



Recommended Noise Filter  
NAC-06-472



High voltage pulse noise type : NAP series  
Low leakage current type : NAM series  
\*The Noise Filter is recommended to connect with several devices.

- ① Series name  
② Single output  
③ Output wattage  
④ Universal input  
⑤ Output voltage  
⑥ Optional  
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 pending for approval)  
M : with DIN rail  
V : Output voltage setting potentiometer externally

Cover is optional

| MODEL                 | PBA15F-3R3 | PBA15F-5 | PBA15F-9 | PBA15F-12 | PBA15F-15 | PBA15F-24 | PBA15F-48 |
|-----------------------|------------|----------|----------|-----------|-----------|-----------|-----------|
| MAX OUTPUT WATTAGE[W] | 9.9        | 15       | 15.3     | 15.6      | 15        | 16.8      | 16.8      |
| DC OUTPUT             | 3.3V 3A    | 5V 3A    | 9V 1.7A  | 12V 1.3A  | 15V 1A    | 24V 0.7A  | 48V 0.35A |

## SPECIFICATIONS

|                                    | MODEL                                                                      | PBA15F-3R3                                                                                                                               | PBA15F-5                        | PBA15F-9         | PBA15F-12     | PBA15F-15     | PBA15F-24     | PBA15F-48   |        |
|------------------------------------|----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|------------------|---------------|---------------|---------------|-------------|--------|
| INPUT                              | VOLTAGE[V]                                                                 | AC85 - 264 1 φ or DC110 - 370 (AC50 or DC70 Please refer to the instruction manual 2.1 Input voltage *3)                                 |                                 |                  |               |               |               |             |        |
|                                    | CURRENT[A]                                                                 | ACIN 100V                                                                                                                                | 0.30typ (Io=100%)               | 0.4typ (Io=100%) |               |               |               |             |        |
|                                    |                                                                            | ACIN 200V                                                                                                                                | 0.15typ (Io=100%)               | 0.2typ (Io=100%) |               |               |               |             |        |
|                                    | FREQUENCY[Hz]                                                              | 50/60 (47 - 440) or DC                                                                                                                   |                                 |                  |               |               |               |             |        |
|                                    | EFFICIENCY[%]                                                              | ACIN 100V                                                                                                                                | 68typ                           | 74typ            | 75typ         | 75typ         | 77typ         | 75typ       | 75typ  |
|                                    |                                                                            | ACIN 200V                                                                                                                                | 68typ                           | 75typ            | 77typ         | 78typ         | 80typ         | 78typ       | 78typ  |
|                                    | INRUSH CURRENT[A]                                                          | ACIN 100V                                                                                                                                | 15typ (Io=100%) (At cold start) |                  |               |               |               |             |        |
| ACIN 200V                          |                                                                            | 30typ (Io=100%) (At cold start)                                                                                                          |                                 |                  |               |               |               |             |        |
| LEAKAGE CURRENT[ma]                | 0.15/0.30max (ACIN 100V/240V 60Hz, Io=100%, According to IEC60950-1.DENAN) |                                                                                                                                          |                                 |                  |               |               |               |             |        |
| OUTPUT                             | 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]                                                        | 20max                                                                                                                                    | 20max                           | 36max            | 48max         | 60max         | 96max         | 192max      |        |
|                                    | LOAD REGULATION[mV]                                                        | 40max                                                                                                                                    | 40max                           | 100max           | 100max        | 120max        | 150max        | 240max      |        |
|                                    | RIPPLE[mVp-p]                                                              | 0 to +50°C *1                                                                                                                            | 80max                           | 80max            | 120max        | 120max        | 120max        | 120max      | 150max |
|                                    |                                                                            | -10 - 0°C *1                                                                                                                             | 140max                          | 140max           | 160max        | 160max        | 160max        | 160max      | 200max |
|                                    | RIPPLE NOISE[mVp-p]                                                        | 0 to +50°C *1                                                                                                                            | 120max                          | 120max           | 150max        | 150max        | 150max        | 150max      | 250max |
|                                    |                                                                            | -10 - 0°C *1                                                                                                                             | 160max                          | 160max           | 180max        | 180max        | 180max        | 180max      | 300max |
|                                    | TEMPERATURE REGULATION[mV]                                                 | 0 to +50°C                                                                                                                               | 50max                           | 50max            | 90max         | 120max        | 150max        | 240max      | 480max |
|                                    |                                                                            | -10 to +50°C                                                                                                                             | 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%) *Start-up time is 700ms typ for less than 1minute of applying input again from turning off the input voltage. |                                 |                  |               |               |               |             |        |
|                                    | HOLD-UP TIME[ms]                                                           | 20typ (ACIN 100V, Io=100%)                                                                                                               |                                 |                  |               |               |               |             |        |
| OUTPUT VOLTAGE ADJUSTMENT 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 SETTING[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 |             |        |
| PROTECTION CIRCUIT AND OTHERS      | OVERCURRENT PROTECTION                                                     | Works over 105% of rated current and recovers automatically                                                                              |                                 |                  |               |               |               |             |        |
|                                    | 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   | 58.0 - 65.0 |        |
|                                    | OPERATING INDICATION                                                       | LED (Green)                                                                                                                              |                                 |                  |               |               |               |             |        |
|                                    | REMOTE ON/OFF                                                              | None                                                                                                                                     |                                 |                  |               |               |               |             |        |
| ISOLATION                          | INPUT-OUTPUT                                                               | AC3,000V 1minute, Cutoff current = 10mA, DC500V 50MΩmin (At Room Temperature)                                                            |                                 |                  |               |               |               |             |        |
|                                    | INPUT-FG                                                                   | AC2,000V 1minute, Cutoff current = 10mA, DC500V 50MΩmin (At Room Temperature)                                                            |                                 |                  |               |               |               |             |        |
|                                    | OUTPUT-FG                                                                  | AC500V 1minute, Cutoff current = 25mA, DC500V 50MΩmin (At Room Temperature)                                                              |                                 |                  |               |               |               |             |        |
| ENVIRONMENT                        | 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                                         | -20 to +75°C, 20 - 90%RH (Non condensing) 3,000m (10,000feet) max                                                                        |                                 |                  |               |               |               |             |        |
|                                    | VIBRATION                                                                  | 10 - 55Hz, 19.6m/s <sup>2</sup> (2G), 3minutes period, 60minutes each along X, Y and Z axis                                              |                                 |                  |               |               |               |             |        |
|                                    | IMPACT                                                                     | 196.1m/s <sup>2</sup> (20G), 11ms, once each X, Y and Z axis                                                                             |                                 |                  |               |               |               |             |        |
| SAFETY AND NOISE REGULATIONS       | AGENCY APPROVALS (At only AC input)                                        | 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                                                                 |                                 |                  |               |               |               |             |        |
|                                    | CE MARKING                                                                 | Low Voltage Directive, EMC Directive                                                                                                     |                                 |                  |               |               |               |             |        |
|                                    | HARMONIC ATTENUATOR                                                        | Complies with IEC61000-3-2 (Not built-in to active filter *4)                                                                            |                                 |                  |               |               |               |             |        |
| OTHERS                             | CASE SIZE/WEIGHT                                                           | 31 × 78 × 85mm (without terminal block) (W × H × D) / 200g max (without cover)                                                           |                                 |                  |               |               |               |             |        |
|                                    | COOLING METHOD                                                             | Convection                                                                                                                               |                                 |                  |               |               |               |             |        |

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

\*2 Drift is the change in DC output for an eight hour period after a half-hour warm-up at 25°C.

\*3 Derating is required.

\*4 When two or more units are used, they may not comply with the harmonic attenuator. Please contact us for details.

\* 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.