

# TDK-Lambda PFE-SA, PFE500-F & PFE1000-FA

## 300-1008W AC-DC Power Module

### Features

- ◆ Low profile, small size
- ◆ 100°C baseplate temperature
- ◆ High power density
- ◆ High Efficiency
- ◆ Suitable for conduction cooling
- ◆ Power Factor Corrected (PFC)



### Key Market Segments & Applications



| Specifications                    |          |                                                                                                  |                  |                                        |                                          |
|-----------------------------------|----------|--------------------------------------------------------------------------------------------------|------------------|----------------------------------------|------------------------------------------|
| Model                             |          | PFE300SA<br>PFE500SA                                                                             | PFE700SA         | PFE500F                                | PFE1000F*<br>PFE1000FA                   |
| AC Input                          | VAC      | 85 to 265VAC, 47-63Hz (up to 440Hz) (4)                                                          |                  |                                        |                                          |
| Input Current (115 / 230VAC)      |          | 3.2 / 1.6                                                                                        |                  | 6.8 / 3.4                              | 13.6 / 6.6 (100/200VAC)                  |
| Model dependant                   | A        | 5.2 / 2.5                                                                                        | 7.0 / 3.4        | 100/200VAC                             | 10.6 / 5.2                               |
| Inrush Current (115 / 230VAC) (1) | A        | 23 / 46A peak                                                                                    |                  |                                        |                                          |
| Power Factor                      | -        | 0.95 minimum, meets EN61000-3-2                                                                  |                  |                                        |                                          |
| Output Voltage Setpoint Accuracy  | -        | ±2%                                                                                              | ±1V              | ±2%                                    | ±2%                                      |
| Ripple and Noise (1)              | -        | 1%                                                                                               | 4V               | 1%                                     | 1%                                       |
| Over Current Protection           | %        | 105 - 140% (Automatic Recovery)                                                                  |                  |                                        |                                          |
|                                   |          |                                                                                                  |                  |                                        | 105 - 140%<br>Manual reset               |
| Over Voltage Protection           | -        | 125 - 145%                                                                                       | 60 - 69.6V       | 125 - 145%                             | 125 - 145%                               |
| Series Operation                  | -        | Yes                                                                                              |                  |                                        |                                          |
| Parallel Operation                | -        | No                                                                                               | Yes (Droop mode) | Yes (Single wire)                      | Yes (Single wire)                        |
| Power On Signal (ENA)             | -        | Open collector (10mA sink current). Low (on) when output is present                              |                  |                                        |                                          |
| Auxiliary Supply                  | -        | None                                                                                             | None             | 10 - 14V, 20mA                         | 10 - 14V, 20mA                           |
| Remote On/Off (Opto isolated)     | -        | None                                                                                             | None             | High = On                              | High = On                                |
| Overtemperature Protection        | -        | Yes                                                                                              |                  |                                        |                                          |
| Operating Baseplate Temp.         | °C       | -40 to +100°C (2)                                                                                |                  |                                        |                                          |
| Storage Temperature               | °C       | -40 to +100°C                                                                                    |                  |                                        |                                          |
| Humidity (non condensing)         | -        | Operating: 20 - 95%RH, Non Operating: 10 - 95%RH                                                 |                  |                                        |                                          |
| Cooling                           | -        | Conduction                                                                                       |                  |                                        |                                          |
| Withstand Voltage (1 min) (3)     | -        | Input to Output 3kVAC, Input to Baseplate 2.5kVAC, Output to Baseplate 1.5kVDC                   |                  |                                        |                                          |
| Isolation Resistance              | -        | Output to baseplate: 100M Ohm at 500VDC, 25°C ambient, 70%RH                                     |                  |                                        |                                          |
| Vibration (non operating)         | -        | 10-55Hz (1 min sweep), constant amplitude 0.825mm (max 49m/s <sup>2</sup> ), X, Y, Z 1 hour each |                  |                                        |                                          |
| Shock                             | -        | 196.1m/s <sup>2</sup>                                                                            |                  |                                        |                                          |
| Safety Certifications             | -        | UL60950-1, CSA60950-1 (cUL), EN60950-1, CE mark (LVD)                                            |                  |                                        |                                          |
| Weight                            | g        | 200                                                                                              | 250              | 300                                    | 500<br>420                               |
| Size (WxHxL)                      | mm<br>in | 61 x 12.7 x 116.8mm<br>2.4 x 0.5 x 4.6"                                                          |                  | 70 x 12.7 x 122mm<br>2.76 x 0.5 x 4.8" | 100 x 13.4 x 160mm<br>3.94 x 0.53 x 6.3" |
| Warranty                          | yrs      | 5 years                                                                                          |                  | 2 years                                | 2 years<br>5 years                       |

Notes: (Consult Installation Manual for detailed specifications, test methods and application notes)

\* PFE1000-F models - Last time buy March 1, 2017, please use PFE1000FA models as a replacement

- 1) External components are required, consult Application Notes
- 2) PFE500SA-12, PFE500F-12: -40 to 85°C. See instruction manuals for derating curves  
PFE1000F28, PFE1000FA, PFE1000F48 & PFE1000FA48: -40 to 85°C below 170VAC input voltage.  
See instruction manuals for derating curves
- 3) PFE500F, PFE1000F, PFE1000FA: 500VDC Output to baseplate
- 4) Reduced PFC above 63Hz. Contact technical support for 440Hz operation.

# TDK-Lambda PFE-SA, PFE500-F & PFE1000-FA

## Specifications

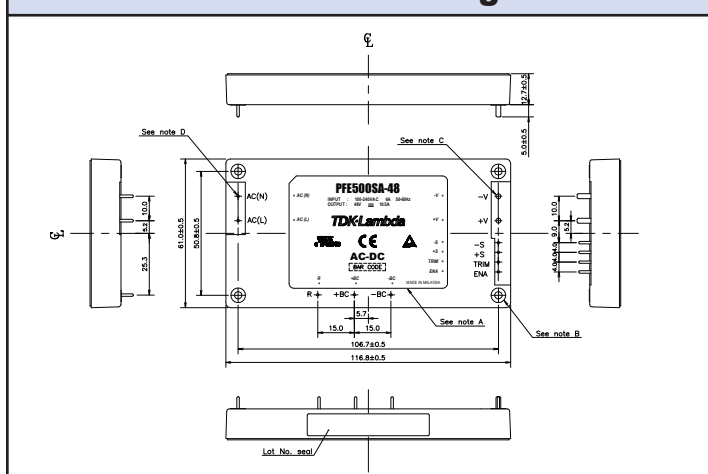
| Model        | Output Voltage (V) | Adjust. Range (V) | Maximum Current (A) | Maximum Wattage (W) | Load Reg. (mV) | Line Reg. (mV) | Efficiency typ (5) |
|--------------|--------------------|-------------------|---------------------|---------------------|----------------|----------------|--------------------|
| PFE300SA-12  | 12                 | 9.6 - 14.4        | 25                  | 300                 | 48             | 48             | 84 / 86            |
| PFE500SA-12  | 12                 | 9.6 - 14.4        | 33                  | 396                 | 48             | 48             | 84 / 86            |
| PFE500F-12   | 12                 | 9.6 - 14.4        | 42                  | 504                 | 48             | 48             | 81 / 83            |
| PFE1000F-12  | 12                 | 9.6 - 14.4        | 60                  | 720                 | 48             | 48             | 80 / 82            |
| PFE1000FA-12 | 12                 | 9.6 - 14.4        | 60                  | 720                 | 48             | 48             | 84.5 / 87          |
| PFE300SA-28  | 28                 | 22.4 - 33.6       | 10.8                | 302                 | 56             | 56             | 87.5 / 89.5        |
| PFE500SA-28  | 28                 | 22.4 - 33.6       | 18                  | 504                 | 56             | 56             | 88 / 90            |
| PFE500F-28   | 28                 | 22.4 - 33.6       | 18                  | 504                 | 56             | 56             | 84 / 86            |
| PFE1000F-28  | 28                 | 22.4 - 33.6       | 36                  | 1008                | 56             | 56             | 84 / 86            |
| PFE1000FA-28 | 28                 | 22.4 - 33.6       | 36                  | 1008                | 56             | 56             | 87 / 89.5          |
| PFE300SA-48  | 48                 | 38.4 - 57.6       | 6.3                 | 302                 | 96             | 96             | 88 / 90.5          |
| PFE500SA-48  | 48                 | 38.4 - 57.6       | 10.5                | 504                 | 96             | 96             | 90 / 91            |
| PFE500F-48   | 48                 | 38.4 - 57.6       | 10.5                | 504                 | 96             | 96             | 84 / 86            |
| PFE1000F-48  | 48                 | 38.4 - 57.6       | 21                  | 1008                | 96             | 96             | 84 / 86            |
| PFE1000FA-48 | 48                 | 38.4 - 57.6       | 21                  | 1008                | 96             | 96             | 88 / 90.5          |
| PFE700SA-48  | 51                 | None              | 14                  | 714                 | 50 - 57V (6)   |                | 90 / 92            |

(5) 115 / 230VAC (100/230VAC for PFE500F & PFE1000F)

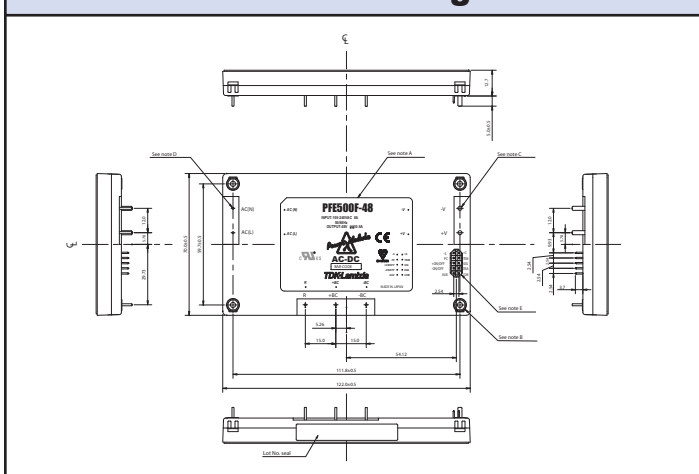
(6) Total regulation range

Last time buy March 1, 2017, use PFE1000FA as a replacement

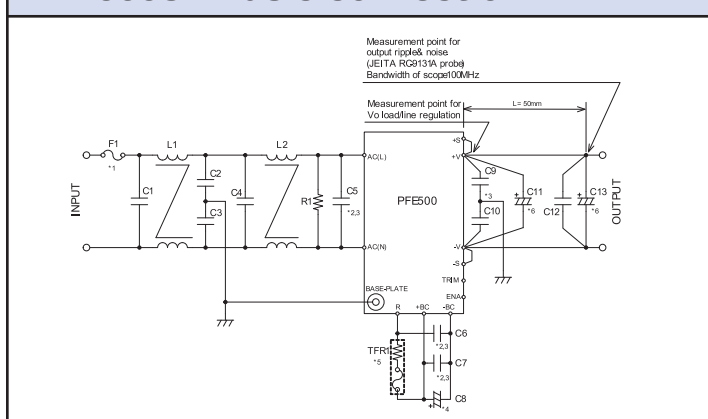
## PFE500SA Outline Drawing



## PFE500F Outline Drawing



## PFE500SA Basic connection



## Heatsink Table

| Heatsink | Size (mm)         | PFE Module   |
|----------|-------------------|--------------|
| HAF-10L  | 116.8 x 25.4 x 61 | PFE300/500SA |
| HAF-15L  | 116.8 x 38.1 x 61 | PFE300/500SA |
| HAF-15T  | 116.8 x 38.1 x 61 | PFE300/500SA |
| HAL-F12T | 122 x 35 x 69.9   | PFE500F      |
| HAM-F10T | 160 x 33.4 x 100  | PFE1000F/FA  |

## Options

| Suffix | Description                    |
|--------|--------------------------------|
| Blank  | M3 tapped mounting inserts (4) |
| /T     | 3.3mm non-threaded inserts (4) |

For Additional Information, please visit  
[us.tdk-lambda.com/lp/products/pfea-series.htm](http://us.tdk-lambda.com/lp/products/pfea-series.htm)



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