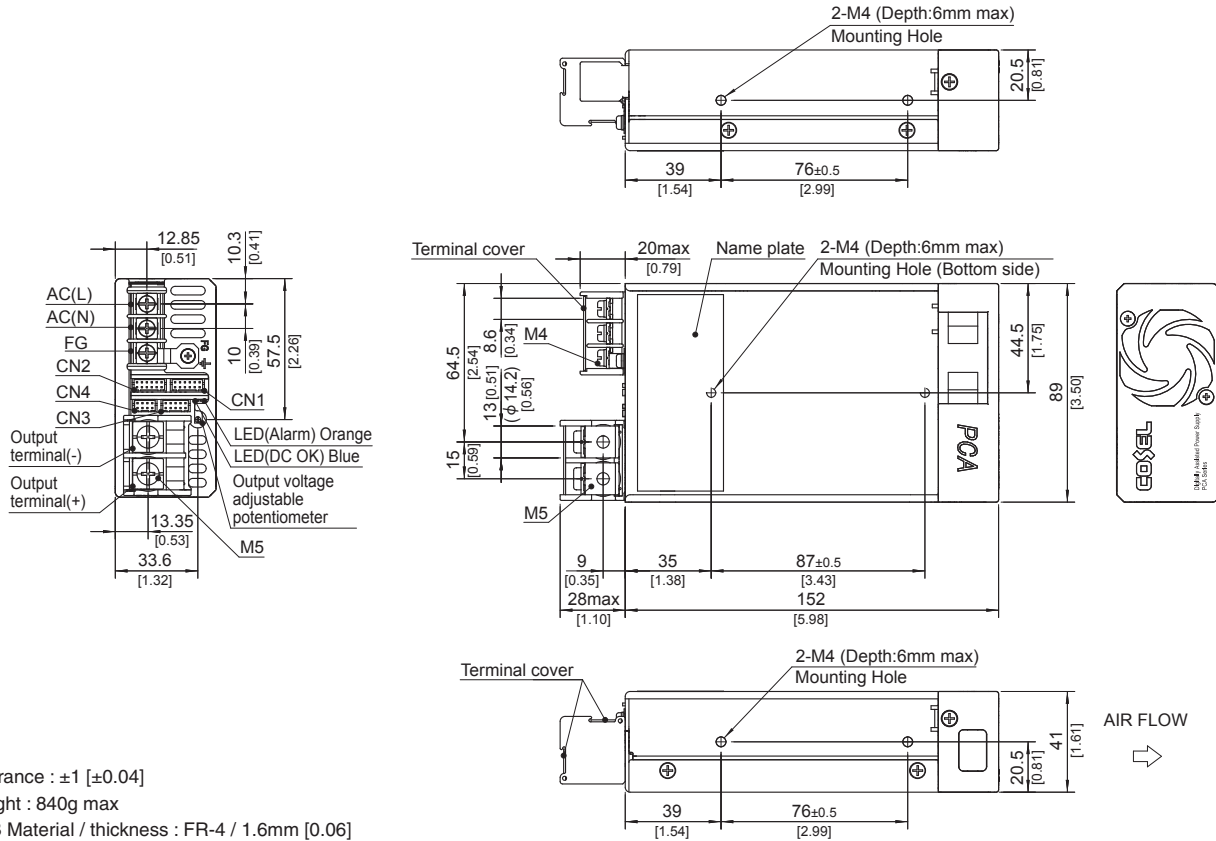
<PCA600F-□ (Bus Bar Style) >



- ※ 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
 - M3 0.6N·m max
 - M4 1.6N·m max
- ※ Please connect safety ground to FG terminal on the unit.

External view

<PCA600F-□-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.

PCA1000F

PC A 1000 F -5 -□

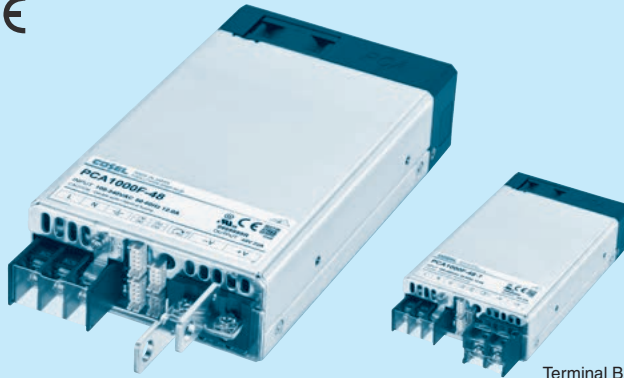
① ② ③ ④ ⑤ ⑥



RoHS



2MOPP



Terminal Block Style

Example recommended EMI/EMC filter
NAC-20-472



High voltage pulse noise type : NAP series
Low leakage current type : NAM series
* A higher current rating EMI/EMC filter may be recommended in view of the other devices that could be connected in parallel with the power supply.

- ① Series name
- ② Single output
- ③ Output wattage
- ④ Universal input
- ⑤ Output voltage
- ⑥ Optional *6
- C : with Coating
- G : Low leakage current
- T : Terminal Block Style (Only 24V, 32V and 48V)
- I : with PMBus interface
- F2 : Reverse air exhaust type
- P3 : Master-slave Operation
- W1 : Alarm function
- E1 : EMI classB (Only 24V, 32V and 48V)

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	PCA1000F-5	PCA1000F-12	PCA1000F-15	PCA1000F-24	PCA1000F-32	PCA1000F-48
MAX OUTPUT WATTAGE[W]	1000	1056	1050	1056	1056	1056
DC OUTPUT	5V 200A	12V 88A	15V 70A	24V 44A	32V 33A	48V 22A

SPECIFICATIONS

	MODEL		PCA1000F-5	PCA1000F-12	PCA1000F-15	PCA1000F-24	PCA1000F-32	PCA1000F-48	
INPUT	VOLTAGE		[VAC]	85 - 264 1 φ (Output derating is required at less than 90V. Refer to “Derating”)					
	CURRENT[A]		ACIN 100V	12.0typ					
			ACIN 230V	5.3typ					
	FREQUENCY[Hz]		50/60 (45 - 66)						
	EFFICIENCY[%]	ACIN 100V	(Io=50%)	90typ	91typ	91typ	91typ	91typ	91typ
			(Io=100%)	89typ	90typ	90typ	91typ	91typ	91typ
		ACIN 230V	(Io=50%)	92typ	92typ	92typ	93typ	93typ	93typ
			(Io=100%)	91typ	92typ	92typ	93typ	93typ	93typ
	POWER FACTOR		ACIN 100V	0.98typ (Io=100%)					
			ACIN 230V	0.95typ (Io=100%)					
OUTPUT	INRUSH CURRENT[A]		ACIN 100V※1	20/40 typ (Io=100%) (Primary inrush current / Secondary inrush current) (More than 3 sec. to re-start)					
			ACIN 230V※1	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)						
	VOLTAGE[V]		5	12	15	24	32	48	
	CURRENT[A]		200	88	70	44	33	22	
	LINE REGULATION[mV]		20max	48max	60max	96max	128max	192max	
	LOAD REGULATION[mV]		40max	100max	120max	150max	150max	480max	
	RIPPLE[mVp-p]	0 to +50℃ ※2※3	160max	240max	240max	240max	320max	480max	
		-20 to 0℃ ※2	280max	320max	320max	320max	420max	640max	
	RIPPLE NOISE[mVp-p]	0 to +50℃ ※2※3	240max	300max	300max	300max	400max	600max	
-20 to 0℃ ※2		320max	360max	360max	360max	480max	720max		
TEMPERATURE REGULATION[mV]	0 to +50℃ ※3	50max	120max	150max	240max	320max	480max		
	-20 to +50℃ ※3	75max	180max	180max	290max	400max	600max		
DRIFT[mV]		※4	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℃, 20 - 90%RH (Non condensing)						
	STORAGE TEMP.,HUMIDITY.AND ALTITUDE		-20 to +75℃, 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 classA, VCCI-A, CISPR32-A, EN55011-A, EN55032-A						
	HARMONIC ATTENUATOR ※5		Complies with IEC61000-3-2 (class A)						

SPECIFICATIONS

OTHERS	CASE SIZE/WEIGHT	102×41×178mm [4.02×1.61×7.01 inches] (without terminal block and screw) (W×H×D) / 1.2kg max
	COOLING METHOD	Forced cooling (internal fan)

*1 The value is primary surge. The current of input surge to a built-in EMI/EMS Filter(0.2ms or less) is excluded.

*2 Measured by 20MHz oscilloscope or Ripple-Noise meter (equivalent to KEISOKU-GIKEN:RM103). Please refer to the instruction manual 1.2.

*3 5V, 12V, 15V output product, the maximum temperature of 40°C.

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

*5 Please contact us about another class.

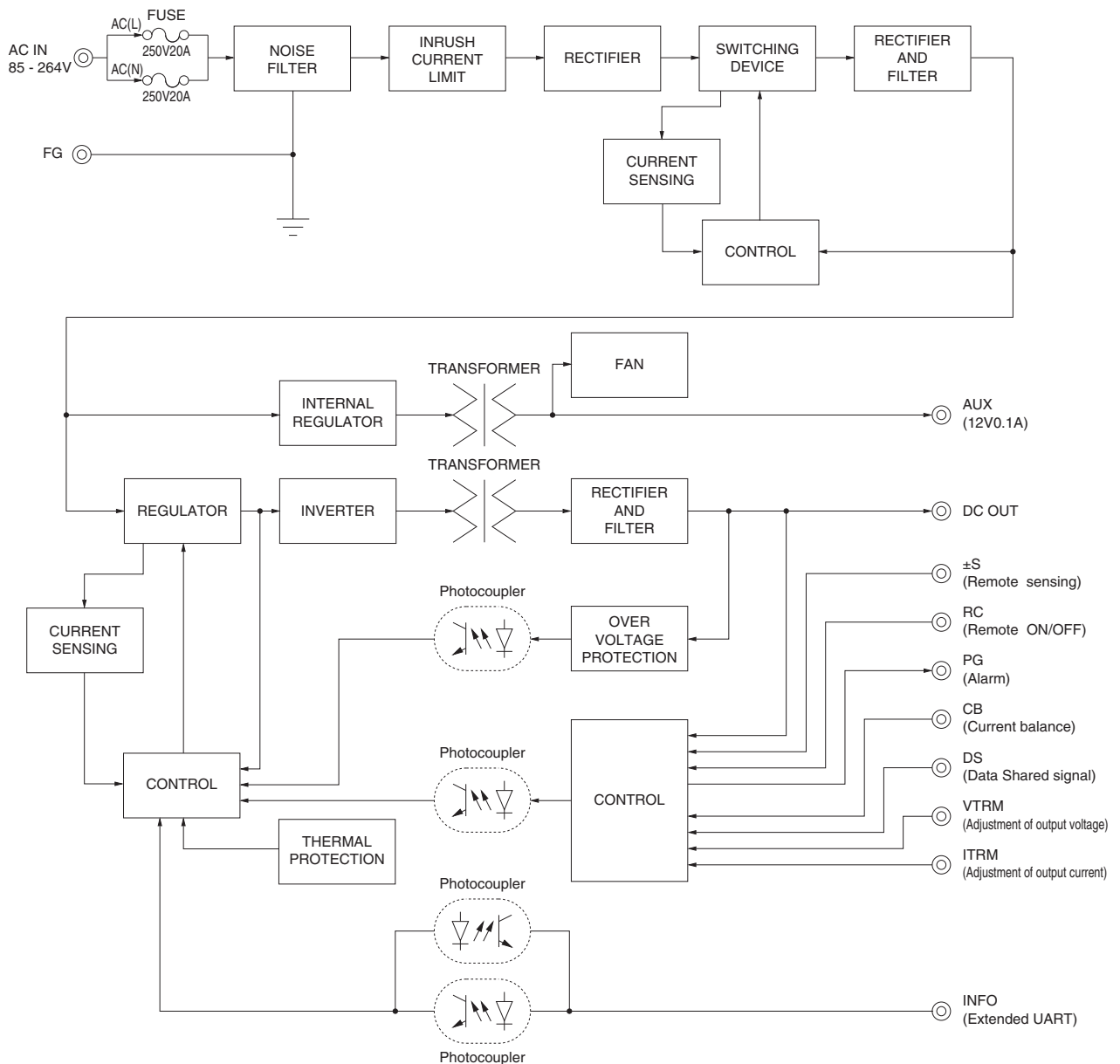
*6 The listed options may affect the published standard specifications. Please contact us for detailed product specifications and safety approvals.

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

Features

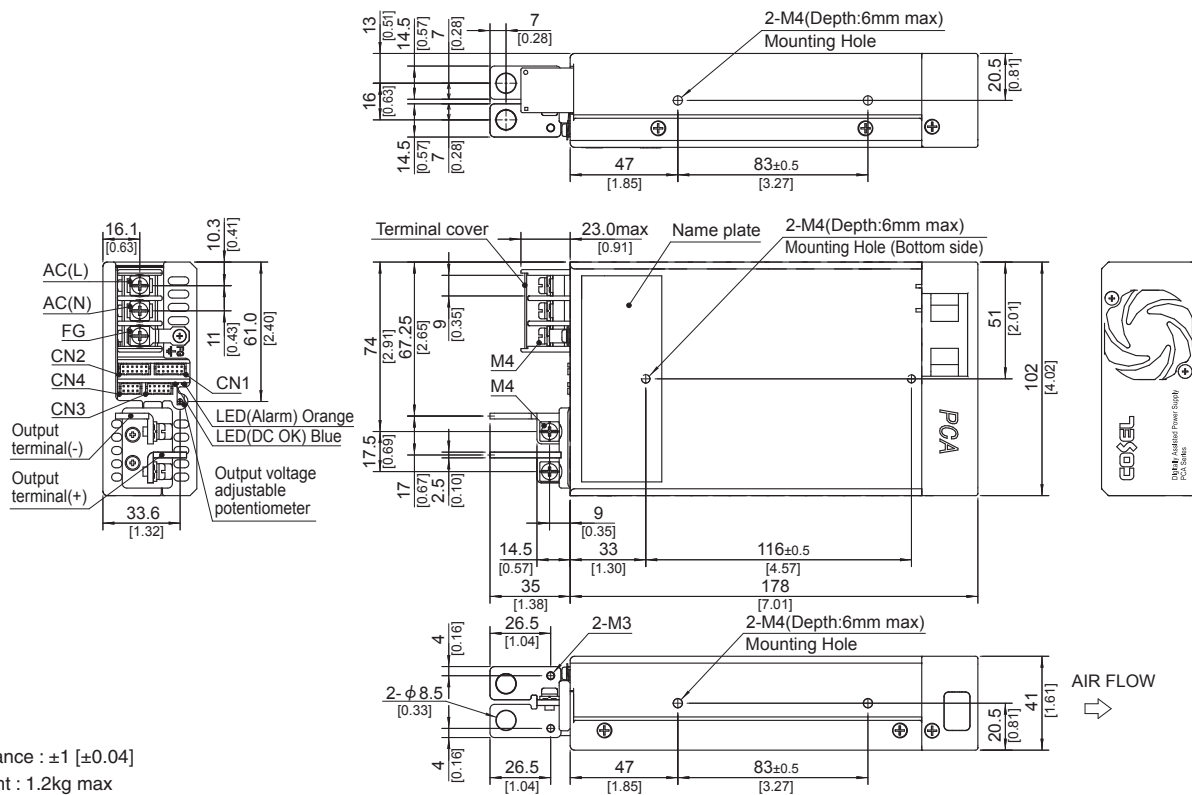
- Low profile (41mm, 1.61 inch = meet to 1U height)
- Universal input 85 - 264VAC (Refer to “Derating”, when using at 85 - 90VAC)
- For medical electric equipment (ANSI/AAMI ES60601-1, EN60601-1 3rd, IEC60601-1-2 4th Ed.)
- Medical Isolation Grade 2MOPP
- With AUX output 12V 0.1A (Voltage variable range 5 - 12V)
- Constant current regulation
- Output voltage can be varied to near 0V (Refer to Instruction Manual item 2.6)
- With various alarms
- Parallel Operation / N+1 Parallel Redundancy Operation possible
- Monitoring function by communication and various setting values can be changed (Refer to Instruction Manual item 2.11)
- Complies with SEMI F47 (Refer to Instruction Manual item 2.1)

Block diagram



External view

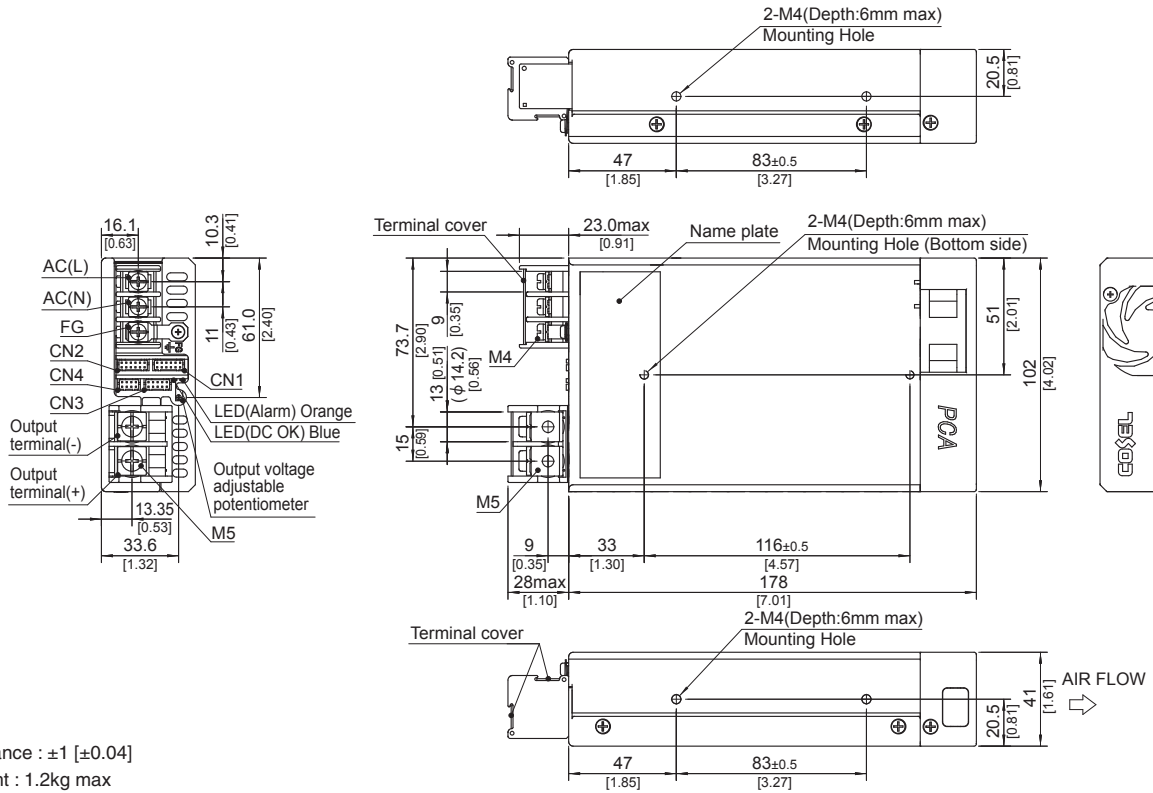
<PCA1000F-□ (Bus Bar Style) >



- ※ Tolerance : ± 1 [± 0.04]
- ※ Weight : 1.2kg 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
 - M3 0.6N·m max
 - M4 1.6N·m max
- ※ Please connect safety ground to FG terminal on the unit.

External view

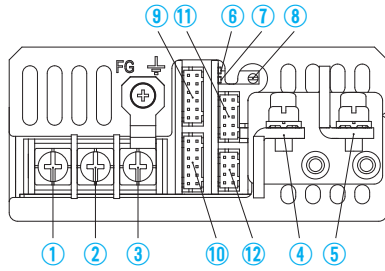
<PCA1000F-□-T (Terminal Block Style) >



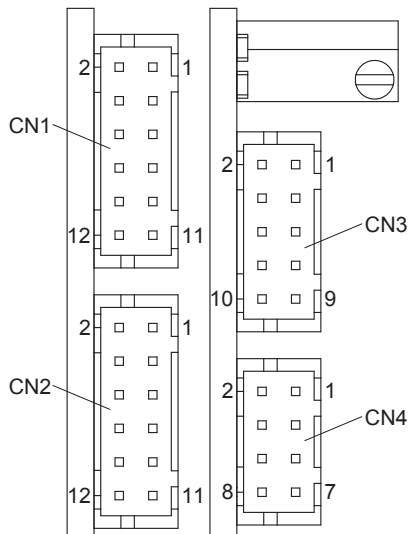
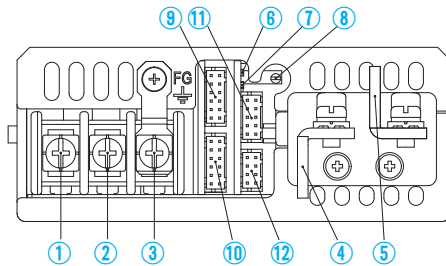
- ※ Tolerance : ± 1 [± 0.04]
- ※ Weight : 1.2kg max
- ※ PCB Material / thickness : FR-4 / 1.6mm [0.06]
- ※ Chassis Material : Aluminum
- ※ Fan cover Material : PBT
- ※ Dimensions in mm, [] = inches
- ※ Mounting torque : 1.2N·m max
- ※ Input and output terminal screw tightening torque
 - M4 1.6N·m max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

Terminal Blocks

●PCA300F, PCA600F



●PCA1000F



Connector pin numbers

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

Pin Configuration and Functions of CN1, CN2

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

* 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	AUXG
2	AUXG	Auxiliary output ground	AUXG
3	RC1	Remote ON/OFF	AUXG
4	AUXG	Auxiliary output ground	AUXG
5	PG	Alarm	PGG
6	PGG	Alarm ground	PGG
7	ITRM	Adjustment of output current	COM
8	COM	Common ground (for signal)	COM
9	VTRM_EN	Enable Vtrm	COM
10	SLV_EN	Enable Slave mode *1	COM

Pin Configuration and Functions of CN4

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

Matching connectors and terminals

Connector	Housing	Terminal	Mfr.
CN1	S12B-PHDSS	PHDR-12VS	J.S.T
CN2	S12B-PHDSS	PHDR-12VS	
CN3	S10B-PHDSS	PHDR-10VS	
CN4	S8B-PHDSS	PHDR-8VS	

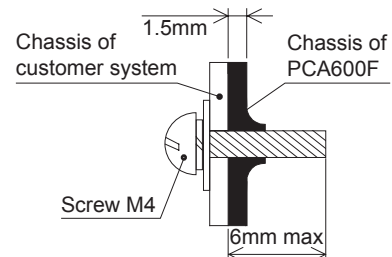
*1 For -P3 option.

*2 For -I option.

*3 The manufacturer prepares only the ratchet hand.

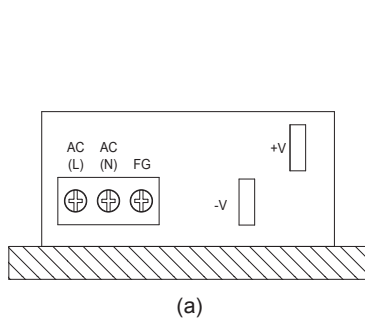
Assembling and Installation Method

- To keep enough isolation between screws and internal components, the length of mounting screws should not exceed right figure.

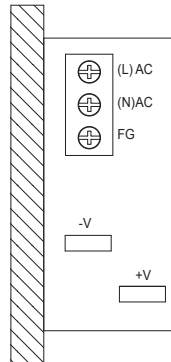


Assembling and Installation Method

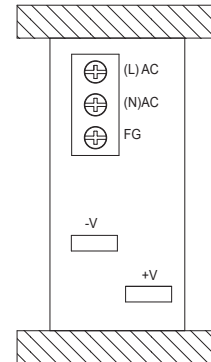
- Please do not block built-in fans and ventilation holes. When the power supply is mounted by screws, please consider its weight and set it in place. (Please see below.)
- If you use a power supply in a dusty environment, it can give a cause for a failure. Please consider taking such countermeasures as installing an air filter near the suction area of the system to prevent a failure.



(a)



(b)

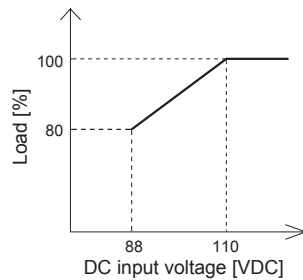
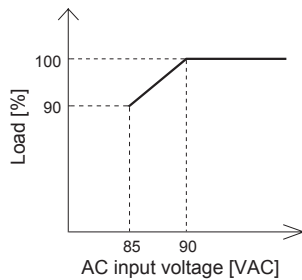


(c)

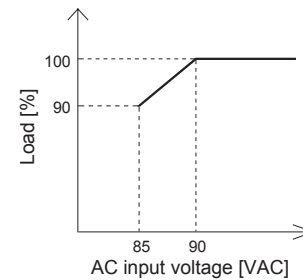
In case of (c), fix it from both directions.

Derating

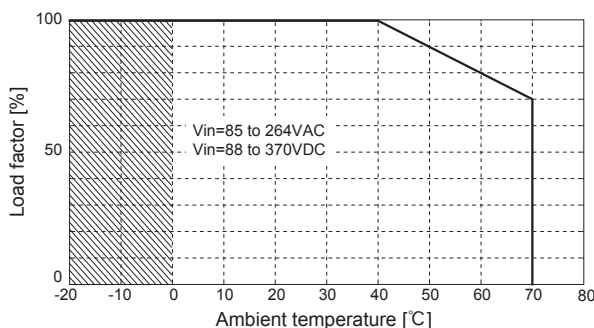
- PCA600F Derating curve depends on AC/DC input voltage



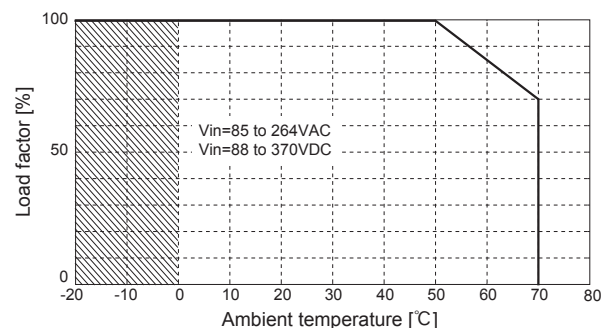
- PCA1000F Derating curve depends on AC/DC input voltage



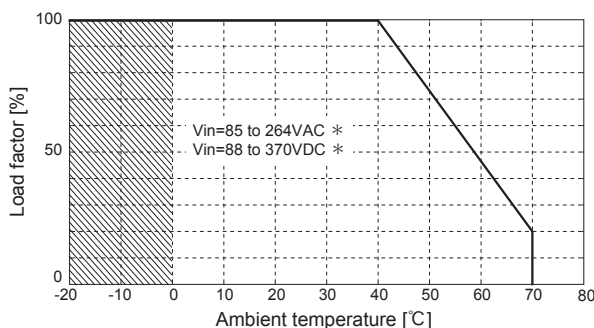
- PCA300F-5 Ambient Temperature Derating Curve



- PCA300F-12, -15, -24, -32, -48 Ambient Temperature Derating Curve

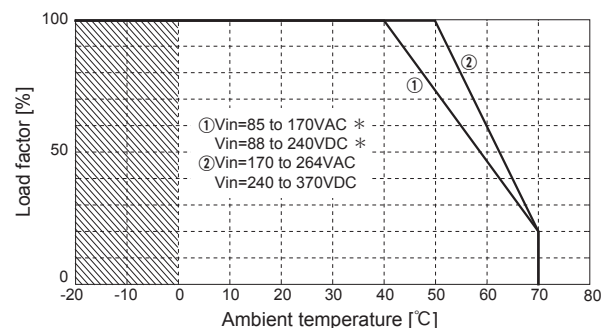


- PCA600F-5 Ambient Temperature Derating Curve



*With derating due to input voltage

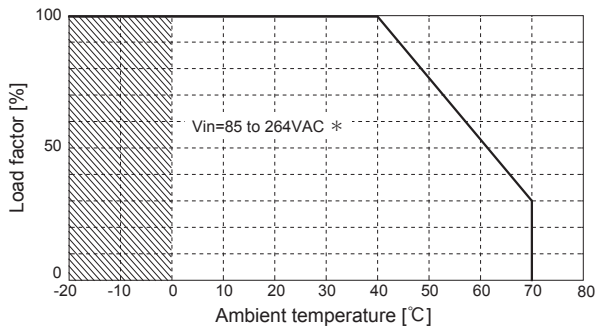
- PCA600F-12, -15, -24, -32, -48 Ambient Temperature Derating Curve



*With derating due to input voltage

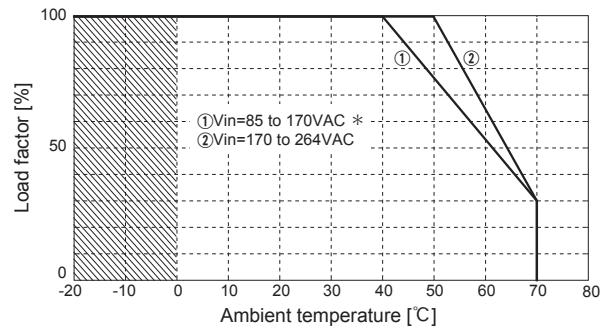
Derating

● 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

■ Specifications for ripple and ripple noise changes in the shaded area.

■ The ambient temperature is defined as the temperature of the air (at the fan side) that the built-in cooling fan draws in 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>



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								

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



Макро Групп – это:

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

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Преимущества для наших заказчиков:

- работа по тендерам с 2012 года
- оформление банковских гарантий
- отсрочки платежей
- поставка электронных компонентов по проектным ценам
- инженерная поддержка проектов заказчиков
- сертификат системы менеджмента качества ISO 9001-2015
- необходимые сертификаты и лицензии

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