

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 PFE500SA | PFE700SA | PFE500F | PFE1000FA |
|-----------------------------------|-----|--|------------------|-------------------|----------------------------|
| AC Input | VAC | 85 to 265VAC, 47-63Hz (up to 440Hz) (4) | | | |
| Input Current (115 / 230VAC) | A | 3.2 / 1.6 | 7.0 / 3.4 | 6.8 / 3.4 | 10.8 / 5.3 |
| Model dependant | A | 5.2 / 2.5 | 7.0 / 3.4 | 100/200VAC | 10.8 / 5.3 |
| 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% 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 ²), X, Y, Z 1 hour each | | | |
| Shock | - | 196.1m/s ² | | | |
| Safety Certifications | - | IEC/UL/CSA/EN62368-1, 60950-1, CE Mark | | | |
| Weight | g | 200 | | 300 | 420 |
| Size (WxHxL) | mm | 61 x 12.7 x 116.8mm | | 70 x 12.7 x 122mm | 100 x 13.4 x 160mm |
| | in | 2.4 x 0.5 x 4.6" | | 2.76 x 0.5 x 4.8" | 3.94 x 0.53 x 6.3" |
| Warranty | yrs | 5 years | | 2 years | 5 years |

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

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

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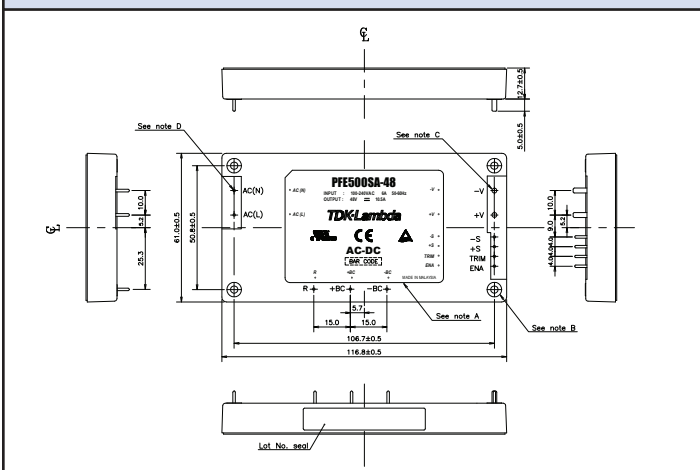
Specifications

| 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 |
| 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 |
| 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 |
| 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 |

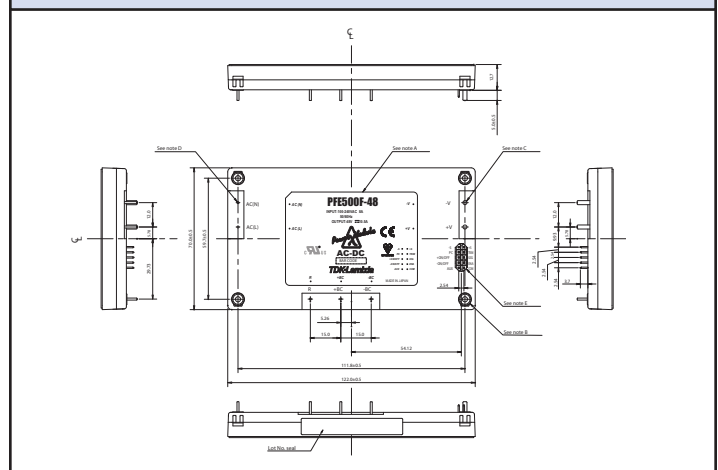
(5) 115 / 230VAC (100/230VAC for PFE500F)

(6) Total regulation range

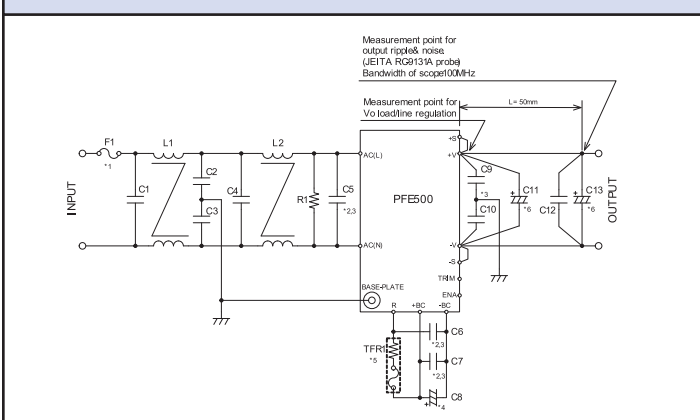
PFE500SA Outline Drawing



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 | PFE1000FA |

Options

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

For additional information, please visit
<https://product.tdk.com/en/power/>

