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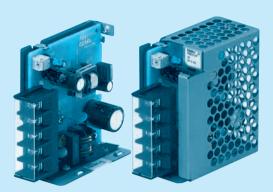




# PBA10F

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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
- J :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.

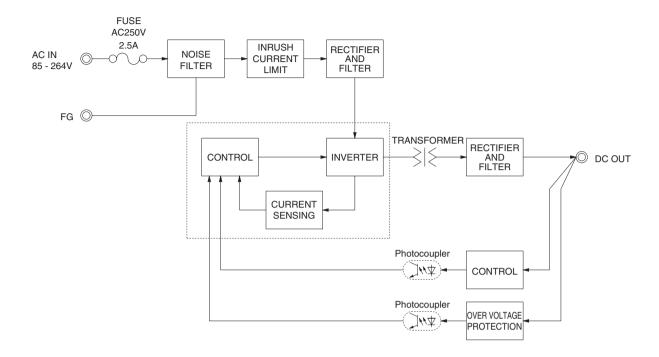
| MODEL                 | PBA10F-5 | PBA10F-12 | PBA10F-24 |
|-----------------------|----------|-----------|-----------|
| MAX OUTPUT WATTAGE[W] | 10       | 10.8      | 12        |
| DC OUTPUT             | 5V 2A    | 12V 0.9A  | 24V 0.5A  |

|                        | 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 2.1 Input voltage *3)                   |  |  |  |
|                        | OUDDENITIAL                 | 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,D             | DENAN)  |  |  |  |
|                        | VOLTAGE[V]                  |               | 5  | 12   | 24  |  |  |  |
|                        | CURRENT[A]                  |               | 2  | 0.9  | 0.5   |  |  |  |
|                        | LINE REGULATION[            | mV] *6        | 20max  | 48max  | 96max   |  |  |  |
| İ                      | LOAD REGULATION             | [mV] *6       | 40max  | 100max   | 150max  |  |  |  |
|                        | DIDDI Elm/m m³              | 0 to +50°C *1 | 80max  | 120max   | 120max  |  |  |  |
|                        | RIPPLE[mVp-p]               | -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  |  |  |  |
|                        | TEMPERATURE REGULATION[mV]  | 0 to +50°C    | 50max  | 120max   | 240max  |  |  |  |
|                        |                             | -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 | OVERVOLTAGE PROTEC          | TION[V]       | 5.75 - 7.00  | 15.0 - 18.0                                      | 30.0 - 37.0                                       |  |  |  |
| OTHERS                 | <b>OPERATING INDICA</b>     | 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                   |               |  | mA, DC500V 50M $\Omega$ min (At Room Tem         |   |  |  |  |
|                        | OPERATING TEMP., HUMID. AND | ALTITUDE      | 0  | - 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 p                                     | eriod, 60minutes each along X, Y and             | Z axis  |  |  |  |
|                        | IMPACT                      |               | 196.1m/s <sup>2</sup> (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             |               | Complies with IEC61000-3-2 (Not buil                                     |  |   |  |  |  |
| OTHERS                 | CASE SIZE/WEIGHT            |               | 31 × 78 × 68mm [1.22 × 3.07 × 2.68 inc                                   | hes] (without terminal block) (WXHXD             | ) / 150g max (with cover : 180g max)              |  |  |  |
| OTTLENS                | <b>COOLING METHOD</b>       |               | 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.
- \*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.

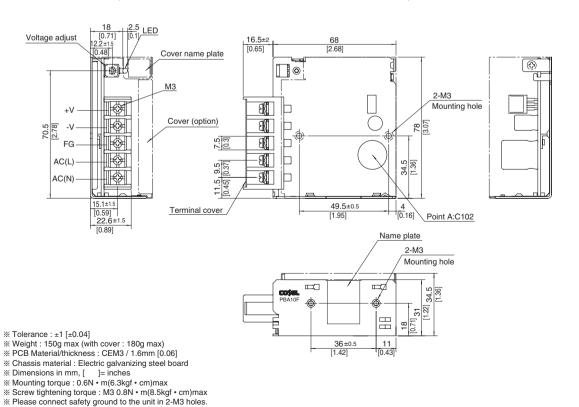
  A sound may occur from power supply at peak loading.





#### **External view**

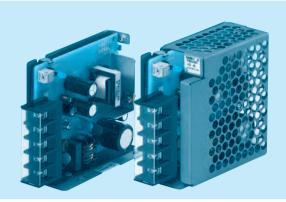
\* External size of option T,J,N,N1 and V is different from standard model and refer to 7 Option of instruction manual for details.



# 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

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

J :Connector type

N :with Cover (UL508 is acquired [5V, 12V, 24V])

N1: with DIN rail and Cover

V:Output voltage setting potentiometer external-

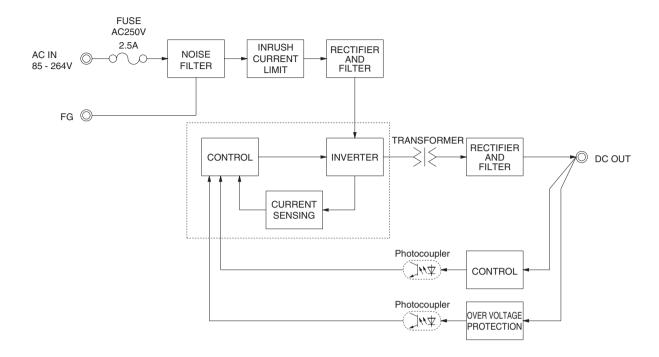
\*Make sure necessary tests will be carried out on your end equipment with the power supply installed in accordance with any required EMC/EMI regulations.

| 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 |

|                        | 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     | nual 2.1 Input vo     | ltage *3)             |  |  |
|                        | CURRENT[A]                  | ACIN 100V     | 0.30typ (lo=100%)  | 0.4typ (lo=100%   | 6)                   |                          |                       |                       |                       |  |  |
|                        | CONNENT[A]                  | ACIN 200V     | 0.15typ (lo=100%)  | 0.2typ (lo=100%   | 6)                   |                          |                       |                       |                       |  |  |
|                        | FREQUENCY[Hz]               |               | 50/60 (47 - 440)   | or DC   |                      |                          |                       |                       |                       |  |  |
| INPUT                  | EFFICIENCY[%]               | ACIN 100V     | 68typ  | 74typ   | 75typ                | 75typ                    | 77typ                 | 75typ                 | 75typ                 |  |  |
|                        | EFFICIENCI[/6]              | ACIN 200V     | 68typ  | 75typ   | 77typ                | 78typ                    | 80typ                 | 78typ                 | 78typ                 |  |  |
|                        | 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]         | 0.15/0.30max (A  | ACIN 100V/240V  | 60Hz, lo=100%,       | According to IEC         | C60950-1,DENAN        | ۷)                    |                       |  |  |
|                        | 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°C *1 | 80max  | 80max   | 120max               | 120max                   | 120max                | 120max                | 150max                |  |  |
|                        | nirrcc[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                |  |  |
|                        | 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 | o 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   |               | _  | <u> </u>  |                      | Non condensing)          |                       | eet) max              |                       |  |  |
| ENVIRONMENT            | STORAGE TEMP., HUMID. AND   | ALTITUDE      |  |   |                      | 00m (30,000feet)         |                       |                       |                       |  |  |
|                        | VIBRATION                   |               |  | 10 - 55Hz, 19.6m/s² (2G), 3minutes period, 60minutes each along X, Y and Z axis |                      |                          |                       |                       |                       |  |  |
|                        | IMPACT                      |               | 196.1m/s² (20G), 11ms, once each X, Y and Z axis                         |   |                      |                          |                       |                       |                       |  |  |
| SAFELL AND             | AGENCY APPROVALS (At only   |               |  |   |                      | 50178 Complies           |                       |                       |                       |  |  |
| NOISE                  | CONDUCTED NOISE             |               | Complies with FCC Part15 classB, VCCI-B, CISPR22-B, EN55011-B, EN55022-B |   |                      |                          |                       |                       |                       |  |  |
| REGULATIONS            | HARMONIC ATTENU             | ATOR          | Complies with IEC61000-3-2 (Not built-in to active filter *4) *7         |   |                      |                          |                       |                       |                       |  |  |
| OTHERS                 | CASE SIZE/WEIGHT            |               |  | [1.22×3.07×3.0  | 35 inches] (witho    | ut terminal block)       | (W×H×D) / 20          | 00g max (with co      | ver : 235g max)       |  |  |
| O.71L110               | COOLING METHOD Convection   |               |  |   |                      |                          |                       |                       |                       |  |  |

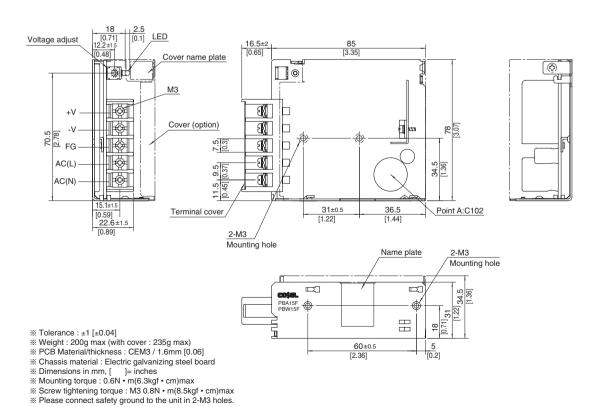
- Measured by 20MHz oscilloscope or Ripple-Noise meter(equivalent to KEISOKU-GIKEN :RM101).
- Drift is the change in DC output for an eight hour period after a half-hour warm-up at 25°C.
- \*4 When two or more units are used,they may not comply with the harmonic attenuator. Please contact us for details.
- \*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.



#### **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.



# PBA30F

A 30

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.

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
- J :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.

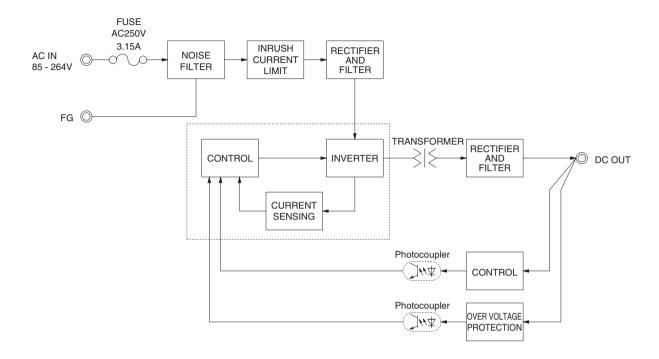
| MODEL                 | PBA30F-3R3 | PBA30F-5 | PBA30F-9 | PBA30F-12 | PBA30F-15 | PBA30F-24 | PBA30F-48 |
|-----------------------|------------|----------|----------|-----------|-----------|-----------|-----------|
| MAX OUTPUT WATTAGE[W] | 19.8       | 30       | 30.6     | 30        | 30        | 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 |

|   | 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    | he instruction ma   | anual 2.1 Input vo   | oltage *3)            |  |  |
|   | OUDDENTIAL                 | ACIN 100V     | 0.50typ (lo=100%)  | 0.70typ (lo=100   | %)                   |                        |   |  |                       |  |  |
|   | CURRENT[A]                 | ACIN 200V     | 0.30typ (lo=100%)  | 0.40typ (lo=100   | %)                   |                        |   |  |                       |  |  |
| PUTPUT  EI  IN  LE  VY  CC  LI  LC  RI  BUTPUT  TEI  OU  OU  ROTECTION IRCUIT AND OTHERS  FI  IN  OU  OU  ROTECTION IN  OU  ROTECTION IN  OU  OU  ROTE  ST  WI  OU  OU  OU  ROTE  ST  VI  VI  VI  VI  VI  VI  VI  VI  VI  V | FREQUENCY[Hz]              |               | 50/60 (47 - 440)   | or DC   |                      |                        |   |  |                       |  |  |
| NPUT  | EEEIOIENOVIO/1             | ACIN 100V     | 68typ  | 74typ   | 75typ                | 76typ                  | 78typ   | 78typ  | 79typ                 |  |  |
|   | EFFICIENCY[%]              | ACIN 200V     | 69typ  | 77typ   | 77typ                | 78typ                  | 81typ   | 81typ  | 81typ                 |  |  |
|   | INDUCU OUDDENTIAL          | ACIN 100V     | 15typ (lo=100%   | ) (At cold start)   |                      | •                      | typ 78typ 81typ 81typ  typ 81typ 81typ 81typ  typ 81typ 81typ 81typ  typ 81typ 81typ 81typ  typ 81typ  typ 81typ 81typ  typ 1.3  typ 96max  typ 96max  typ 96max  typ 96max  typ 19typ 19ty |  |                       |  |  |
|   | INRUSH CURRENT[A]          |               | 30typ (lo=100%   |   |                      |                        |   | 81typ  NAN)  24  1.3  96max  150max  120max  160max  150max  240max  290max  96max  96max  30.0 - 37.0  Perature)  perature) perature) perature) perature) perature) perature) perature) |                       |  |  |
|   | 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                |  |  |
|   | DIDDI ElmVn ni             | 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 MOIOEL W            | 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 REQUILATIONSVI | 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                |  |  |
| s   | START-UP TIME[ms]          |               | 200typ(ACIN 100V   | lo=100%) *Start-u   | up time is 700ms typ | for less than 1minu    | ute of applying input   | again from turning   | off the input voltage |  |  |
|   | HOLD-UP TIME[ms]           |               | 20typ (ACIN 10   | OV, Io=100%)  |                      |                        |   |  |                       |  |  |
|   | OUTPUT VOLTAGE ADJUSTMENT  | FRANGE[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           |  |  |
|   | <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  | 48.00 - 49.92         |  |  |
|   | OVERCURRENT PROT           |               | 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           |  |  |
| INCUIT AND  | OPERATING INDICA           |               | 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 ( <i>A</i> | 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  |                       |  |  |
| NUMBONIMENIT  | 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  | 10 - 55Hz, 19.6m/s² (2G), 3minutes period, 60minutes each along X, Y and Z axis |                      |                        |   |  |                       |  |  |
|   | IMPACT                     |               | 196.1m/s² (20G), 11ms, once each X, Y and Z axis   |   |                      |                        |   |  |                       |  |  |
| AFETY AND   | AGENCY APPROVALS (At only  | / AC input)   |  |   |                      |                        |   |  |                       |  |  |
| IOISE   | CONDUCTED NOISE            | :             | Complies with FCC Part15 classB, VCCI-B, CISPR22-B, EN55011-B, EN55022-B   |   |                      |                        |   |  |                       |  |  |
| EGULATIONS  | HARMONIC ATTENU            | ATOR          | Complies with IEC61000-3-2 (Not built-in to active filter *4) *7   |   |                      |                        |   |  |                       |  |  |
| THERE   | CASE SIZE/WEIGHT           |               | 31 x 78 x 103mm [1.22 x 3.07 x 4.06 inches] (without terminal block) (W x H x D) / 270g max (with cover : 310g max |   |                      |                        |   |  |                       |  |  |
| 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.
- \*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.

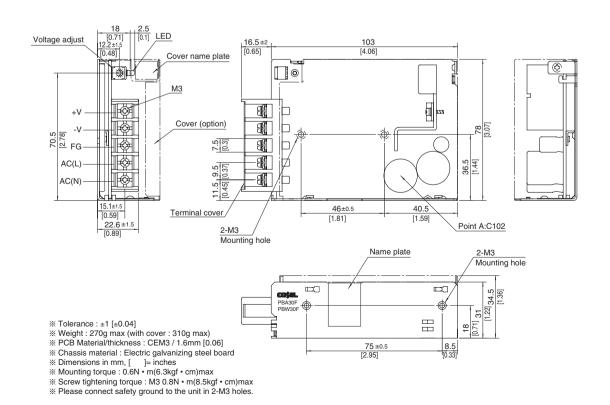
  A sound may occur from power supply at peak loading.





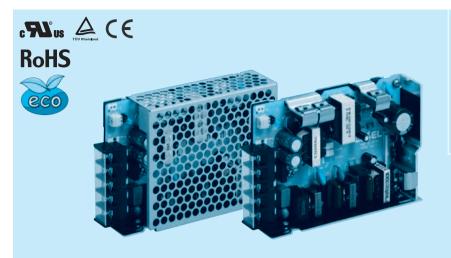
#### **External view**

\*\* 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.



# 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

  - J :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.

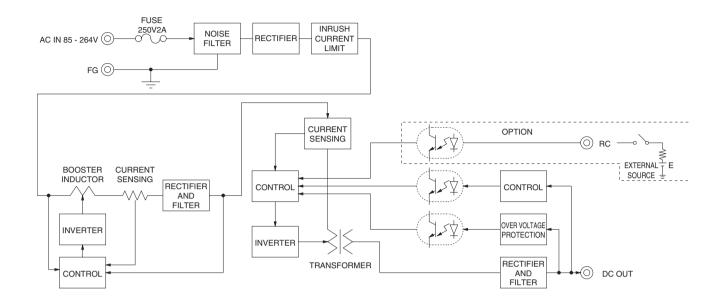
| MODEL                 | PBA50F-3R3 | PBA50F-5 | PBA50F-9 | PBA50F-12 | PBA50F-15 | PBA50F-24 | PBA50F-36 | PBA50F-48 |
|-----------------------|------------|----------|----------|-----------|-----------|-----------|-----------|-----------|
| MAX OUTPUT WATTAGE[W] | 33         | 50       | 50.4     | 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 - 37   | 0 (AC50 or DC7    | Please refer to   | the instruction r | nanual 2.1 Input | voltage *4)      |               |  |  |
|                        | OUDDENTIAL                 | ACIN 100V             | 0.5typ   | 0.7typ  |                   |                   |                   |                  |                  |               |  |  |
|                        | CURRENT[A]                 | ACIN 200V             | 0.3typ   | 0.4typ  |                   |                   |                   |                  |                  |               |  |  |
|                        | FREQUENCY[Hz]              |                       | 50/60 (47 - 63)  |   |                   |                   |                   |                  |                  |               |  |  |
|                        | EEEIOIENOVI0/1             | 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[mA]        |                       | 0.4/0.75max (A   | 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          | nV]                   | 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        |  |  |
|                        | RIPPLE[IIIVP-P]            | -10 - 0℃ *1           | 140max   | 140max  | 160max            | 160max            | 160max            | 160max           | 200max           | 200max        |  |  |
| DUIPUI                 | RIPPLE NOISE[mVp-p]        | 0 to +50°C <b>*</b> 1 | 120max   | 120max  | 150max            | 150max            | 150max            | 150max           | 250max           | 250max        |  |  |
|                        | RIPPLE 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        |  |  |
|                        |                            | -10 to +50℃           | 60max  | 60max   | 120max            | 150max            | 180max            | 290max           | 450max           | 600max        |  |  |
| D                      | 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, 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    | 35.00 - 37.44    | 48.00 - 49.92 |  |  |
|                        | OVERCURRENT PROT           | ECTION                | Works over 105   | 5% of rated curr  | 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 po  |                   |                   |                   |                  |                  |               |  |  |
|                        | INPUT-OUTPUT · RC          | *3                    |  |   |                   | 500V 50MΩmin      |                   |                  |                  |               |  |  |
| ISOLATION              | INPUT-FG                   |                       | AC2,000V 1mir  | nute, Cutoff curre  | ent = 10mA, DC    | 500V 50MΩmin      | (At Room Tempe    | erature)         |                  |               |  |  |
|                        | OUTPUT · RC-FG             | *3                    |  |   |                   | 00V 50MΩmin (     |                   |                  |                  |               |  |  |
|                        | OPERATING TEMP.,HUMID.AND  | ALTITUDE              |  |   |                   |                   |                   | Ofeet) max       |                  |               |  |  |
| ENVIRONMENT            | STORAGE TEMP., HUMID. AND  | ALTITUDE              |  |   |                   | 000m (30,000fee   |                   |                  |                  |               |  |  |
| LIVIIIONIMENT          | VIBRATION                  |                       |  |   |                   | minutes each ald  | ong X, Y and Z a  | axis             |                  |               |  |  |
|                        | IMPACT                     |                       |  |   | each X, Y and Z   |                   |                   |                  |                  |               |  |  |
| 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 FCC Part15 classB, VCCI-B, CISPR22-B, EN55011-B, EN55022-B |   |                   |                   |                   |                  |                  |               |  |  |
| REGULATIONS            | HARMONIC ATTENUAT          | ГOR                   | Complies with IEC61000-3-2 *6  |   |                   |                   |                   |                  |                  |               |  |  |
| OTHERS                 | CASE SIZE/WEIGHT           |                       | 31 × 82 × 120m   | m [1.22 × 3.23 ×  | 4.72 inches] (wit | hout terminal blo | ck) (W×H×D)       | 280g max (wit    | h cover : 325g m | ax)           |  |  |
| UTILITY                | COOLING METHOD             |                       |  |   |                   |                   |                   |                  |                  |               |  |  |

- 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.

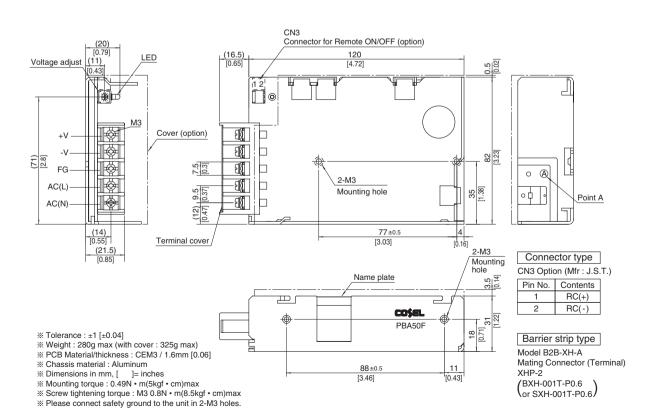
- \*5 Please contact us about safety approvals for the model with option.
- \*6 Please contact us about class C.
- Parallel operation with other model is not possible.
- Derating is required when operated with cover
- A sound may occur from power supply at peak loading.





#### **External view**

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



# PBA75F

**75** 

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.
- Series name
   Single 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
- J :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.

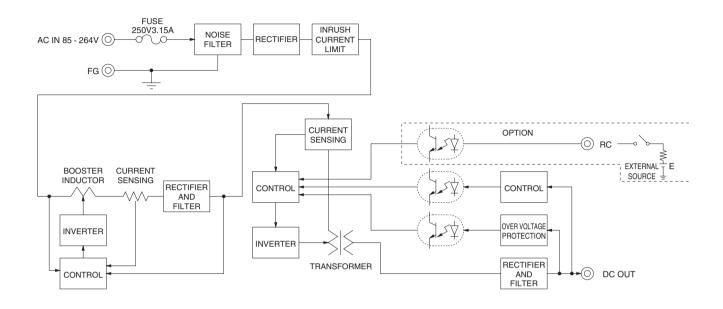
| MODEL                 | PBA75F-3R3 | PBA75F-5 | PBA75F-9 | PBA75F-12 | PBA75F-15 | PBA75F-24 | PBA75F-36 | PBA75F-48 |
|-----------------------|------------|----------|----------|-----------|-----------|-----------|-----------|-----------|
| MAX OUTPUT WATTAGE[W] | 49.5       | 75       | 75.6     | 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 - 37  | 0 (AC50 or DC7    | Please refer to          | the instruction r | nanual 2.1 Input | voltage *4)      |               |  |  |
|                        | CUDDENTIAL                 | ACIN 100V             | 0.7typ   | 1.0typ   |                   |                          |                   |                  | _                |               |  |  |
|                        | CURRENT[A]                 | ACIN 200V             | 0.4typ   | 0.5typ   |                   |                          |                   |                  |                  |               |  |  |
|                        | FREQUENCY[Hz]              |                       | 50/60 (47 - 63)  |  |                   |                          |                   |                  |                  |               |  |  |
|                        | EEEIOIENOVI0/1             | 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 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[mA]        |                       | 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          | 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        |  |  |
|                        | RIPPLE[IIIVP-P]            | -10 - 0℃ *1           | 140max   | 140max   | 160max            | 160max                   | 160max            | 160max           | 200max           | 200max        |  |  |
| OUTPUT                 | RIPPI F NOISFIMVn-n1 +     | 0 to +50°C <b>*</b> 1 | 120max   | 120max   | 150max            | 150max                   | 150max            | 150max           | 250max           | 250max        |  |  |
|                        | RIPPLE NOISE[IIIVP-P]      | -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, 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         |                       | 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           |                       |  |  | 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 po   |                   |                          |                   |                  |                  |               |  |  |
|                        | INPUT-OUTPUT · RC          | *3                    |  |  |                   | 500V 50MΩmin             |                   |                  |                  |               |  |  |
| ISOLATION              | INPUT-FG                   |                       |  |  |                   | 500V 50MΩmin             | ·                 |                  |                  |               |  |  |
|                        | OUTPUT · RC-FG             | *3                    |  |  |                   | $00V$ 50M $\Omega$ min ( |                   |                  |                  |               |  |  |
|                        | OPERATING TEMP.,HUMID.AND  |                       |  |  |                   |                          |                   | 00feet) max      |                  |               |  |  |
| ENVIRONMENT            | STORAGE TEMP.,HUMID.AND    | ALTITUDE              |  |  |                   | 000m (30,000fee          |                   |                  |                  |               |  |  |
| Littinioniment         | VIBRATION                  |                       |  | 10 - 55Hz, 19.6m/s² (2G), 3minutes period, 60minutes each along X, Y and Z axis  |                   |                          |                   |                  |                  |               |  |  |
|                        | IMPACT                     |                       |  | 196.1m/s² (20G), 11ms, once each X, Y and Z axis   |                   |                          |                   |                  |                  |               |  |  |
| SAFETY AND             | AGENCY APPROVALS (At only  | y AC input)           | 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            |                            |                       |  | Complies with IEC61000-3-2 *6  32 x 82 x 135mm [1.26 x 3.23 x 5.31 inches] (without terminal block) (WxHxD) / 350q max (with cover : 400q max) |                   |                          |                   |                  |                  |               |  |  |
| OTHERS                 | CASE SIZE/WEIGHT           |                       |  | m [1.26 × 3.23 ×   | 5.31 inches] (wit | hout terminal blo        | ck) (W×H×D)       | 350g max (wit    | h cover : 400g m | ax)           |  |  |
| JL.10                  | COOLING METHOD             | METHOD Convection     |  |  |                   |                          |                   |                  |                  |               |  |  |

- Measured by 20MHz oscilloscope or Ripple-Noise meter(equivalent to KEISOKU-GIKEN
- \*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
- \*4 Derating is required.

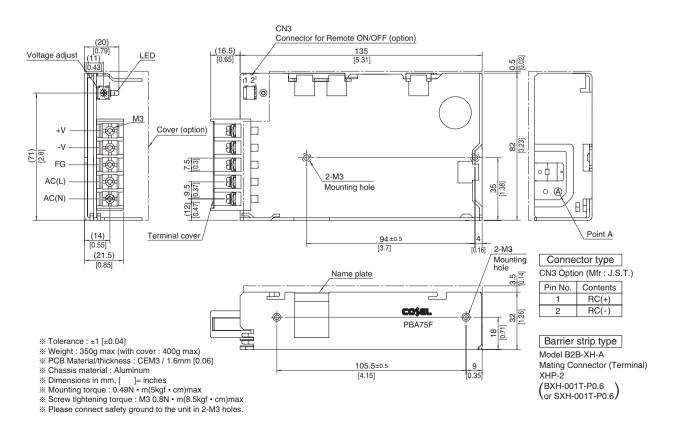
- \*5 Please contact us about safety approvals for the model with option.
- \*6 Please contact us about class C.
- Parallel operation with other model is not possible.
- Derating is required when operated with cover
- A sound may occur from power supply at peak loading.





#### **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.



**RoHS** 

eco

Ordering information

# PBA100F

100

Example recommended EMI/EMC filter NAC-06-472 c**¶**°us ≜ C€

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
- J :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.

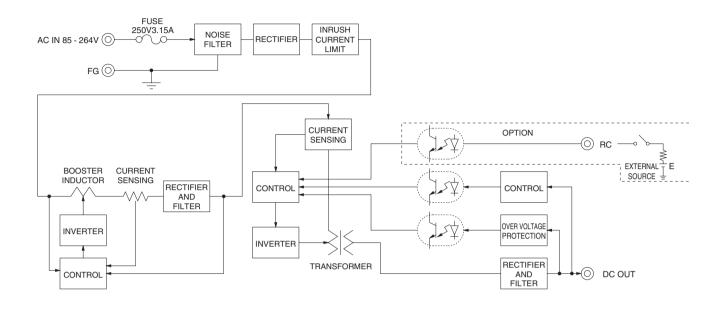
| MODEL                 | PBA100F-3R3 | PBA100F-5 | PBA100F-9 | PBA100F-12 | PBA100F-15 | PBA100F-24 | PBA100F-36 | PBA100F-48 |
|-----------------------|-------------|-----------|-----------|------------|------------|------------|------------|------------|
| MAX OUTPUT WATTAGE[W] | 66          | 100       | 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   |

| POWER FACTOR(Ice=100%)   ACM 100V   0.98typ   0.98typ   0.98typ  |             | MODEL                      |               | PBA100F-3R3                     | PBA100F-5         | PBA100F-9        | PBA100F-12       | PBA100F-15        | PBA100F-24       | PBA100F-36    | PBA100F-48    |  |  |
|--|-------------|----------------------------|---------------|---------------------------------|-------------------|------------------|------------------|-------------------|------------------|---------------|---------------|--|--|
| CURRENT  A    A0M 2007   0.5typ   0.7typ   |             | VOLTAGE[V]                 |               | AC85 - 264 1 φ                  | or DC120 - 370    | 0 (AC50 or DC7   | Please refer to  | the instruction r | nanual 2.1 Input | voltage *4)   |               |  |  |
| PREQUENCY 142  |             | CUDDENTIAL                 | ACIN 100V     | 0.9typ                          | 1.3typ            |                  |                  |                   |                  |               |               |  |  |
| EFFICIENCY %   ACM 100%   77\p   82\py   80\py   81\py   83\py   86\py   86\ |             | CURRENT[A]                 | ACIN 200V     | 0.5typ                          | 0.7typ            |                  |                  |                   |                  |               |               |  |  |
| NPUT   CHRILDING   Scill 1987   841yp   841yp   821yp   831yp   861yp   861y |             | FREQUENCY[Hz]              |               | 50/60 (47 - 63)                 |                   |                  |                  |                   |                  |               |               |  |  |
| POWER FACTOR( sc108%)   ACIN 20W   791/9   841/9     |             | EEEIOIENOVI0/1             | ACIN 100V     | 77typ                           | 82typ             | 80typ            | 81typ            | 83typ             | 84typ            | 84typ         | 84typ         |  |  |
| NOMEN RALION(Ice:100%)   ACIN 200W   0.9 3/typ   0.9 3/typ   0.9 3/typ   | INPUT       | EFFICIENCY[%]              | ACIN 200V     | 79typ                           | 84typ             | 82typ            | 83typ            | 86typ             | 86typ            |               |               |  |  |
| INRUSH CURRENT[A]  |             | DOWED FACTOR/L- 4000/      | ACIN 100V     | 0.98typ                         | 0.99typ           |                  |                  |                   |                  |               |               |  |  |
| INRUSH CURRENTIA   |             | POWER FACTOR(IO=100%)      | ACIN 200V     |                                 |                   |                  |                  |                   |                  |               |               |  |  |
| LEAKAGE CURRENT[mA]  |             | INDUCUI CURRENTIAL         | ACIN 100V     | 20typ (lo=100%                  | (At cold start)   |                  |                  |                   |                  |               |               |  |  |
| VOLTAGE[V]   3.3   5   9   12   15   24   36   48  |             | INRUSH CURRENT[A]          | ACIN 200V     | 40typ (lo=100%) (At cold start) |                   |                  |                  |                   |                  |               |               |  |  |
| CURRENTÍA    20   20   10.5   8.5   7   4.5   2.8   2.1  |             | LEAKAGE CURRENT[r          | nA]           | 0.4/0.75max (A                  |                   |                  |                  |                   |                  |               |               |  |  |
| LINE REGULATION[mV]   20max   20max   36max   48max   60max   96max   144max   192max  |             | VOLTAGE[V]                 |               | 3.3                             | 5                 | 9                | 12               | 15                | 24               | 36            | 48            |  |  |
| CAD REGULATION[mV]   |             | CURRENT[A]                 |               | 20                              | 20                | 10.5             | 8.5              | 7                 | 4.5              | 2.8           | 2.1           |  |  |
| New Part   |             | LINE REGULATION[m\         | /]            | 20max                           | 20max             | 36max            | 48max            | 60max             | 96max            | 144max        | 192max        |  |  |
| OUTPUT   FIRE                | LOAD REGULATION[m          | nV]           | 40max                           | 40max             | 100max           | 100max           | 120max            | 150max           | 240max        | 240max        |  |  |
| 10-9C  |             | DIDDI E(V1                 | 0 to +50°C *1 | 80max                           | 80max             | 120max           | 120max           | 120max            | 120max           | 150max        | 150max        |  |  |
| TEMPERATURE REGULATION  INDITECTION   10.0°C **   160max   160max   180max   180max   180max   180max   300max   300m  |             | KIPPLE[mvp-p]              | -10 - 0℃ *1   | 140max                          | 140max            | 160max           | 160max           | 160max            | 160max           | 200max        | 200max        |  |  |
| 10 - 10   10   10   10   10   10   10  |             | DIDDLE NOISEL-V1           | 0 to +50°C *1 | 120max                          | 120max            | 150max           | 150max           | 150max            | 150max           | 250max        | 250max        |  |  |
| Internation    | OUTPUT      | RIPPLE NOISE[mvp-p]        | -10 - 0℃ *1   | 160max                          | 160max            | 180max           | 180max           | 180max            | 180max           | 300max        | 300max        |  |  |
| DRIFT[mV]  |             | TEMPERATURE REQUILATIONS   | 0 to +50℃     | 50max                           | 50max             | 90max            | 120max           | 150max            | 240max           | 360max        | 480max        |  |  |
| START-UP TIME[ms]   350typ(ACIN 100V, Io=100%)     HOLD-UP TIME[ms]   20typ (ACIN 100V, Io=100%)     OUTPUT VOLTAGE ADJUSTMENT RANGE[V] 2.85 - 3.63   4.00 - 5.50   7.50 - 10.0   10.0 - 13.2   13.2 - 18.0   19.2 - 27.0   28.8 - 39.6   39.0 - 53.0     OUTPUT VOLTAGE SETTING[V] 3.20 - 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 current and recovers automatically     OVERCURATED PROTECTION   40.0 - 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   LED (Green)     OPERATING INDICATION   Department of the control of the co   |             | TEMPERATURE REGULATION[mV] | -10 to +50℃   | 60max                           | 60max             | 120max           | 150max           | 180max            | 290max           | 450max        | 600max        |  |  |
| HOLD-UP TIME[ms]   20typ (ACIN 100V. lo=100%)  |             | DRIFT[mV]                  | *2            | 20max                           | 20max             | 36max            | 48max            | 60max             | 96max            | 144max        | 192max        |  |  |
| 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   |             | START-UP TIME[ms]          |               | 350typ(ACIN 10                  | 00V, lo=100%)     |                  | •                |                   | •                | 1             | •             |  |  |
| 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  |             |                            |               | 20typ (ACIN 10                  | 0V, lo=100%)      |                  |                  |                   |                  |               |               |  |  |
| OVERCURRENT PROTECTION   OVERVOLTAGE PROTECTION   0.0 - 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   |             | 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   |  |  |
| PROTECTION CIRCUIT AND CIRCUIT AND OPERATING INDICATION   LED (Green)   LED (Green   |             | OUTPUT VOLTAGE SET         | 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 |  |  |
| PROTECTION CIRCUIT AND CIRCUIT AND OPERATING INDICATION   LED (Green)   LED (Green   |             | OVERCURRENT PROT           | ECTION        | Works over 105                  | % of rated curre  | ent and recovers | automatically    |                   |                  |               |               |  |  |
| OPERATING INDICATION REMOTE SENSING REMOTE ON/OFF Optional (Only -3R3, -5 Option -K) REMOTE ON/OFF Optional (Required external power source)  INPUT-OUTPUT · RC INPUT-FG OUTPUT · RC-FG 3 AC3.000V 1minute, Cutoff current = 10mA, DC500V 50MΩmin (At Room Temperature)  OPERATING TEMP.HUMID.AND ALTITUDE OPERATING TEMP.HUMID.AND ALTITUDE  FOR STORAGE TEMP.HUMID.AND ALTITUDE OPERATION IMPACT INPUT-FG OUTPUT · RC-FG 3 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  STORAGE TEMP.HUMID.AND ALTITUDE VIBRATION INPUT-FG OUTPUT · RC-FG 10 to +75°C, 20 - 90%RH (Non condensing) 9.000m (30.000feet) max  VIBRATION INPUT-FG VIBRATION INPUT-FG 10 to +75°C, 20 - 90%RH (Non condensing) 9.000m (30.000feet) max  VIBRATION INPUT-FG VIBRATION INPUT-FG VIBRATION INPUT-FG 10 to +71°C (Required Derating), 20 - 90%RH (Non condensing) 3.000m (10.000feet) max  VIBRATION INPUT-FG VIBRATION INPUT-FO VIBRATION INPUT-FO VIBRATION INPUT-FO VIBRATION INPUT-FG VIBRATION INPUT-FO VIBRATION | PROTECTION  | OVERVOLTAGE PROTEC         | TION[V]       |                                 |                   |                  |                  | 20.0 - 25.0       | 30.0 - 37.0      | 43.0 - 50.0   | 58.0 - 65.0   |  |  |
| REMOTE ON/OFF   Optional (Notiny '3-5', '3' Optional (N  |             | OPERATING INDICATION       | ON            | LED (Green)                     |                   |                  | •                |                   |                  |               |               |  |  |
| INPUT-OUTPUT · RC   **3   AC3.000V 1minute, Cutoff current = 10mA, DC500V 50MΩmin (At Room Temperature)  | OTHERS      | REMOTE SENSING             |               | Optional (Only                  | -3R3, -5 Option   | -K)              |                  |                   |                  |               |               |  |  |
| INPUT-FG   |             | REMOTE ON/OFF              |               | Optional (Requ                  | ired external pov | wer source)      |                  |                   |                  |               |               |  |  |
| OUTPUT · RC-FG         **3         AC500V 1minute, Cutoff current = 100mA, DC500V 50M Ωmin (At Room Temperature)           PENVIRONMENT           STORAGE TEMP,HUMID.AND ALTITUDE         -10 to +71°C (Required Derating), 20 - 90%RH (Non condensing) 3,000m (10,000feet) max           VIBRATION         10 - 55Hz, 19.6m/s² (2G), 3minutes period, 60minutes each along X, Y and Z axis           IMPACT         196.1m/s² (20G), 11ms, once each X, Y and Z axis           SAFETY AND NOISE           REGULATIONS         CONDUCTED NOISE         UL60950-1, C-UL(CSA60950-1), EN60950-1, EN50178 Complies with DEN-AN           CONDUCTED NOISE         Complies with FCC Part15 classB, VCCI-B, CISPR22-B, EN55011-B, EN55022-B           HARMONIC ATTENUATOR         Complies with IEC61000-3-2 *8           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)  |             | INPUT-OUTPUT · RC          | *3            | AC3,000V 1mir                   | ute, Cutoff curre | ent = 10mA, DC   | 500V 50MΩmin     | (At Room Tempe    | erature)         |               |               |  |  |
| OPERATING TEMP,HUMID.AND ALTITUDE   -10 to +71°C (Required Derating), 20 - 90%RH (Non condensing) 3,000m (10,000feet) max  | ISOLATION   | INPUT-FG                   |               | AC2,000V 1mir                   | ute, Cutoff curre | ent = 10mA, DC   | 500V 50MΩmin     | (At Room Tempe    | erature)         |               |               |  |  |
| STORAGE TEMP.HUMID.AND ALTITUDE   -20 to +75°C, 20 - 90%RH (Non condensing) 9.000m (30.000feet) max  |             | OUTPUT · RC-FG             | *3            | AC500V 1minu                    | te, Cutoff curren | t = 100mA, DC5   | 00V 50MΩmin (    | At Room Tempe     | rature)          |               |               |  |  |
| VIBRATION  |             | OPERATING TEMP.,HUMID.AND  | ALTITUDE      | -10 to +71°C (F                 | lequired Derating | g), 20 - 90%RH   | (Non condensing  | g) 3,000m (10,00  | Ofeet) max       |               |               |  |  |
| VIBRATION   10 - 55Hz, 19.6m/s² (2G), 3minutes period, 60minutes each along X, Y and Z axis  |             | STORAGE TEMP., HUMID. AND  | ALTITUDE      |                                 |                   |                  |                  |                   |                  |               |               |  |  |
| AGENCY APPROVALS (At only AC input)   UL60950-1, C-UL(CSA60950-1), EN60950-1, EN50178 Complies with DEN-AN   | ENVIRONMENT | VIBRATION                  |               | 10 - 55Hz, 19.6                 | m/s2 (2G), 3mi    | nutes period, 60 | minutes each ald | ong X, Y and Z a  | axis             |               |               |  |  |
| 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  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)  |             | IMPACT                     |               |                                 |                   |                  |                  |                   |                  |               |               |  |  |
| 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  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)  | SAFETY AND  | AGENCY APPROVALS (At only  | / AC input)   |                                 |                   |                  |                  |                   |                  |               |               |  |  |
| REGULATIONS HARMONIC ATTENUATOR Complies with IEC61000-3-2 *6  CASE SIZE/WEIGHT 32×93×147mm [1.26×3.66×5.79 inches] (without terminal block) (W×H×D) / 440g max (with cover: 500g max)   | NOISE       | CONDUCTED NOISE            |               | Complies with I                 | CC Part15 clas    | sB, VCCI-B, CIS  | PR22-B, EN550    | 11-B, EN55022-    | В                |               |               |  |  |
| OTHERS   | REGULATIONS | HARMONIC ATTENUAT          | ΓOR           |                                 |                   |                  |                  |                   |                  |               |               |  |  |
| OTHERS   |             |                            |               |                                 |                   |                  |                  |                   |                  | ax)           |               |  |  |
| CONVECTION CONVECTION  | OTHERS      | COOLING METHOD             |               | Convection                      | -                 |                  |                  |                   | <u> </u>         | <u> </u>      |               |  |  |

- 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.

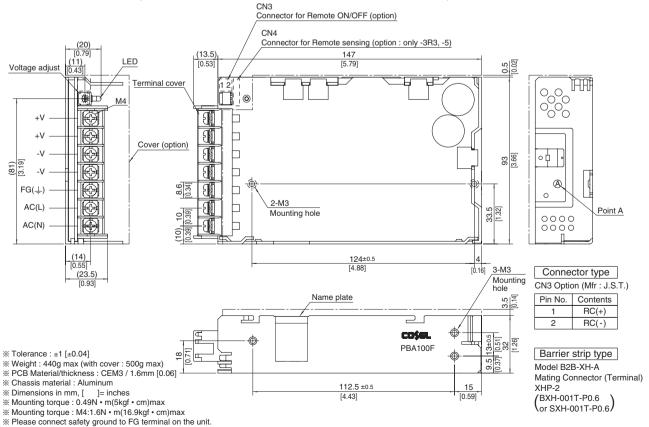
- \*5 Please contact us about safety approvals for the model with option.
- \*6 Please contact us about class C.
- Parallel operation with other model is not possible.
- Derating is required when operated with cover
- A sound may occur from power supply at peak loading.





#### **External view**

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



# PBA150F

A 150 F -5

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

  - J :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.

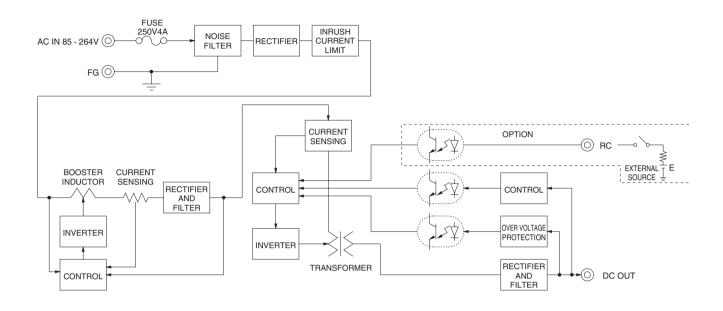
| MODEL                 | PBA150F-3R3 | PBA150F-5 | PBA150F-9 | PBA150F-12 | PBA150F-15 | PBA150F-24 | PBA150F-36 | PBA150F-48 |
|-----------------------|-------------|-----------|-----------|------------|------------|------------|------------|------------|
| MAX OUTPUT WATTAGE[W] | 99          | 150       | 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 (AC50 or DC70 Please refer to the instruction manual 2.1 Input voltage *4)                          |             |                  |               |               |               |               |               |
| INPUT       | CURRENT[A]                          | ACIN 100V     | 1.3typ 2.0typ   |             |                  |               |               |               |               |               |
|             | CORRENT[A]                          | ACIN 200V     |   |             |                  |               |               |               |               |               |
|             | FREQUENCY[Hz]                       |               | 50/60 (47 - 63)   |             |                  |               |               |               |               |               |
|             | EFFICIENCY[%]                       | ACIN 100V     | 80typ   | 83typ       | 82typ            | 83typ         | 84typ         | 85typ         | 85typ         | 85typ         |
|             |                                     | ACIN 200V     | 82typ   | 86typ       | 85typ            | 86typ         | 87typ         | 88typ         | 88typ         | 88typ         |
|             |                                     | ACIN 100V     | 0.98typ   | 0.99typ     |                  |               |               |               |               |               |
|             |                                     | ACIN 200V     |   |             |                  |               |               |               |               |               |
|             | INRUSH CURRENT[A]                   | ACIN 100V     |   |             |                  |               |               |               |               |               |
|             | INNUSH CURRENT[A]                   | ACIN 200V     | 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[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        |
|             |                                     | -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        |
|             | 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 100V, Io=100%)  |             |                  |               |               |               |               |               |
|             | HOLD-UP TIME[ms]                    |               | 20typ (ACIN 100V, Io=100%)  |             |                  |               |               |               |               |               |
|             | 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                    |               |   |             | ent and recovers |               | ı             |               | T             |               |
| PROTECTION  | 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   |
| OTHERS      | OPERATING INDICATION                |               | LED (Green)   |             |                  |               |               |               |               |               |
| OTHERS      | REMOTE SENSING                      |               | Optional (Only -3R3, -5 Option -K)  |             |                  |               |               |               |               |               |
|             | REMOTE ON/OFF                       |               | Optional (Required external power source)   |             |                  |               |               |               |               |               |
| ISOLATION   | INPUT-OUTPUT · RC *3                |               | AC3,000V 1minute, Cutoff current = 10mA, DC500V 50M $\Omega$ min (At Room Temperature)  |             |                  |               |               |               |               |               |
|             | INPUT-FG                            |               | AC2.000V 1minute, Cutoff current = 10mA, DC500V 50MΩmin (At Room Temperature)   |             |                  |               |               |               |               |               |
|             | OUTPUT · RC-FG *3                   |               | AC500V 1minute, Cutoff current = 100mA, DC500V 50MΩmin (At Room Temperature)  |             |                  |               |               |               |               |               |
| ENVIRONMENT | OPERATING TEMP.,HUMID.AND           |               | -10 to +71°C (Required Derating), 20 - 90%RH (Non condensing) 3,000m (10,000feet) max   |             |                  |               |               |               |               |               |
|             | STORAGE TEMP.,HUMID.AND             | ALIIIUDE      | -20 to +75°C, 20 - 90%RH (Non condensing) 9,000m (30,000feet) max   |             |                  |               |               |               |               |               |
|             | VIBRATION                           |               | 10 - 55Hz, 19.6m/s² (2G), 3minutes period, 60minutes each along X, Y and Z axis   |             |                  |               |               |               |               |               |
|             | IMPACT                              |               | 196.1m/s <sup>2</sup> (20G), 11ms, once each X, Y and Z axis UL60950-1, C-UL(CSA60950-1), EN60950-1, EN50178 Complies with DEN-AN |             |                  |               |               |               |               |               |
| NOISE       | AGENCY APPROVALS (At only AC input) |               |   |             |                  |               |               |               |               |               |
|             | CONDUCTED NOISE HARMONIC ATTENUATOR |               | Complies with FCC Part15 classB, VCCI-B, CISPR22-B, EN55011-B, EN55022-B  Complies with IEC61000-3-2 *6                           |             |                  |               |               |               |               |               |
|             |                                     | UK            |   |             |                  |               |               |               |               |               |
| OTHERS      |                                     |               | 34×93×168mm [1.34×3.66×6.61 inches] (without terminal block) (W×H×D) / 560g max (with cover : 630g max)                           |             |                  |               |               |               |               |               |
|             | COOLING METHOD                      |               | Convection  |             |                  |               |               |               |               |               |

- 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.

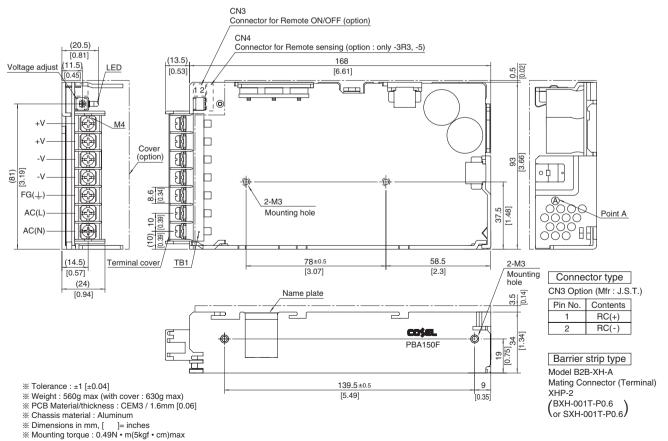
- \*5 Please contact us about safety approvals for the model with option.
- \*6 Please contact us about class C.
- Parallel operation with other model is not possible.
- Derating is required when operated with cover
- A sound may occur from power supply at peak loading.





#### **External view**

\*\* External size of option T,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.

PBA/PBW-15