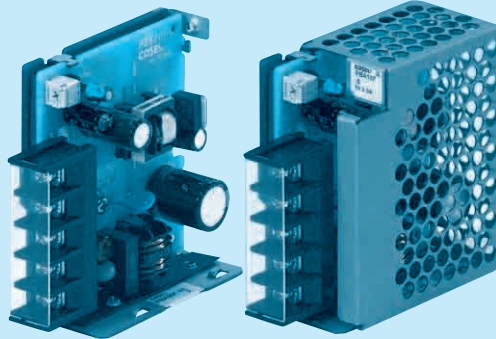


PBA10F

PB A 10 F - □ - □
 ① ② ③ ④ ⑤ ⑥



Recommended EMI/EMC Filter
 NAC-06-472



High voltage pulse noise type : NAP series
 Low leakage current type : NAM series
 *The EMI/EMC 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 *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)
- M :with DIN rail and Cover
- V :Output voltage setting potentiometer externally

Cover is optional

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

SPECIFICATIONS

| | MODEL | PBA10F-5 | PBA10F-12 | PBA10F-24 | |
|------------------------------------|--|---|-------------------|-------------|--------|
| 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%) | | |
| | | ACIN 200V | 0.20typ (Io=100%) | | |
| | FREQUENCY[Hz] | 50/60 (47 - 440) or DC | | | |
| | EFFICIENCY[%] | ACIN 100V | 74typ | 76typ | 77typ |
| | | ACIN 200V | 74typ | 76typ | 77typ |
| | INRUSH CURRENT[A] | ACIN 100V | 15typ (Io=100%) | | |
| | ACIN 200V | 30typ (Io=100%) | | | |
| LEAKAGE CURRENT[ma] | 0.15/0.30max (ACIN 100V/240V 60Hz, Io=100%, According to IEC60950-1.DENAN) | | | | |
| OUTPUT | VOLTAGE[V] | 5 | 12 | 24 | |
| | CURRENT[A] | 2 | 0.9 | 0.5 | |
| | LINE REGULATION[mV] *6 | 20max | 48max | 96max | |
| | LOAD REGULATION[mV] *6 | 40max | 100max | 150max | |
| | RIPPLE[mVp-p] | 0 to +50°C *1 | 80max | 120max | 120max |
| | | -10 - 0°C *1 | 140max | 160max | 160max |
| | RIPPLE NOISE[mVp-p] | 0 to +50°C *1 | 120max | 150max | 150max |
| | | -10 - 0°C *1 | 160max | 180max | 180max |
| | TEMPERATURE REGULATION[mV] | 0 to +50°C | 50max | 120max | 240max |
| | | -10 to +50°C | 60max | 150max | 290max |
| | DRIFT[mV] *2 | 20max | 48max | 96max | |
| | 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] | 4.50 - 5.50 | 10.0 - 13.2 | 19.2 - 27.0 | | |
| OUTPUT VOLTAGE SETTING[V] | 5.00 - 5.15 | 12.00 - 12.48 | 24.00 - 24.96 | | |
| PROTECTION CIRCUIT AND OTHERS | OVERCURRENT PROTECTION | Works over 105% of rated current and recovers automatically | | | |
| | OVERVOLTAGE PROTECTION[V] | 5.75 - 7.00 | 15.0 - 18.0 | 30.0 - 37.0 | |
| | 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) 9,000m (30,000feet) max | | | |
| | VIBRATION | 10 - 55Hz, 19.6m/s ² (2G), 3minutes period, 60minutes each along X, Y and Z axis | | | |
| | IMPACT | 196.1m/s ² (20G), 11ms, once each X, Y and Z axis | | | |
| SAFETY AND NOISE REGULATIONS | AGENCY APPROVALS (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 | | | |
| | HARMONIC ATTENUATOR | Complies with IEC61000-3-2 (Not built-in to active filter *4) *7 | | | |
| OTHERS | CASE SIZE/WEIGHT | 31 x 78 x 68mm [1.22 x 3.07 x 2.68 inches] (without terminal block) (W x H x D) / 150g max (with cover : 180g max) | | | |
| | 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.

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

Block diagram



External view

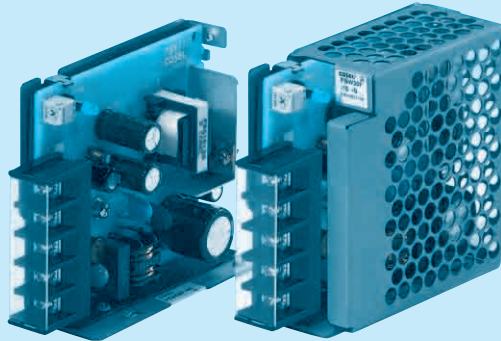
※ External size of option T,J,N,N1 and V is different from standard model and refer to 7 Option of instruction manual for details.



- ※ Tolerance : ± 1 [± 0.04]
- ※ Weight : 150g max (with cover : 180g max)
- ※ PCB Material/thickness : CEM3 / 1.6mm [0.06]
- ※ Chassis material : Electric galvanizing steel board
- ※ Dimensions in mm, [] = inches
- ※ Mounting torque : $0.6\text{N} \cdot \text{m}$ ($6.3\text{kgf} \cdot \text{cm}$) max
- ※ Screw tightening torque : $M3\ 0.8\text{N} \cdot \text{m}$ ($8.5\text{kgf} \cdot \text{cm}$) max
- ※ Please connect safety ground to the unit in 2-M3 holes.

PBA15F

① PB ② A ③ 15 ④ F ⑤ -□ ⑥ -□



Recommended EMI/EMC Filter
NAC-06-472



High voltage pulse noise type : NAP series
Low leakage current type : NAM series
*The EMI/EMC 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 *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])
- Nt :with DIN rail and Cover
- 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] *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 |
| | | -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) 9,000m (30,000feet) max | | | | | | | |
| | VIBRATION | 10 - 55Hz, 19.6m/s ² (2G), 3minutes period, 60minutes each along X, Y and Z axis | | | | | | | |
| | IMPACT | 196.1m/s ² (20G), 11ms, once each X, Y and Z axis | | | | | | | |
| SAFETY AND NOISE REGULATIONS | AGENCY APPROVALS (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 | | | | | | | |
| | HARMONIC ATTENUATOR | Complies with IEC61000-3-2 (Not built-in to active filter *4) *7 | | | | | | | |
| OTHERS | CASE SIZE/WEIGHT | 31 × 78 × 85mm [1.22 × 3.07 × 3.35 inches] (without terminal block) (W×H×D) / 200g max (with cover : 235g max) | | | | | | | |
| | 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.

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

Block diagram



External view

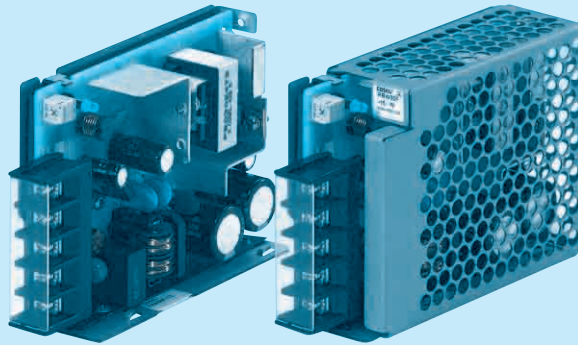
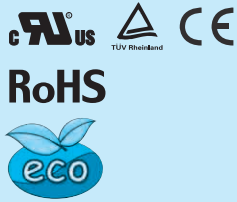
※ External size of option T,J,N,N1 and V is different from standard model and refer to 7 Option of instruction manual for details.



- ※ Tolerance : ± 1 [± 0.04]
- ※ Weight : 200g max (with cover : 235g max)
- ※ PCB Material/thickness : CEM3 / 1.6mm [0.06]
- ※ Chassis material : Electric galvanizing steel board
- ※ Dimensions in mm, [] = inches
- ※ Mounting torque : 0.6N · m (6.3kgf · cm)max
- ※ Screw tightening torque : M3 0.8N · m (8.5kgf · cm)max
- ※ Please connect safety ground to the unit in 2-M3 holes.

PBA30F

① PB ② A ③ 30 ④ F ⑤ -□ ⑥ -□



Recommended EMI/EMC Filter
NAC-06-472



High voltage pulse noise type : NAP series
Low leakage current type : NAM series
*The EMI/EMC 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 *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])
- Nt :with DIN rail and Cover
- V :Output voltage setting potentiometer externally

Cover is optional

| 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 |

SPECIFICATIONS

| | MODEL | PBA30F-3R3 | PBA30F-5 | PBA30F-9 | PBA30F-12 | PBA30F-15 | PBA30F-24 | PBA30F-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 | 0.50typ (Io=100%) | 0.70typ (Io=100%) | | | | | |
| | | ACIN 200V | 0.30typ (Io=100%) | 0.40typ (Io=100%) | | | | | |
| | FREQUENCY[Hz] | 50/60 (47 - 440) or DC | | | | | | | |
| | EFFICIENCY[%] | ACIN 100V | 68typ | 74typ | 75typ | 76typ | 78typ | 78typ | 79typ |
| | | ACIN 200V | 69typ | 77typ | 77typ | 78typ | 81typ | 81typ | 81typ |
| | INRUSH CURRENT[A] | ACIN 100V | 15typ (Io=100%) (At cold start) | | | | | | |
| | ACIN 200V | 30typ (Io=100%) (At cold start) | | | | | | | |
| LEAKAGE CURRENT[ma] | 0.30/0.65max (ACIN 100V/240V 60Hz, Io=100%, According to IEC60950-1.DENAN) | | | | | | | | |
| OUTPUT | 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 | |
| | 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) 9,000m (30,000feet) max | | | | | | | |
| | VIBRATION | 10 - 55Hz, 19.6m/s ² (2G), 3minutes period, 60minutes each along X, Y and Z axis | | | | | | | |
| | IMPACT | 196.1m/s ² (20G), 11ms, once each X, Y and Z axis | | | | | | | |
| SAFETY AND NOISE REGULATIONS | AGENCY APPROVALS (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 | | | | | | | |
| | HARMONIC ATTENUATOR | Complies with IEC61000-3-2 (Not built-in to active filter *4) *7 | | | | | | | |
| OTHERS | 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) | | | | | | | |
| | 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.

*5 Please contact us about safety approvals for the model with option.

*6 Please contact us about dynamic load and input response.

*7 Please contact us about class C.

* Parallel operation with other model is not possible.

* Derating is required when operated with cover.

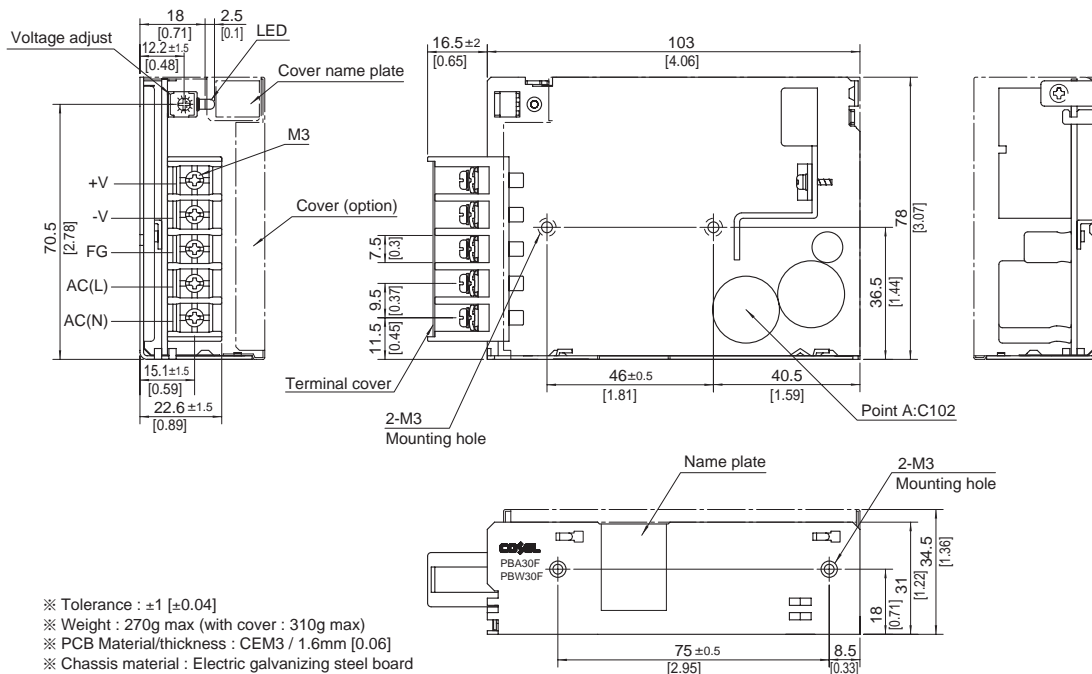
* A sound may occur from power supply at peak loading.

Block diagram



External view

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



- ※ Tolerance : $\pm 1 [\pm 0.04]$
- ※ Weight : 270g max (with cover : 310g max)
- ※ PCB Material/thickness : CEM3 / 1.6mm [0.06]
- ※ Chassis material : Electric galvanizing steel board
- ※ Dimensions in mm, [] = inches
- ※ Mounting torque : $0.6N \cdot m (6.3kgf \cdot cm)$ max
- ※ Screw tightening torque : $M3 0.8N \cdot m (8.5kgf \cdot cm)$ max
- ※ Please connect safety ground to the unit in 2-M3 holes.

PBA50F

PB A 50 F -5 -□

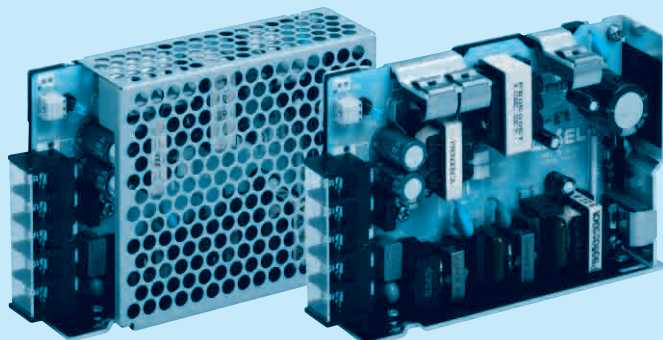
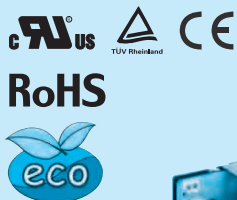
① ② ③ ④ ⑤ ⑥

Recommended EMI/EMC Filter
NAC-06-472



High voltage pulse noise type : NAP series
Low leakage current type : NAM series
*The EMI/EMC 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 *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)
- Nt :with DIN rail and Cover
- V :Output voltage setting potentiometer externaly



Cover is optional

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

SPECIFICATIONS

| MODEL | PBA50F-3R3 | PBA50F-5 | PBA50F-9 | PBA50F-12 | PBA50F-15 | PBA50F-24 | PBA50F-36 | PBA50F-48 |
|-------------------------------------|---|---|-------------|---------------|---------------|---------------|---------------|---------------|
| VOLTAGE[V] | AC85 - 264 1φ or DC120 - 370 (AC50 or DC70 Please refer to the instruction manual 2.1 Input voltage *4) | | | | | | | |
| CURRENT[A] | ACIN 100V | 0.5typ | 0.7typ | | | | | |
| | ACIN 200V | 0.3typ | 0.4typ | | | | | |
| FREQUENCY[Hz] | 50/60 (47 - 63) | | | | | | | |
| EFFICIENCY[%] | ACIN 100V | 75typ | 80typ | 79typ | 80typ | 81typ | 82typ | 83typ |
| | ACIN 200V | 76typ | 82typ | 81typ | 82typ | 83typ | 84typ | 85typ |
| POWER FACTOR(lo=100%) | ACIN 100V | 0.98typ | 0.99typ | | | | | |
| | ACIN 200V | 0.87typ | 0.93typ | | | | | |
| INRUSH CURRENT[A] | ACIN 100V | 15typ (lo=100%) (At cold start) | | | | | | |
| | ACIN 200V | 30typ (lo=100%) (At cold start) | | | | | | |
| LEAKAGE CURRENT[mA] | 0.4/0.75max (ACIN 100V/240V 60Hz, lo=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[mV] | 20max | 20max | 36max | 48max | 60max | 96max | 144max | 192max |
| LOAD REGULATION[mV] | 40max | 40max | 100max | 100max | 120max | 150max | 240max | 240max |
| RIPPLE[mVp-p] | 0 to +50°C *1 | 80max | 80max | 120max | 120max | 120max | 120max | 150max |
| | -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 | 360max |
| | -10 to +50°C | 60max | 60max | 120max | 150max | 180max | 290max | 450max |
| DRIFT[mV] | *2 | 20max | 20max | 36max | 48max | 60max | 96max | 144max |
| START-UP TIME[ms] | 350typ (ACIN 100V, lo=100%) | | | | | | | |
| HOLD-UP TIME[ms] | 20typ (ACIN 100V, lo=100%) | | | | | | | |
| OUTPUT VOLTAGE ADJUSTMENT RANGE[V] | 2.85 - 3.63 | 4.00 - 5.50 | 7.50 - 10.0 | 10.0 - 13.2 | 13.2 - 18.0 | 19.2 - 27.0 | 28.8 - 39.6 | 39.0 - 53.0 |
| OUTPUT VOLTAGE SETTING[V] | 3.30 - 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 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 | 43.0 - 50.0 | 58.0 - 65.0 |
| OPERATING INDICATION | LED (Green) | | | | | | | |
| REMOTE ON/OFF | Optional (Required external power source) | | | | | | | |
| INPUT-OUTPUT · RC | *3 | 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 · 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 | -20 to +75°C, 20 - 90%RH (Non condensing) 9,000m (30,000feet) max | | | | | | | |
| VIBRATION | 10 - 55Hz, 19.6m/s ² (2G), 3minutes period, 60minutes each along X, Y and Z axis | | | | | | | |
| IMPACT | 196.1m/s ² (20G), 11ms, once each X, Y and Z axis | | | | | | | |
| 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 | | | | | | | |
| HARMONIC ATTENUATOR | Complies with IEC61000-3-2 *6 | | | | | | | |
| CASE SIZE/WEIGHT | 31 x 82 x 120mm [1.22 x 3.23 x 4.72 inches] (without terminal block) (W x H x D) / 280g max (with cover : 325g max) | | | | | | | |
| COOLING METHOD | Convection | | | | | | | |

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

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

*3 Applicable when Remote ON/OFF(optional) is added. RC is insulated with input, output and FG.

*4 Derating is required.

*5 Please contact us about safety approvals for the model with option.

*6 Please contact us about class C.

* Parallel operation with other model is not possible.

* Derating is required when operated with cover.

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

Block diagram



External view

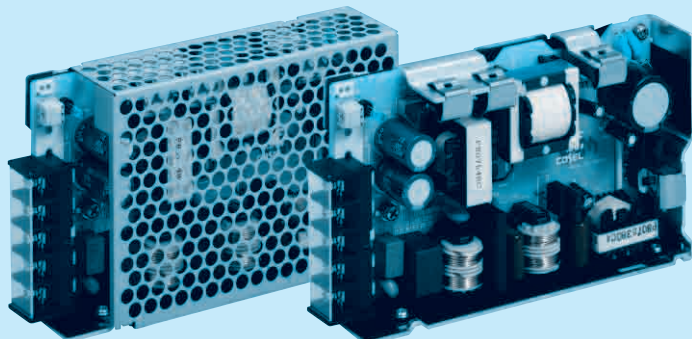
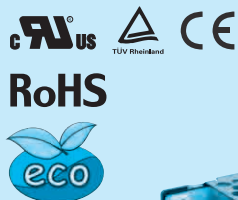
※ External size of option T,J,R,N,N1 and V is different from standard model and refer to 7 Option of instruction manual for details.



PBA75F

PB A 75 F -5 -□

① ② ③ ④ ⑤ ⑥



Recommended EMI/EMC Filter
NAC-06-472



High voltage pulse noise type : NAP series
Low leakage current type : NAM series
*The EMI/EMC 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 *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)
- Nt :with DIN rail and Cover
- V :Output voltage setting potentiometer externaly

Cover is optional

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

SPECIFICATIONS

| MODEL | PBA75F-3R3 | PBA75F-5 | PBA75F-9 | PBA75F-12 | PBA75F-15 | PBA75F-24 | PBA75F-36 | PBA75F-48 |
|-------------------------------------|--|---|-------------|---------------|---------------|---------------|---------------|---------------|
| VOLTAGE[V] | AC85 - 264 1 φ or DC120 - 370 (AC50 or DC70 Please refer to the instruction manual 2.1 Input voltage *4) | | | | | | | |
| CURRENT[A] | ACIN 100V | 0.7typ | 1.0typ | | | | | |
| | ACIN 200V | 0.4typ | 0.5typ | | | | | |
| FREQUENCY[Hz] | 50/60 (47 - 63) | | | | | | | |
| EFFICIENCY[%] | ACIN 100V | 77typ | 81typ | 80typ | 81typ | 82typ | 83typ | 84typ |
| | ACIN 200V | 78typ | 83typ | 82typ | 83typ | 84typ | 85typ | 86typ |
| POWER FACTOR(lo=100%) | ACIN 100V | 0.98typ | 0.99typ | | | | | |
| | ACIN 200V | 0.87typ | 0.93typ | | | | | |
| INRUSH CURRENT[A] | ACIN 100V | 15typ (lo=100%) (At cold start) | | | | | | |
| | ACIN 200V | 30typ (lo=100%) (At cold start) | | | | | | |
| LEAKAGE CURRENT[mA] | 0.4/0.75max (ACIN 100V/240V 60Hz, lo=100%, According to IEC60950-1,DENAN) | | | | | | | |
| 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[mV] | 20max | 20max | 36max | 48max | 60max | 96max | 144max | 192max |
| LOAD REGULATION[mV] | 40max | 40max | 100max | 100max | 120max | 150max | 240max | 240max |
| RIPPLE[mVp-p] | 0 to +50°C *1 | 80max | 80max | 120max | 120max | 120max | 120max | 150max |
| | -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 | 360max |
| | -10 to +50°C | 60max | 60max | 120max | 150max | 180max | 290max | 450max |
| DRIFT[mV] | *2 | 20max | 20max | 36max | 48max | 60max | 96max | 144max |
| START-UP TIME[ms] | 350typ (ACIN 100V, lo=100%) | | | | | | | |
| HOLD-UP TIME[ms] | 20typ (ACIN 100V, lo=100%) | | | | | | | |
| OUTPUT VOLTAGE ADJUSTMENT RANGE[V] | 2.85 - 3.63 | 4.00 - 5.50 | 7.50 - 10.0 | 10.0 - 13.2 | 13.2 - 18.0 | 19.2 - 27.0 | 28.8 - 39.6 | 39.0 - 53.0 |
| OUTPUT VOLTAGE SETTING[V] | 3.30 - 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 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 | 43.0 - 50.0 | 58.0 - 65.0 |
| OPERATING INDICATION | LED (Green) | | | | | | | |
| REMOTE ON/OFF | Optional (Required external power source) | | | | | | | |
| INPUT-OUTPUT · RC | *3 | 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 · 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 | -20 to +75°C, 20 - 90%RH (Non condensing) 9,000m (30,000feet) max | | | | | | | |
| VIBRATION | 10 - 55Hz, 19.6m/s ² (2G), 3minutes period, 60minutes each along X, Y and Z axis | | | | | | | |
| IMPACT | 196.1m/s ² (20G), 11ms, once each X, Y and Z axis | | | | | | | |
| 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 | | | | | | | |
| HARMONIC ATTENUATOR | Complies with IEC61000-3-2 *6 | | | | | | | |
| CASE SIZE/WEIGHT | 32×82×135mm [1.26×3.23×5.31 inches] (without terminal block) (W×H×D) / 350g max (with cover : 400g max) | | | | | | | |
| COOLING METHOD | Convection | | | | | | | |

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

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

*3 Applicable when Remote ON/OFF(optional) is added. RC is insulated with input, output and FG.

*4 Derating is required.

*5 Please contact us about safety approvals for the model with option.

*6 Please contact us about class C.

* Parallel operation with other model is not possible.

* Derating is required when operated with cover.

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

Block diagram



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.



- ※ Tolerance : ±1 [±0.04]
- ※ Weight : 350g max (with cover : 400g max)
- ※ PCB Material/thickness : CEM3 / 1.6mm [0.06]
- ※ Chassis material : Aluminum
- ※ Dimensions in mm, [] = inches
- ※ Mounting torque : 0.49N • m(5kgf • cm)max
- ※ Screw tightening torque : M3 0.8N • m(8.5kgf • cm)max
- ※ Please connect safety ground to the unit in 2-M3 holes.

Connector type
CN3 Option (Mfr : J.S.T.)

| Pin No. | Contents |
|---------|----------|
| 1 | RC(+) |
| 2 | RC(-) |

Barrier strip type
Model B2B-XH-A
Mating Connector (Terminal)
XHP-2
(BXH-001T-P0.6
or SXH-001T-P0.6)

PBA100F

PB A 100 F -5 -□

① ② ③ ④ ⑤ ⑥

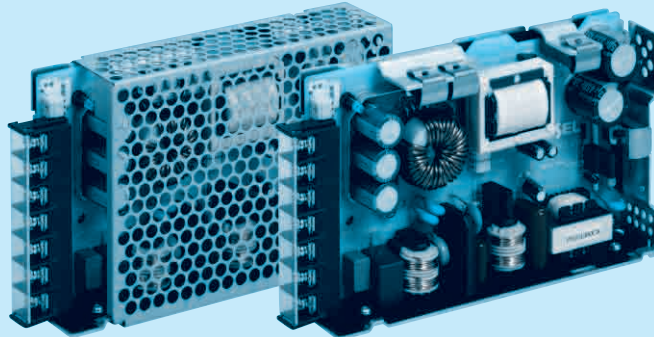
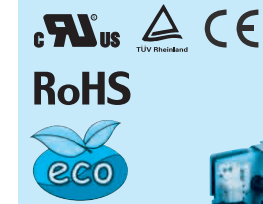
Recommended EMI/EMC Filter
NAC-06-472



High voltage pulse noise type : NAP series
Low leakage current type : NAM series
*The EMI/EMC 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 *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 externaly

Cover is optional



| 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 |

SPECIFICATIONS

| | MODEL | PBA100F-3R3 | PBA100F-5 | PBA100F-9 | PBA100F-12 | PBA100F-15 | PBA100F-24 | PBA100F-36 | PBA100F-48 | |
|------------------------------------|---|--|---|---------------|---------------|---------------|---------------|---------------|-------------|--------|
| INPUT | VOLTAGE[V] | AC85 - 264 1 φ or DC120 - 370 (AC50 or DC70 Please refer to the instruction manual 2.1 Input voltage *4) | | | | | | | | |
| | CURRENT[A] | ACIN 100V | 0.9typ | 1.3typ | | | | | | |
| | | ACIN 200V | 0.5typ | 0.7typ | | | | | | |
| | FREQUENCY[Hz] | 50/60 (47 - 63) | | | | | | | | |
| | EFFICIENCY[%] | ACIN 100V | 77typ | 82typ | 80typ | 81typ | 83typ | 84typ | 84typ | 84typ |
| | | ACIN 200V | 79typ | 84typ | 82typ | 83typ | 86typ | 86typ | 86typ | 86typ |
| | POWER FACTOR(lo=100%) | ACIN 100V | 0.98typ | 0.99typ | | | | | | |
| | | ACIN 200V | 0.87typ | 0.93typ | | | | | | |
| | INRUSH CURRENT[A] | ACIN 100V | 20typ (lo=100%) (At cold start) | | | | | | | |
| | | ACIN 200V | 40typ (lo=100%) (At cold start) | | | | | | | |
| LEAKAGE CURRENT[mA] | 0.4/0.75max (ACIN 100V/240V 60Hz, lo=100%, According to IEC60950-1.DENAN) | | | | | | | | | |
| OUTPUT | VOLTAGE[V] | 3.3 | 5 | 9 | 12 | 15 | 24 | 36 | 48 | |
| | CURRENT[A] | 20 | 20 | 10.5 | 8.5 | 7 | 4.5 | 2.8 | 2.1 | |
| | LINE REGULATION[mV] | 20max | 20max | 36max | 48max | 60max | 96max | 144max | 192max | |
| | LOAD REGULATION[mV] | 40max | 40max | 100max | 100max | 120max | 150max | 240max | 240max | |
| | RIPPLE[mVp-p] | 0 to +50°C *1 | 80max | 80max | 120max | 120max | 120max | 120max | 150max | 150max |
| | | -10 - 0°C *1 | 140max | 140max | 160max | 160max | 160max | 160max | 200max | 200max |
| | RIPPLE NOISE[mVp-p] | 0 to +50°C *1 | 120max | 120max | 150max | 150max | 150max | 150max | 250max | 250max |
| | | -10 - 0°C *1 | 160max | 160max | 180max | 180max | 180max | 180max | 300max | 300max |
| | TEMPERATURE REGULATION[mV] | 0 to +50°C | 50max | 50max | 90max | 120max | 150max | 240max | 360max | 480max |
| | | -10 to +50°C | 60max | 60max | 120max | 150max | 180max | 290max | 450max | 600max |
| | DRIFT[mV] | *2 | 20max | 20max | 36max | 48max | 60max | 96max | 144max | 192max |
| | START-UP TIME[ms] | 350typ(ACIN 100V, lo=100%) | | | | | | | | |
| | HOLD-UP TIME[ms] | 20typ (ACIN 100V, lo=100%) | | | | | | | | |
| OUTPUT VOLTAGE ADJUSTMENT RANGE[V] | 2.85 - 3.63 | 4.00 - 5.50 | 7.50 - 10.0 | 10.0 - 13.2 | 13.2 - 18.0 | 19.2 - 27.0 | 28.8 - 39.6 | 39.0 - 53.0 | | |
| OUTPUT VOLTAGE SETTING[V] | 3.20 - 3.40 | 5.00 - 5.15 | 9.00 - 9.36 | 12.00 - 12.48 | 15.00 - 15.60 | 24.00 - 24.96 | 36.00 - 37.44 | 48.00 - 49.92 | | |
| 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 | 43.0 - 50.0 | 58.0 - 65.0 | |
| | OPERATING INDICATION | LED (Green) | | | | | | | | |
| | REMOTE SENSING | Optional (Only -3R3, -5 Option -K) | | | | | | | | |
| ISOLATION | REMOTE ON/OFF | Optional (Required external power source) | | | | | | | | |
| | INPUT-OUTPUT · RC | *3 | AC3.000V 1minute, Cutoff current = 10mA, DC500V 50MΩmin (At Room Temperature) | | | | | | | |
| | INPUT-FG | AC2.000V 1minute, Cutoff current = 10mA, DC500V 50MΩmin (At Room Temperature) | | | | | | | | |
| ENVIRONMENT | 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 | -20 to +75°C, 20 - 90%RH (Non condensing) 9,000m (30,000feet) max | | | | | | | | |
| SAFETY AND NOISE REGULATIONS | VIBRATION | 10 - 55Hz, 19.6m/s ² (2G), 3minutes period, 60minutes each along X, Y and Z axis | | | | | | | | |
| | IMPACT | 196.1m/s ² (20G), 11ms, once each X, Y and Z axis | | | | | | | | |
| | AGENCY APPROVALS (At only AC input) | UL60950-1, C-UL(CSA60950-1), EN60950-1, EN50178 Complies with DEN-AN | | | | | | | | |
| OTHERS | CONDUCTED NOISE | Complies with FCC Part15 classB, VCCI-B, CISPR22-B, EN55011-B, EN55022-B | | | | | | | | |
| | HARMONIC ATTENUATOR | Complies with IEC61000-3-2 *6 | | | | | | | | |
| OTHERS | CASE SIZE/WEIGHT | 32×93×147mm [1.26×3.66×5.79 inches] (without terminal block) (W×H×D) / 440g max (with cover : 500g max) | | | | | | | | |
| | COOLING METHOD | Convection | | | | | | | | |

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

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

Block diagram



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.



| Connector type | |
|---------------------------|----------|
| CN3 Option (Mfr : J.S.T.) | |
| Pin No. | Contents |
| 1 | RC(+) |
| 2 | RC(-) |

| Barrier strip type | |
|-----------------------------|--|
| Model B2B-XH-A | |
| Mating Connector (Terminal) | |
| XHP-2 | |
| (BXH-001T-P0.6 | |
| or SXH-001T-P0.6) | |

- ※ Tolerance : ± 1 [± 0.04]
- ※ Weight : 440g max (with cover : 500g max)
- ※ PCB Material/thickness : CEM3 / 1.6mm [0.06]
- ※ Chassis material : Aluminum
- ※ Dimensions in mm, [] = inches
- ※ Mounting torque : 0.49N • m (5kgf • cm) max
- ※ Mounting torque : M4: 1.6N • m (16.9kgf • cm) max
- ※ Please connect safety ground to FG terminal on the unit.

PBA150F

PB A 150 F -5 -□

① ② ③ ④ ⑤ ⑥

Recommended EMI/EMC Filter
NAC-06-472



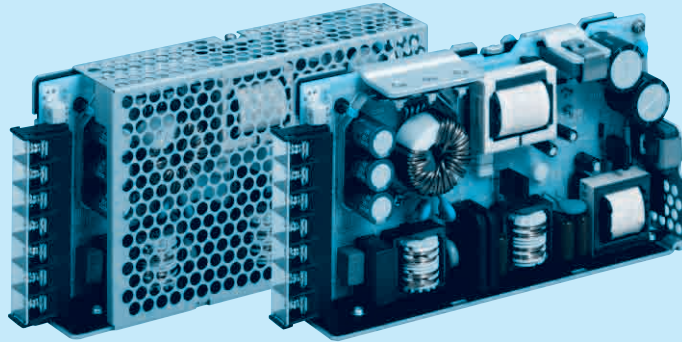
High voltage pulse noise type : NAP series
Low leakage current type : NAM series
*The EMI/EMC Filter is recommended to connect with several devices.

- ① Series name
- ② Single output
- ③ Output wattage
- ④ Universal input
- ⑤ Output voltage
- ⑥ Optional *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 externaly

Cover is optional



RoHS



| 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 |

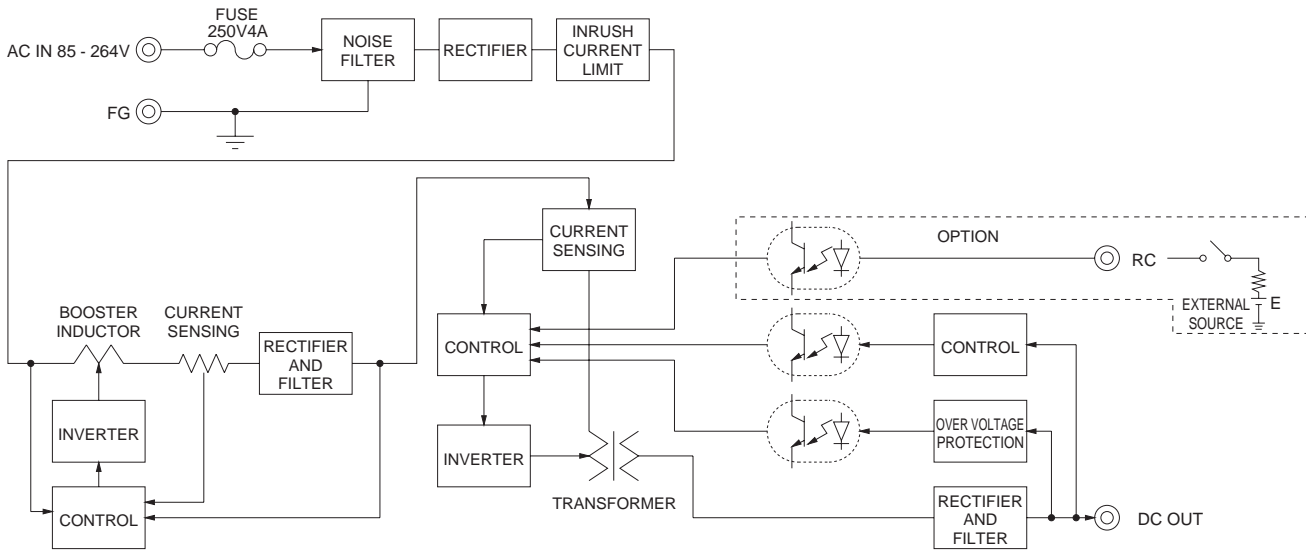
SPECIFICATIONS

| | MODEL | PBA150F-3R3 | PBA150F-5 | PBA150F-9 | PBA150F-12 | PBA150F-15 | PBA150F-24 | PBA150F-36 | PBA150F-48 | |
|------------------------------------|---|--|---|---------------|---------------|---------------|---------------|---------------|-------------|--------|
| INPUT | VOLTAGE[V] | AC85 - 264 1 φ or DC120 - 370 (AC50 or DC70 Please refer to the instruction manual 2.1 Input voltage *4) | | | | | | | | |
| | CURRENT[A] | ACIN 100V | 1.3typ | 2.0typ | | | | | | |
| | | ACIN 200V | 0.7typ | 1.0typ | | | | | | |
| | 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 |
| | POWER FACTOR(lo=100%) | ACIN 100V | 0.98typ | 0.99typ | | | | | | |
| | | ACIN 200V | 0.87typ | 0.93typ | | | | | | |
| | INRUSH CURRENT[A] | ACIN 100V | 20typ (lo=100%) (At cold start) | | | | | | | |
| | | ACIN 200V | 40typ (lo=100%) (At cold start) | | | | | | | |
| LEAKAGE CURRENT[mA] | 0.4/0.75max (ACIN 100V/240V 60Hz, lo=100%, According to IEC60950-1.DENAN) | | | | | | | | | |
| OUTPUT | VOLTAGE[V] | 3.3 | 5 | 9 | 12 | 15 | 24 | 36 | 48 | |
| | CURRENT[A] | 30 | 30 | 16.7 | 13 | 10 | 6.5 | 4.3 | 3.3 | |
| | LINE REGULATION[mV] | 20max | 20max | 36max | 48max | 60max | 96max | 144max | 192max | |
| | LOAD REGULATION[mV] | 40max | 40max | 100max | 100max | 120max | 150max | 240max | 240max | |
| | RIPPLE[mVp-p] | 0 to +50°C *1 | 80max | 80max | 120max | 120max | 120max | 120max | 150max | 150max |
| | | -10 - 0°C *1 | 140max | 140max | 160max | 160max | 160max | 160max | 200max | 200max |
| | RIPPLE NOISE[mVp-p] | 0 to +50°C *1 | 120max | 120max | 150max | 150max | 150max | 150max | 250max | 250max |
| | | -10 - 0°C *1 | 160max | 160max | 180max | 180max | 180max | 180max | 300max | 300max |
| | TEMPERATURE REGULATION[mV] | 0 to +50°C | 50max | 50max | 90max | 120max | 150max | 240max | 360max | 480max |
| | | -10 to +50°C | 60max | 60max | 120max | 150max | 180max | 290max | 450max | 600max |
| | DRIFT[mV] | *2 | 20max | 20max | 36max | 48max | 60max | 96max | 144max | 192max |
| | START-UP TIME[ms] | 350typ(ACIN 100V, lo=100%) | | | | | | | | |
| | HOLD-UP TIME[ms] | 20typ (ACIN 100V, lo=100%) | | | | | | | | |
| OUTPUT VOLTAGE ADJUSTMENT RANGE[V] | 2.85 - 3.63 | 4.00 - 5.50 | 7.50 - 10.0 | 10.0 - 13.2 | 13.2 - 18.0 | 19.2 - 27.0 | 28.8 - 39.6 | 39.0 - 53.0 | | |
| OUTPUT VOLTAGE SETTING[V] | 3.30 - 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 | | |
| 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 | 43.0 - 50.0 | 58.0 - 65.0 | |
| | OPERATING INDICATION | LED (Green) | | | | | | | | |
| | REMOTE SENSING | Optional (Only -3R3, -5 Option -K) | | | | | | | | |
| ISOLATION | REMOTE ON/OFF | Optional (Required external power source) | | | | | | | | |
| | INPUT-OUTPUT · RC | *3 | AC3.000V 1minute, Cutoff current = 10mA, DC500V 50MΩmin (At Room Temperature) | | | | | | | |
| | INPUT-FG | *3 | AC2.000V 1minute, Cutoff current = 10mA, DC500V 50MΩmin (At Room Temperature) | | | | | | | |
| ENVIRONMENT | 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 | -20 to +75°C, 20 - 90%RH (Non condensing) 9,000m (30,000feet) max | | | | | | | | |
| SAFETY AND NOISE REGULATIONS | VIBRATION | 10 - 55Hz, 19.6m/s ² (2G), 3minutes period, 60minutes each along X, Y and Z axis | | | | | | | | |
| | IMPACT | 196.1m/s ² (20G), 11ms, once each X, Y and Z axis | | | | | | | | |
| | AGENCY APPROVALS (At only AC input) | UL60950-1, C-UL(CSA60950-1), EN60950-1, EN50178 Complies with DEN-AN | | | | | | | | |
| OTHERS | CONDUCTED NOISE | Complies with FCC Part15 classB, VCCI-B, CISPR22-B, EN55011-B, EN55022-B | | | | | | | | |
| | HARMONIC ATTENUATOR | Complies with IEC61000-3-2 *6 | | | | | | | | |
| OTHERS | CASE SIZE/WEIGHT | 34×93×168mm [1.34×3.66×6.61 inches] (without terminal block) (W×H×D) / 560g max (with cover : 630g max) | | | | | | | | |
| | COOLING METHOD | Convection | | | | | | | | |

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

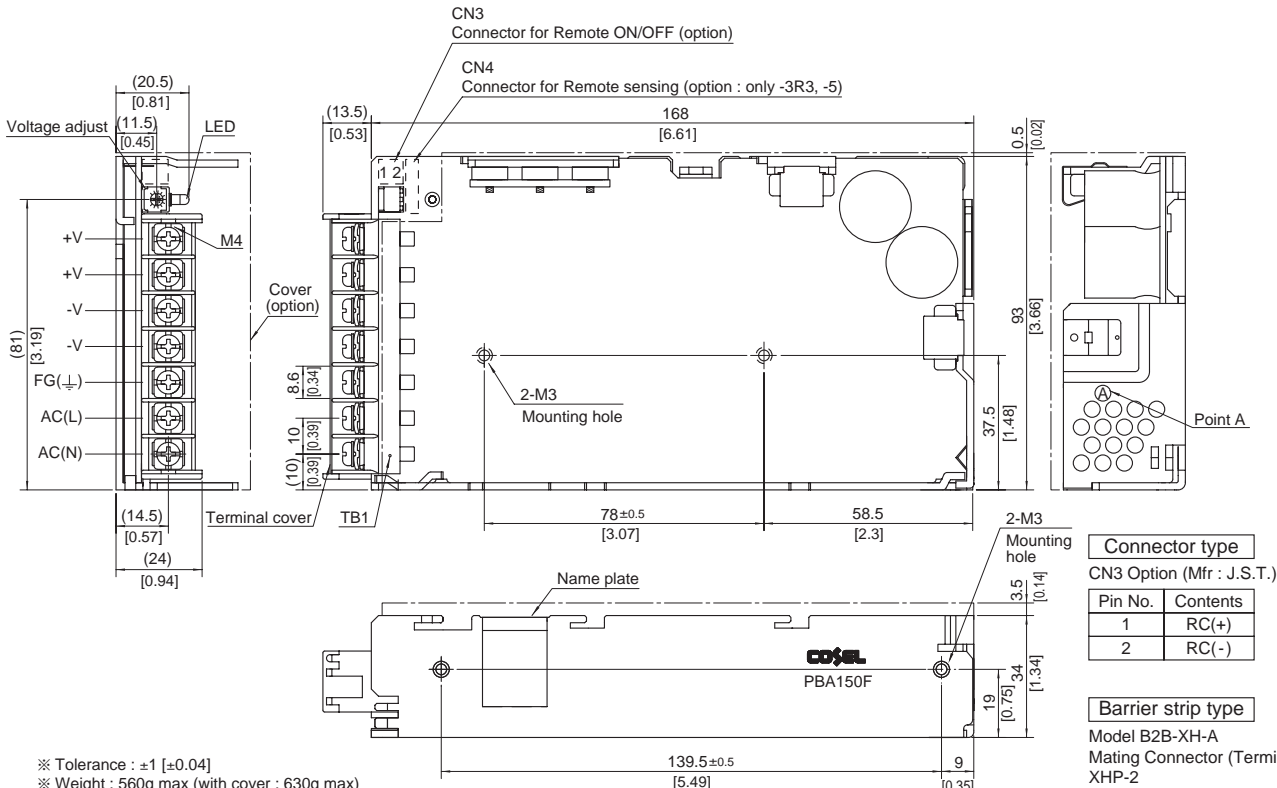
*5 Please contact us about safety approvals for the model with option.
 *6 Please contact us about class C.
 * Parallel operation with other model is not possible.
 * Derating is required when operated with cover.
 * A sound may occur from power supply at peak loading.

Block diagram



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.



- ※ Tolerance : ±1 [±0.04]
- ※ Weight : 560g max (with cover : 630g max)
- ※ PCB Material/thickness : CEM3 / 1.6mm [0.06]
- ※ Chassis material : Aluminum
- ※ Dimensions in mm, [] = inches
- ※ Mounting torque : 0.49N • m (5kgf • cm)max
- ※ Mounting torque : M4:1.6N • m (16.9kgf • cm)max
- ※ Keep drawing current per pin below 20A for TB1.

| Connector type | |
|---------------------------|----------|
| CN3 Option (Mfr : J.S.T.) | |
| Pin No. | Contents |
| 1 | RC(+) |
| 2 | RC(-) |

Barrier strip type
 Model B2B-XH-A
 Mating Connector (Terminal)
 XHP-2
 (BXH-001T-P0.6
 or SXH-001T-P0.6)

Mouser Electronics

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Cosel:

[PBA30F-24-JVN](#) [PBA100F-3R3-CMN](#) [PBA100F-15-TN](#) [PBA100F-36-GJ](#) [PBA30F-9-JN](#) [PBA75F-15-RVN](#) [PBA75F-3R3-EN](#) [PBA75F-48-CT](#) [PBA150F-24-RN1](#) [PBA50F-15-GN](#) [PBA150F-15-RN](#) [PBA10F-24-EN](#) [PBA150F-5-CEN](#) [PBA150F-12-CN](#) [PBA75F-12-CR](#) [PBA75F-12-RV](#) [PBA50F-24-JR](#) [PBA15F-5-TN](#) [PBA100F-12-RT](#) [PBA150F-15-CN1](#) [PBA50F-24-CEN](#) [PBA100F-12-TN](#) [PBA150F-48-RT](#) [PBA30F-24-CT](#) [PBA15F-48-GN](#) [PBA150F-24-CTN](#) [PBA75F-15-CRN](#) [PBA150F-5-VN](#) [PBA100F-36-GTN](#) [PBA100F-12-CN1](#) [PBA150F-24-GTN](#) [PBA50F-9-TN](#) [PBA30F-5-GN](#) [PBA150F-24-JN1](#) [PBA30F-3R3-CN](#) [PBA150F-3R3-GR](#) [PBA100F-24-CN1](#) [PBA100F-24-RT](#) [PBA150F-36-GN1](#) [PBA10F-5-CN](#) [PBA50F-12-CJN](#) [PBA100F-48-RT](#) [PBA50F-36-CN](#) [PBA100F-24-VN](#) [PBA75F-5-JR](#) [PBA75F-24-RN](#) [PBA30F-5-CE](#) [PBA75F-48-RV](#) [PBA30F-3R3-TN](#) [PBA15F-3R3-TN](#) [PBA50F-15-RN](#) [PBA75F-12-JN1](#) [PBA150F-3R3-RT](#) [PBA50F-12-RT](#) [PBA150F-9-GN1](#) [PBA50F-24-RV](#) [PBA30F-5-CJ](#) [PBA15F-9-ETN](#) [PBA75F-15-JN1](#) [PBA50F-36-JR](#) [PBA100F-48-EN](#) [PBA50F-9-JN1](#) [PBA150F-12-RN1](#) [PBA75F-24-CN](#) [PBA100F-3R3-VN](#) [PBA150F-9-EN](#) [PBA150F-15-GR](#) [PBA100F-12-CTN](#) [PBA50F-12-GN](#) [PBA15F-24-GN](#) [PBA15F-12-GN](#) [PBA100F-5-CN](#) [PBA30F-15-EJ](#) [PBA100F-9-VN](#) [PBA50F-12-JN1](#) [PBA150F-48-RVN](#) [PBA150F-15-JN1](#) [PBA150F-12-CRN](#) [PBA75F-9-JN1](#) [PBA10F-12-CEN](#) [PBA75F-5-TVN](#) [PBA75F-9-TN](#) [PBA50F-48-RT](#) [PBA15F-12-VN](#) [PBA150F-5-CN](#) [PBA50F-24-RN1](#) [PBA50F-3R3-JN](#) [PBA30F-5-CN1](#) [PBA75F-36-CT](#) [PBA50F-24-JVN](#) [PBA15F-24-CJN](#) [PBA75F-36-VN](#) [PBA50F-48-GN](#) [PBA150F-3R3-VN](#) [PBA50F-9-CT](#) [PBA100F-48-TN](#) [PBA75F-12-EN](#) [PBA15F-48-JN](#) [PBA10F-12-GN](#) [PBA150F-5-RN1](#)