

## EMA212 Series



- 3.00" x 5.00" x 1.34"
- High Power Density - 10.55 W/in<sup>3</sup>
- > 90% Efficiency
- 5 V Standby & 12 V Fan Outputs
- Active Current Share
- Remote On/Off
- Power Good Signal

## Specification

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### Input

Input Voltage	• 90-264 VAC
Input Frequency	• 47-63 Hz
Input Current	• 2.2 A max at 115 VAC • 1.1 A max at 230 VAC
Inrush Current	• 30 A max at 115 VAC • 60 A max at 230 VAC • cold start at 25 °C
Power Factor	• >0.9 typical
Earth Leakage Current	• 1.1 mA max at 253 VAC/50Hz

### Output

Output Voltage	• See table
Output Voltage Trim	• No user adjustment available
Initial Set Accuracy	• V1: ±1%, V2: ±5%, V3: ±3%
Minimum Load	• No minimum load required
Start Up Delay	• <3 s maximum
Start Up Rise Time	• 20 ms maximum
Hold Up Time	• 16 ms minimum
Drift	• <±0.2% after 20 min warm up
Line Regulation	• V1: ±0.5%, V2: ±5%, V3: ±3%
Load Regulation	• V1: ±1% 0-100% load • V2: ±5% 10-100% load • V3: ±3% 0-100% load
Cross Regulation	• V2: ±10% 10-100% load change on V1
Over/Undershoot	• <2% max at turn on/off
Transient Response	• <4% max. deviation, recovery to within 1% in 500 μs for a 50% load change
Ripple & Noise	• V1 & V3: 1%, V2: 2% pk-pk, 20MHz BW
Overvoltage Protection	• 115-140% Vnom, recycle input to reset (output 1 only)
Overtemperature Protection	• Primary & secondary protection with auto recovery (TR11 >100 °C)
Overload Protection	• 110-125%, auto recovery output 1
Short Circuit Protection	• Trip and restart (Hiccup mode)
Temperature Coefficient	• 0.05% /°C
Remote On/Off	• On = Logic Low or Open • Off = Logic High
Current Share	• Up to 3 supplies to share within 10%

### General

Efficiency	• 90% at 230 VAC
Isolation	• 3000 VAC Input to Output • 1500 VAC Input to Ground • 500 VDC Output to Ground
Switching Frequency	• 80 kHz typical for PFC • 100 kHz typical for main converter
Power Density	• 10.55 W/in <sup>3</sup>
Signals	• Combined PF & DC OK - open collector, logic low giving 5 ms warning of loss of output on PF (max rating 20 V/3 mA)
MTBF	• 100 kHrs per MIL-HDBK-217F

### Environmental

Operating Temperature	• -10 °C to +70 °C, derate linearly from +50 °C at 2.5% /°C to 50% at 70 °C
Cooling	• 12 CFM airflow required (see Thermal Considerations)
Operating Humidity	• 5-95% RH, non-condensing
Storage Temperature	• -20 °C to +85 °C
Operating Altitude	• 3000 m
Shock	• 30 G pk, half sine 6 axes
Vibration	• 2 G, 5 Hz to 500 Hz, 3 axes

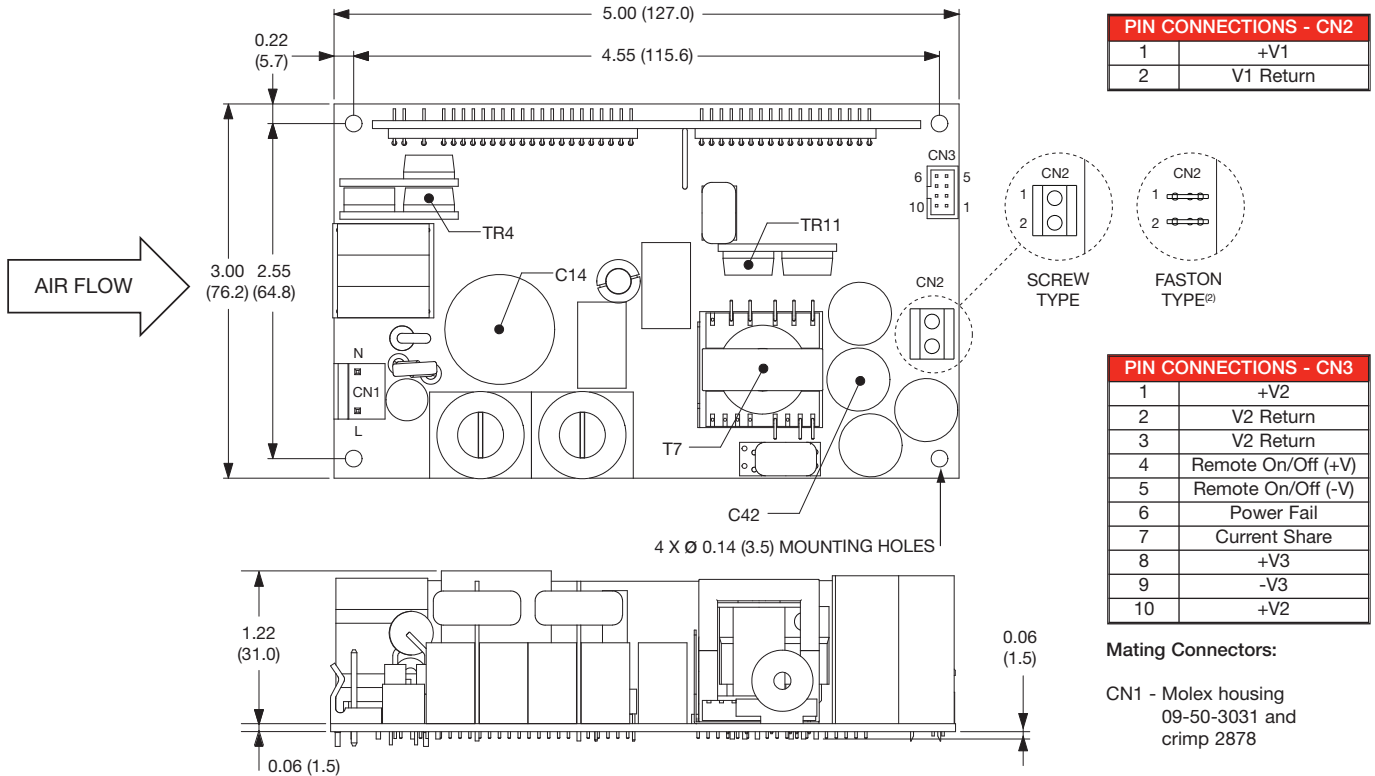
### EMC & Safety

Emissions	• EN55022, level B conducted • EN55022, level A radiated
Harmonic Currents	• EN61000-3-2, class A
Voltage Flicker	• EN61000-3-3
EFT/Burst	• EN61000-4-4, level 3 Perf Criteria B
Surge	• EN61000-4-5, level 3 Perf Criteria B
Conducted Immunity	• EN61000-4-6, 10 Vrms, Perf Criteria A
Dips & Interruptions	• EN61000-4-11, 30% 10 ms, • 60% 100 ms, 100% 5000 ms • Perf Criteria A, B, B
Safety Approvals	• EN60950-1:2001, UL/cUL60950, • CE Mark LVD, CB Report

**Models and Ratings**

Output Voltage V1	Output Current (max)	Ripple & Noise V1	Load Regulation V1	Fan Output V2	Standby Supply V3	Model Number
12.0 VDC	16.7 A	120 mV	±1%	12V/1A	5V/0.1A	EMA212PS12
48.0 VDC	4.0 A	480 mV	±1%	12V/1A	5V/0.1A	EMA212PS48

**Mechanical Details**



**Notes**

1. All dimensions in inches (mm).
2. Units supplied with screw terminal (CN2) as standard. For faston type, add suffix '-F' to the part number.

**Thermal Considerations**

In order to ensure correct and reliable operation of the PSU in the most adverse conditions permitted in the end-use equipment, the temperature of the components listed in the table below must not be exceeded.

Temperature Measurements (Ambient ≤ 50 °C)	
Component	Recommended max continuous temperature °C
TR4 case	90 °C
C14	65 °C
C42	65 °C
TR11 case	95 °C
T7 coil	95 °C

Temperature should be monitored using K type thermocouples placed on the hottest part of the component (out of any direct air flow)