# PF100

## 100 Watts Output Power

### Active Power Factor Correction & Harmonic Attenuation Module

## HOW TO ORDER

**PF I 100 - A**

- PF — Series
- I — Unscreened (I) or Screened (M)
- 100 — Total Output Power
- A — Options:
  - A - Pins out baseplate of unit
  - C - Thru hole inserts (0.115 DIA)
  - I - M2.5 inserts

## FEATURES

- Meets all Requirements of MIL - STD - 1399, section 300A
- Meets CE01 and CE101 of MIL - STD - 461 without external filter
- Meets all requirements of MIL - STD - 704E
- Meets all requirements of ABD0100.1.8.1
- Non-latching Over Temperature Protection
- Non-latching Output Overvoltage Protection
- Output short circuit protection, automatic recovery after short circuit removal
- Isolated Output DC Good TTL Signal (Open collector)
- Full 100 Watts of output power from 85 VAC to 265 VAC and up to 100°C baseplate temperature
- Utilizes non isolated boost topology
- Dual Nominal Voltage setting:
  275V for 85 - 170 Vrms Input
  380V from 180 - 264 Vrms Input
- Environmental Screening available

## INPUT CHARACTERISTICS

| | Min. | Typ. | Max. | Units |
|---|---|---|---|---|
| Input Voltage (Single Phase) | 85 | | 265 | VAC |
| Input Frequency Range | 45 | | 800 | Hz |
| Inrush Current | | | | |
| @115 Vrms | | | 3 | A |
| @240 Vrms | | | 5 | A |
| Power factor at Full Load | | | | |
| 115$V_{in}$ / 60 - 400Hz | 0.98 | 0.99 | | |
| 115$V_{in}$ / 800Hz | 0.94 | 0.96 | | |
| 230$V_{in}$ / 50Hz | 0.97 | 0.99 | | |
| 230$V_{in}$ / 400Hz | 0.92 | 0.93 | | |
| 230$V_{in}$ / 800Hz | 0.79 | 0.80 | | |
| Efficiency at Full Load | | | | |
| 115$V_{in}$ / 60Hz | 92 | 93 | | % |
| 115$V_{in}$ / 400Hz | 91 | 92 | | % |
| 230$V_{in}$ / 50Hz | 92 | 93 | | % |
| 230$V_{in}$ / 400Hz | 92 | 93 | | % |
| 230$V_{in}$ / 800Hz | 92 | 93 | | % |

## OUTPUT CHARACTERISTICS

| | Min. | Typ. | Max. | Units |
|---|---|---|---|---|
| Nominal No Load Voltage Setting | 273 or 380 | | 278 or 385 | V |
| Output Power (Full Load) | | | 100 | W |
| Load Regulation (No Load - Full Load) | | | 2.2 | % $V_{out}$ |
| Line Regulation (Low Line - High Line) | | | 1 | % $V_{out}$ |
| Ripple P - P (60 Hz/115 VAC input) | | | 3.5 | % $V_{out}$ |
| Overvoltage Protection (% of Output) | 103 | 105 | 110 | % $V_{ou}$ |
| Transient Response: 25 - 75 - 25% or 50 -100 - 50% step load | | | | |
| Overshoot / Undershoot | | ±6.3 | | % $V_{out}$ |
| Recovery time (to 2% of $V_{out}$) | | | 200 | mS |
| Temperature Drift | | 0.01 | 0.02 | %/°C |
| Output (Holdup) Capacitance | | Not Included (specs are based on 100µF) | | |

All specifications are typical @+25°C with nominal input voltage under full output load conditions and holdup capacitance of 100 µF, unless otherwise noted. Specifications subject to change without notice.

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# PF100 Active Power Factor Correction & Harmonic Attenuation Module

## TEMPERATURE CHARACTERISTICS

| | Min. | Typ. | Max. | Units |
|---|---|---|---|---|
| Operating | -55 | | +100 | ° C |
| Storage - Ambient | -55 | | +105 | ° C |
| Over Temperature Shutdown | | +105 | +115 | ° C |
| Hystensis | | 10 | | ° C |
| Thermal Resistance Case- Ambient | | 7.14 | | °C/W |

## M- GRADE - ENVIRONMENTAL SCREENING

| | |
|---|---|
| Stabilization Bake | +105°C for 24 hours similar to MIL -STD -883, M1008.2, Condition B |
| Temperature Cycling | 10 cycles at -55°C to +125°C (transition period 5°C / minute) similar to MIL -STD -883, M1010, Condition B |
| Burn in | 160 hours @ 85°C minimum |
| Final Testing | Full ATP |

## I- GRADE - ENVIRONMENTAL SCREENING

| | |
|---|---|
| Burn in | 16 hours @ 50°C minimum |
| Final Testing | Full ATP |

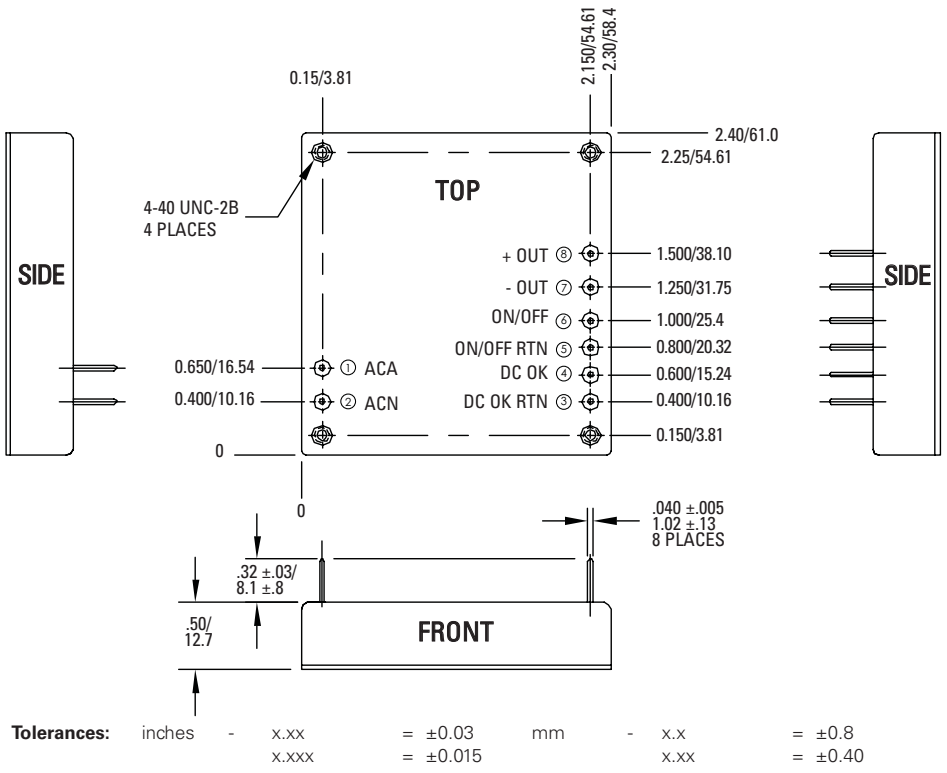
## ISOLATION CHARACTERISTICS

| | Min. | Units |
|---|---|---|
| Isolation: | | |
| Input/Output to Base | 1500 | VAC |
| Insulation resistance @ 500 VDC | 100 | MOhm |

## MECHANICAL CHARACTERISTICS

| | | | |
|---|---|---|---|
| Weight (Max.) | | 5.5<br>150 | oz.<br>grams |
| Size | | 2.4 x 2.3 x 0.5<br>61 x 58.4 x 12.7 | inch<br>mm |
| Volume | | 2.76<br>45.7 | $inch^3$<br>$cm^3$ |
| Material: | Pin<br>Case<br>Baseplate | Brass (Solder Plating)<br>Steel (28 Gauge CRS)<br>Aluminum (6061-76) | |
| Finish: | Case<br>Baseplate | Nickel Plating<br>None | |
| Mounting: | Standard<br>Option - I<br>Option - C | 4-40 THD Inserts<br>Metric M2.5 - 0.45 Inserts<br>.115 DIA Thru Hole | |

## CASE DRAWINGS - PF100 Standard




**Tolerances:** inches - x.xx = ±0.03, x.xxx = ±0.015 mm - x.x = ±0.8, x.xx = ±0.40

All specifications are typical @+25°C with nominal input voltage under full output load conditions and holdup capacitance of 100 µF, unless otherwise noted. Specifications subject to change without notice.



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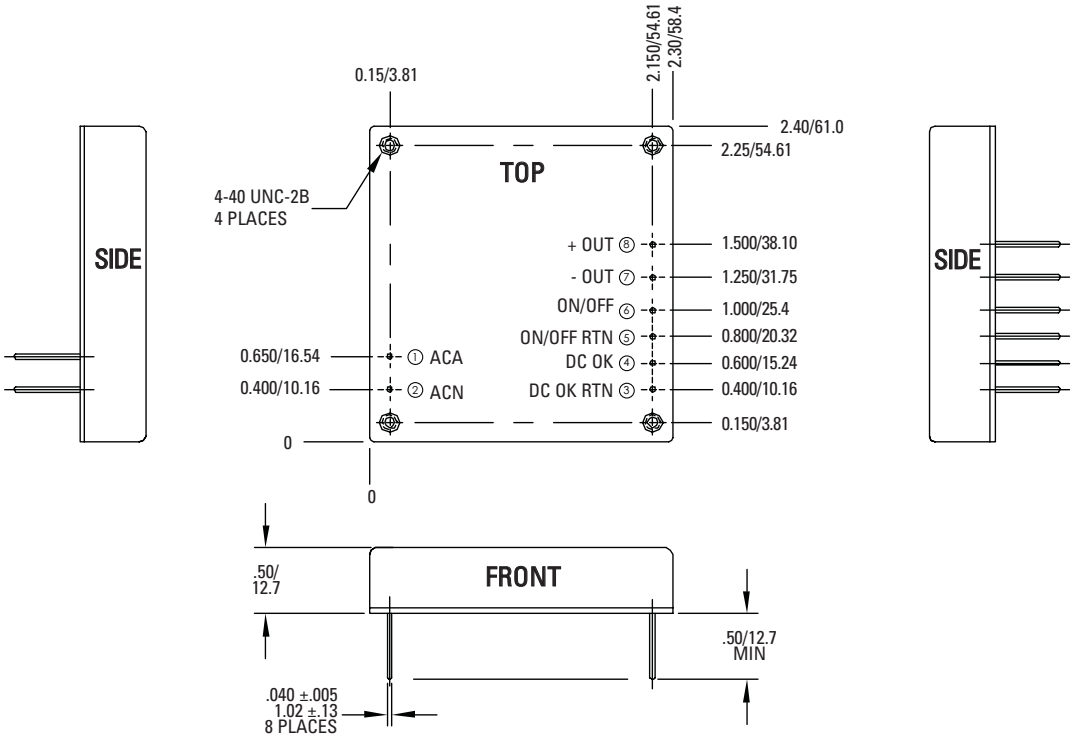
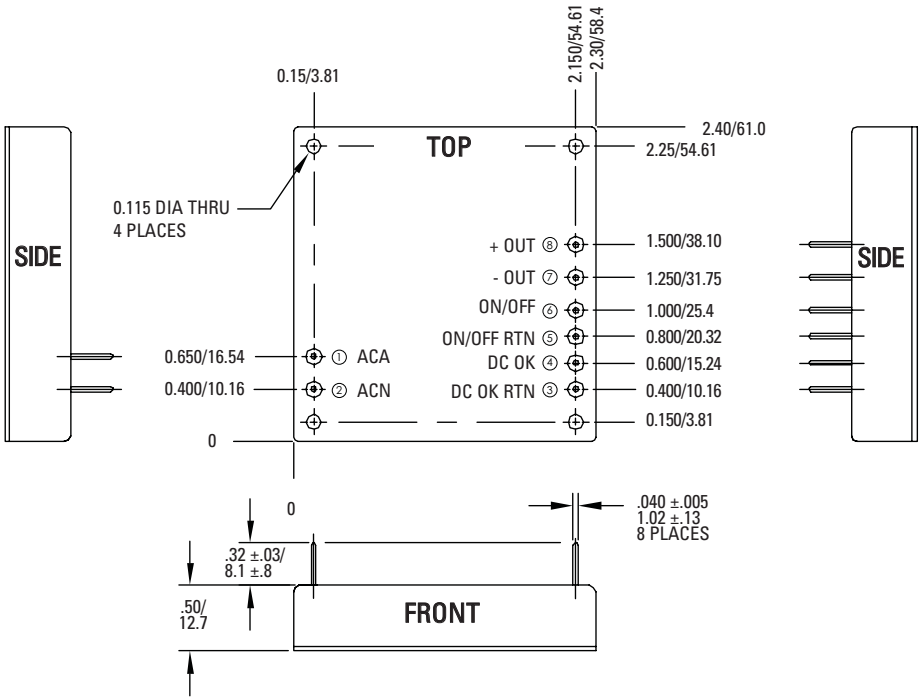
## CASE DRAWINGS - PF100 OPTION -A; PINS OUT BASEPLATE OF UNIT




## CASE DRAWINGS - PF100 OPTION -C; THRU HOLE INSERTS




All specifications are typical @+25°C with nominal input voltage under full output load conditions and holdup capacitance of 100µF, unless otherwise noted. Specifications subject to change without notice.

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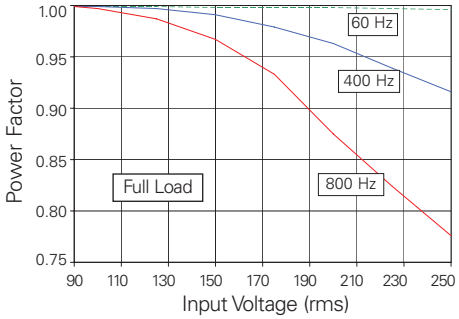
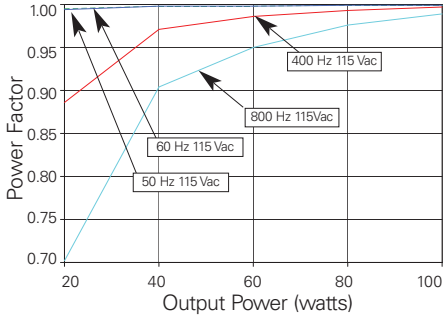
# PERFORMANCE CHARACTERISTICS

## *PF100*

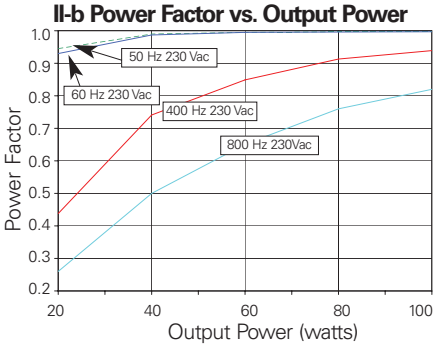
### I. Power Factor vs. Input Voltage



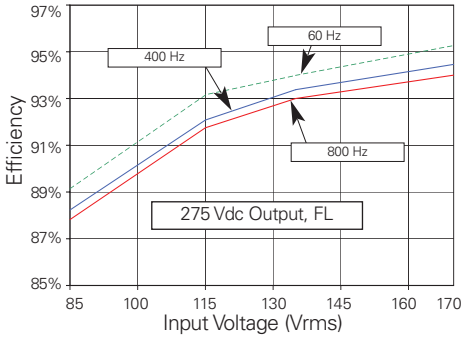

### II-a. Power Factor vs. Output Power



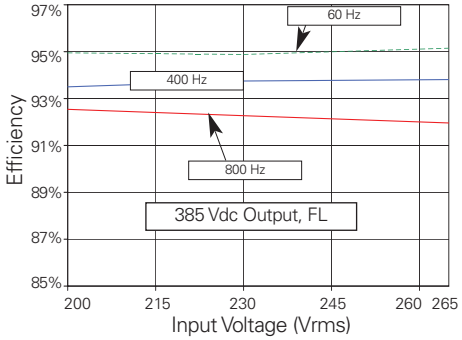

### II-b Power Factor vs. Output Power



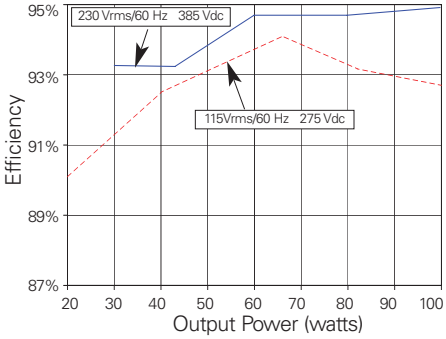

### III-a. Efficiency vs. Input Voltage



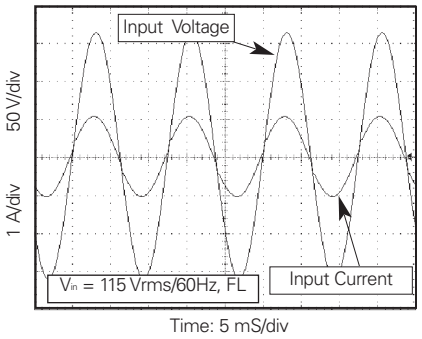

### III-b. Efficiency vs. Input Voltage



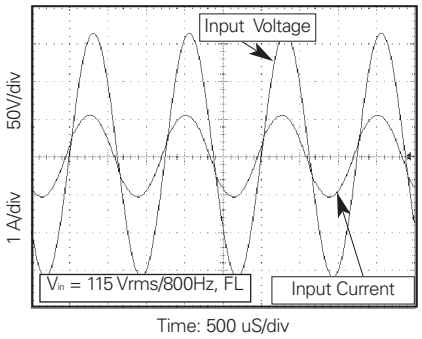

### IV. Efficiency vs. Output Power



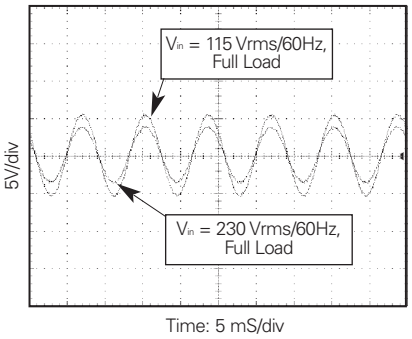

### V-a. AC Input Voltage & Current



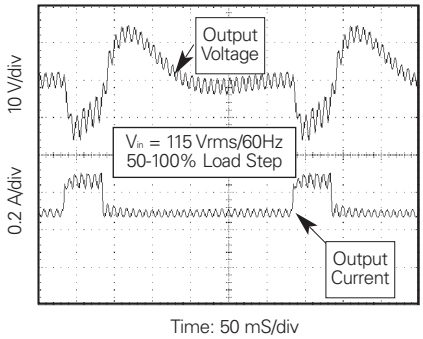

### V-b. AC Input Voltage & Current



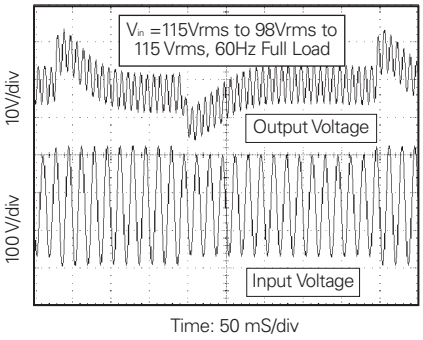

### VI. Output Ripple



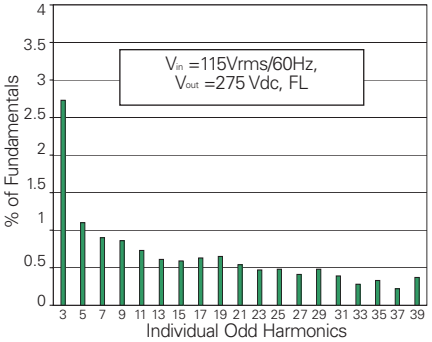

### VII. Load Transient Response




### VIII. Line Transient




### IX-a. Harmonic Distortion

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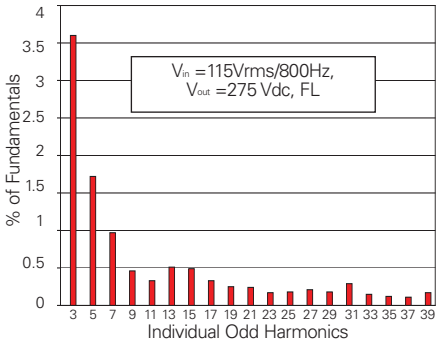
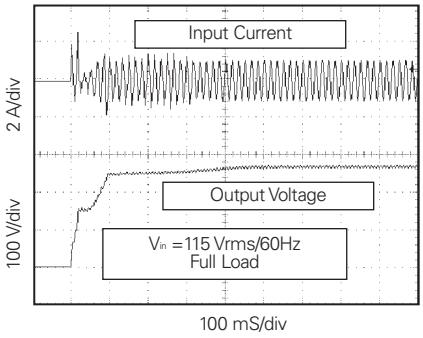
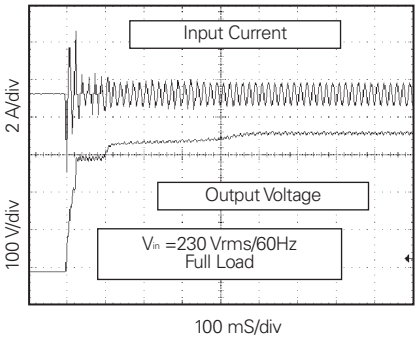
### IX-b. Harmonic Distortion



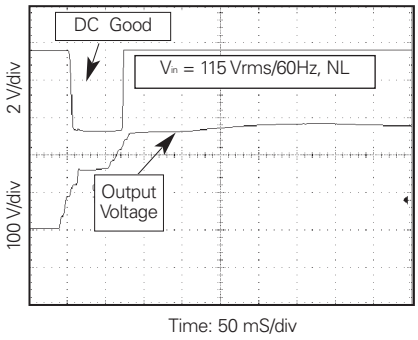

### X-a. Inrush Current vs Output Voltage



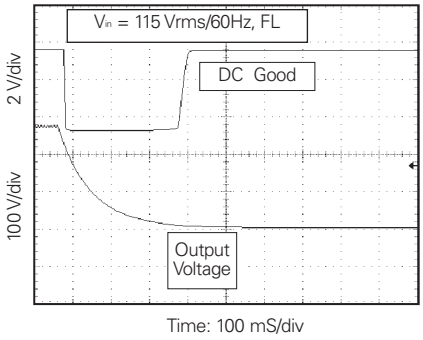

### X-b. Inrush Current vs Output Voltage



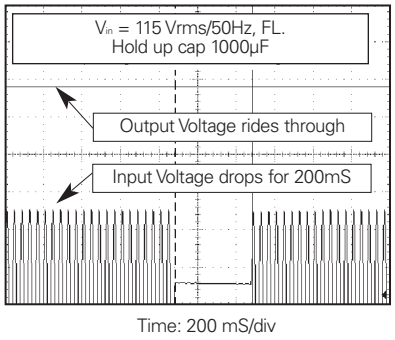

### XI. DC Good, Turn-On



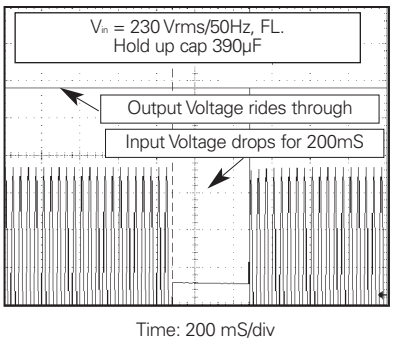

### XII. DC Good, Turn-Off




### XIII-a. Input Line Dropout

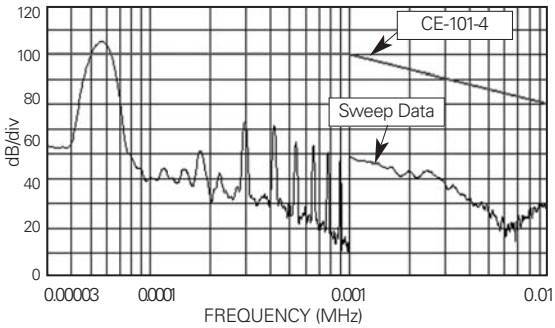



### XIII-b. Input Line Dropout




### EMI Plots

**MIL-STD-461D**
**CE101-4**
**Full Load**




**MIL-STD-461D**
**CE102-1**
**Full Load**