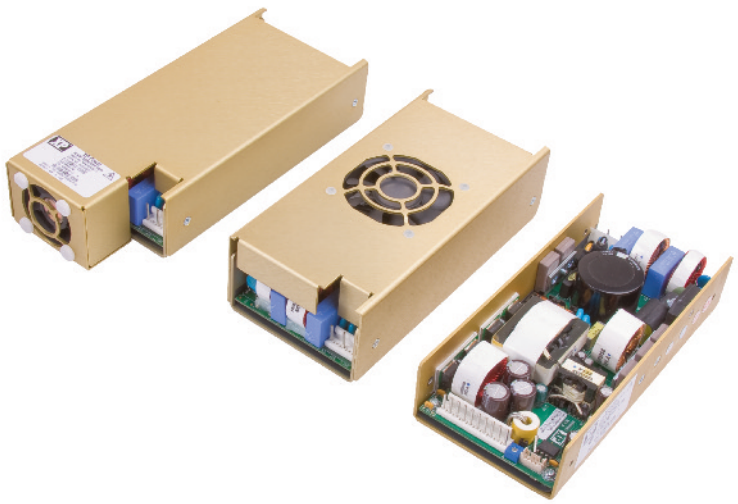
# MFA350 Series



- Screw Terminals Available
- U Channel & Cover Fan Formats
- High Power Density 11.1 W/in$^3$
- 5 V Standby & 12 V Fan Outputs
- Active Current Share
- Remote On/Off
- AC & DC OK Signals
- –10 °C to +70 °C Operation
- Level B Conducted Emissions

The MFA350 has been designed with multiple mechanical options to facilitate its integration into a wide range of applications. Designers of these systems demand higher power from AC-DC units in industry-standard formats as processing power and functionality grows within tight space constraints. The MFA350 delivers over 350 W across the full universal AC input range from an industry-standard 3.2 x 6.8 inch (81.3 x 172.7 mm) footprint. It is 1.5 inches (38.1 mm) high and achieves 11.1 Watts per cubic inch power density without compromising performance or functionality.

With efficiency up to 88% at full load, the MFA350 operates up to 50 °C ambient and up to 70 °C ambient with derating. The main output is 12, 24 or 48 VDC but each power supply also has a 5 V, 0.3 A standby output and a 12 V, 1A output for powering fans. The unit incorporates a fully featured signal set including AC OK/DC OK, remote on/off and active current sharing.

## Models and Ratings

| Output Voltage V1 | Maximum Output Current | Fan Output [2] V2 | Standby Supply V3 | Max Power 13 CFM Airflow | Model Number [1] |
|---|---|---|---|---|---|
| 12.0 VDC | 29.0 A | 12 V/1 A | 5 V/0.3 A | 361 W | MFA350PS12 |
| 24.0 VDC | 14.5 A | 12 V/1 A | 5 V/0.3 A | 361 W | MFA350PS24 |
| 48.0 VDC | 7.3 A | 12 V/1 A | 5 V/0.3 A | 364 W | MFA350PS48 |

**Notes**

1. Units supplied with AMP/TE connections for J1 & J2 as standard. Add suffix '-S' to model number to replace with screw terminals. Add suffix '-TF' for covered version with top fan and suffix '-EF' for covered version with end fan. Example:- MFA350PS12-STF, 12 V unit fitted with screw terminals and top fan.
2. Not available for -TF & -EF versions.

## Input Characteristics

| Characteristic | Minimum | Typical | Maximum | Units | Notes & Conditions |
|---|---|---|---|---|---|
| Input Voltage - Operating | 85 | | 264 | VAC | Derate output power 10% < 90 VAC |
| Input Frequency | 47 | 50/60 | 63 | Hz | |
| Power Factor | | >0.9 | | | EN61000-3-2 class A |
| | | | | | EN61000-3-2 class C for loads ≥20% |
| Input Current - No Load | | 100 | | mA | |
| Input Current - Full Load | | 3.6/1.8 | | A | 115/230 VAC |
| Inrush Current | | | 60 | A | 230 VAC cold start |
| Earth Leakage Current | | 1 | | mA | 230 VAC/50 Hz |
| Input Protection | T6.3A/250 V internal fuse in line | | | | |

## Output Characteristics

| Characteristic | Minimum | Typical | Maximum | Units | Notes & Conditions |
|---|---|---|---|---|---|
| Output Voltage - V1 | 12 | | 48 | VDC | See Models and Ratings table |
| Initial Set Accuracy | | | ±1 [V1], ±5 [V2] & ±3 [V3] | % | |
| Output Voltage Adjustment | ±10 | | | % | |
| Minimum Load | 0 | | | | No minimum load required |
| Start Up Delay | | 1 | 2 | s | 90 VAC full load (see fig. 1) |
| Hold Up Time | 16 | 20 | | ms | 90 VAC full load (see fig. 2 & 3) |
| Drift | | | ±0.2 | % | After 20 min warm up |
| Line Regulation | | | ±0.5[V1], ±3 [V2] & ±3 [V3] | % | |
| Load Regulation | | | ±1 [V1], ±5 [V2] & ±3 [V3] | % | 0-100% load. V2 10-100% load |
| Transient Response - V1 | | | 4 | % | Recovery within 1% in less than 500 µs for a 50-75% and 75-50% load step |
| Over/Undershoot - V1 | | | 1 | % | (see fig. 4) |
| Ripple & Noise | | | 1 [V1 & V3] & 2 [V2] | % pk-pk | 20 MHz bandwidth (see fig. 6 & 7) |
| Overvoltage Protection | 115 | | 140 | % | Vnom DC. Output 1 only, recycle input to reset |
| Overload Protection | 110 | | 140 | % I nom | Output 1 only, auto reset (see fig. 5) |
| Short Circuit Protection | | | | | Continuous |
| Temperature Coefficient | | | 0.05 | %/°C | |
| Overtemperature Protection | | 75 | | °C | Thermal sensor under PCB |

## Start Up Delay From AC Turn On

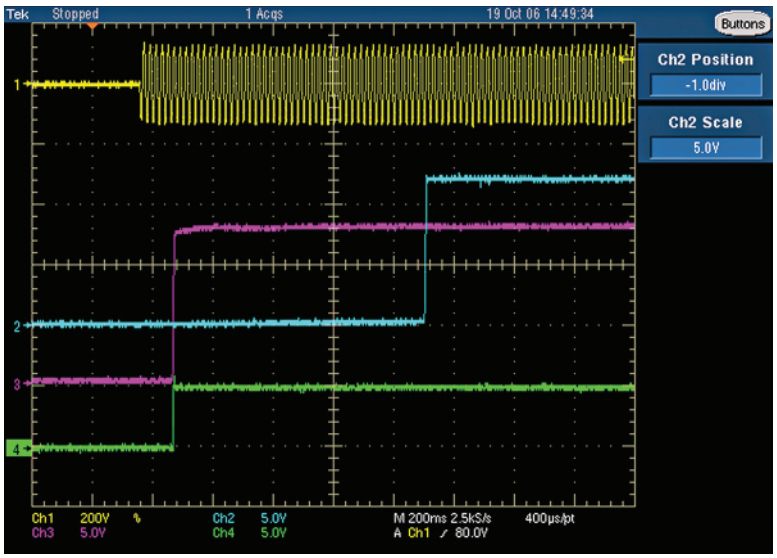



Figure 1
Example of start up all outputs

## Hold Up Time From Loss of AC

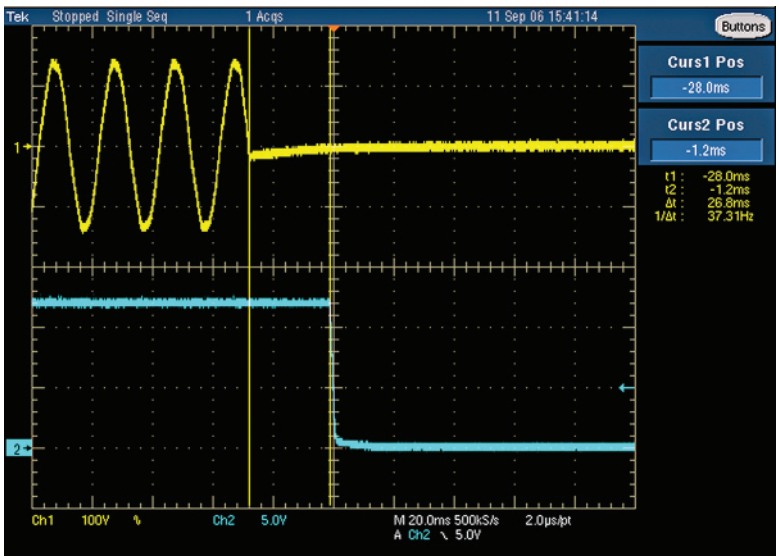



Figure 2
V1 hold up at full load with 90 VAC input (26.8 ms)

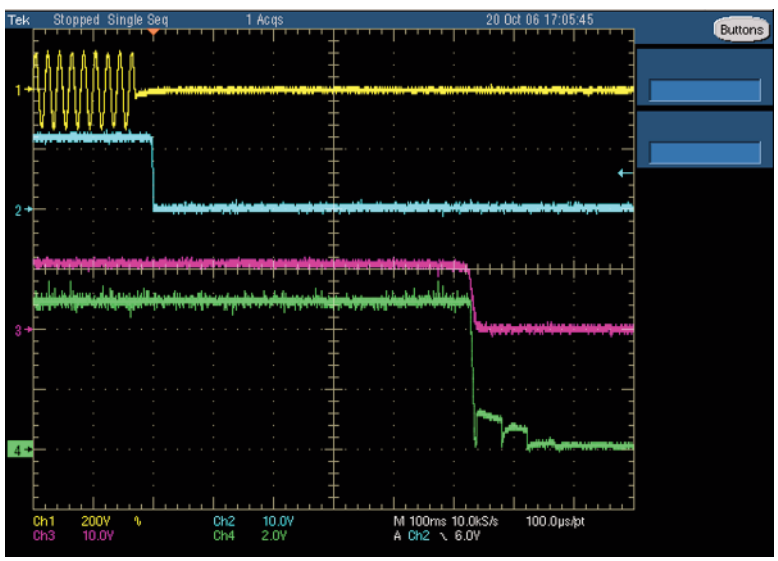



Figure 3
Full load 90 VAC input

## Output Overshoot

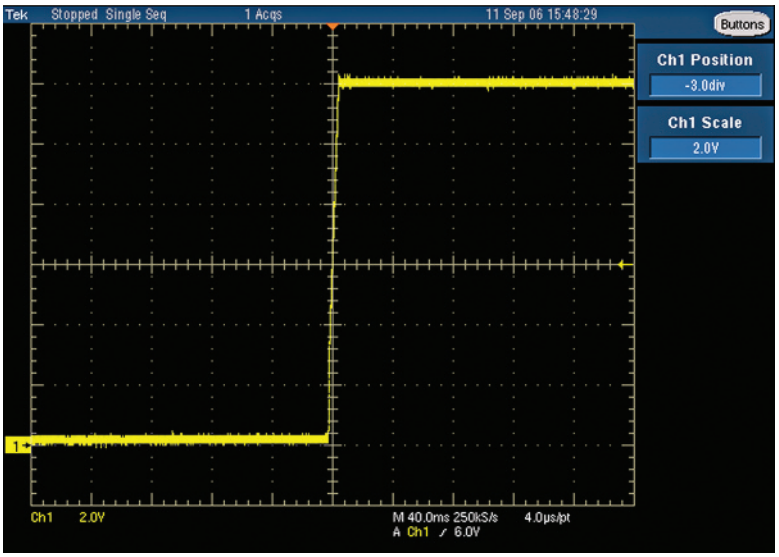



Figure 4
Typical Output Overshoot
(MFA350PS12)

## Output Overload Characteristic

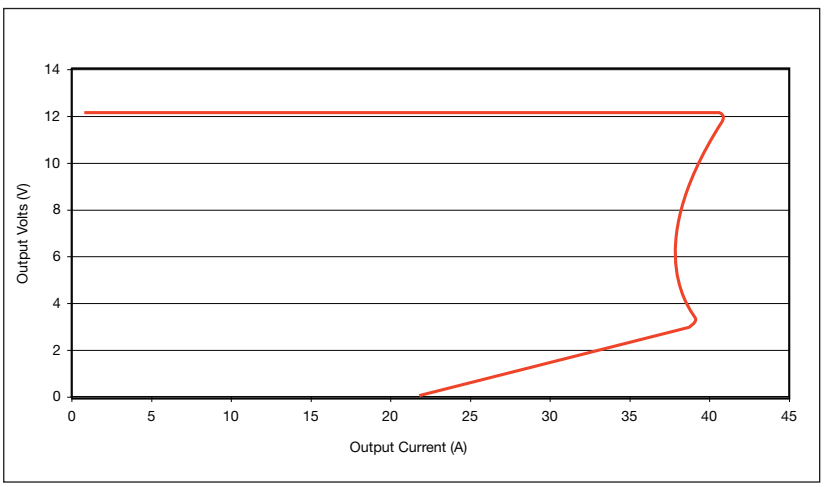



Figure 5

## Output Ripple & Noise

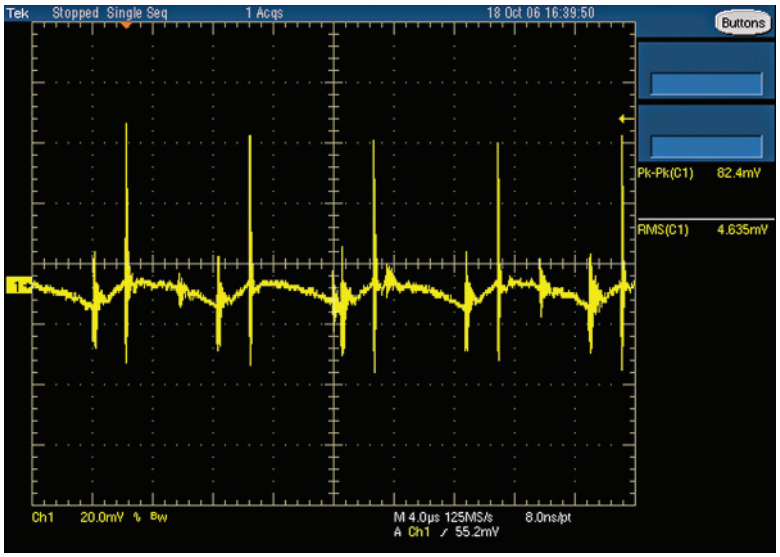



Figure 6
V1 MFA350PS12 (full load)
80 mV pk-pk ripple. 20 MHz BW

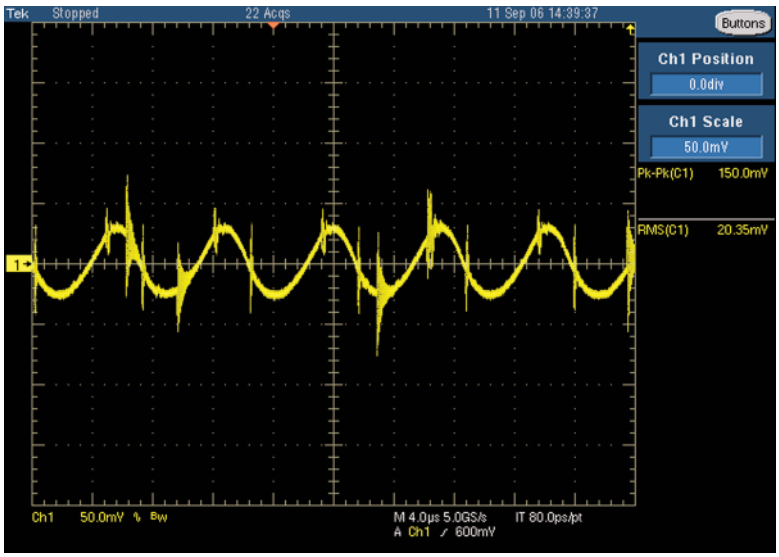



Figure 7
V1 MFA350PS48 (full load)
150 mV pk-pk ripple. 20 MHz BW

## General Specifications

| Characteristic | Minimum | Typical | Maximum | Units | Notes & Conditions |
|---|---|---|---|---|---|
| Efficiency | | 86 | | % | Full load (see fig. 8 & 9) |
| Isolation: Input to Output | 3000 | | | VAC | |
| Input to Ground | 1500 | | | VAC | |
| Output to Ground | 100 | | | VDC | |
| Switching Frequency: PFC | | 62 | | kHz | |
| Main Converter | | 157 | | kHz | |
| Power Density | | | 11.1 | W/in$^3$ | |
| Mean Time Between Failure | | 460 | | kHrs | MIL-HDBK-217F, Notice 2 +25 °C GB |
| Weight | | | 1.35 (612) | lb (g) | |

| Characteristic | Notes & Conditions |
|---|---|
| Signals | |
| AC OK/Powerfail | Open collector referenced to output 0V, transistor normally off when AC is good (see fig. 10, 16, 17 & 18)<br>AC OK: Provides ≥ 5 ms warning of loss of output from AC failure |
| DC OK | Open collector referenced to 0 V, transistor normally off when DC is good (see fig. 11, 19 & 20).<br>Provides warning of DC output failure |
| Remote On/Off (Inhibit/Enable) | Remotely switches outputs off, can also be configured as enable (see fig.12) |
| Current Share | Up to 3 supplies can be connected in parallel. Output current is shared within 10% at full load. Derate overall output current to 90% when used in parallel (see fig.13, 14 & 15) |
| Remote Sense | Compensates for 0.5 V total voltage drop |

## Efficiency Versus Load

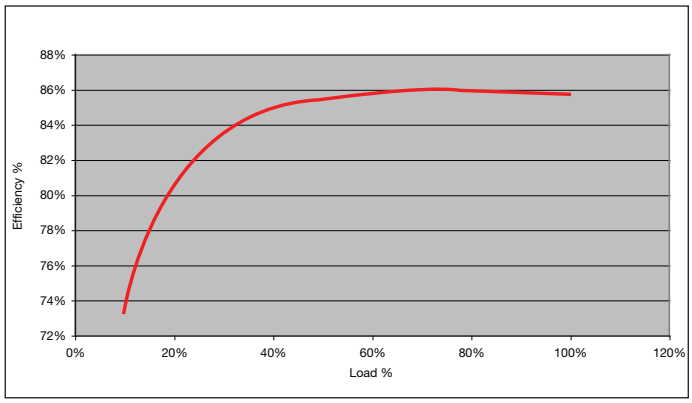



**Figure 8**
**MFA350PS12 @ 230 VAC**

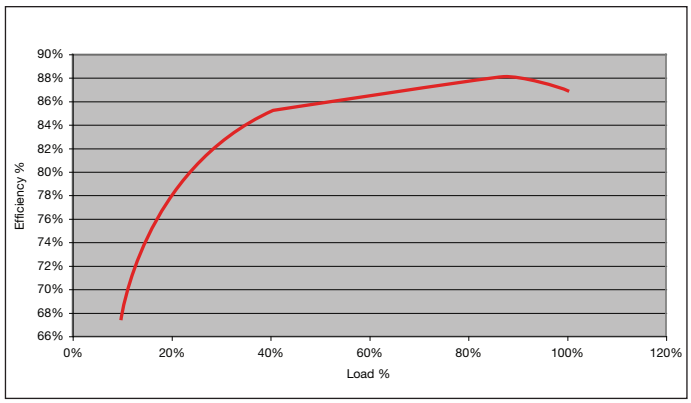



**Figure 9**
**MFA350PS48 @ 230 VAC**

# Signals

## AC OK/Power Fail

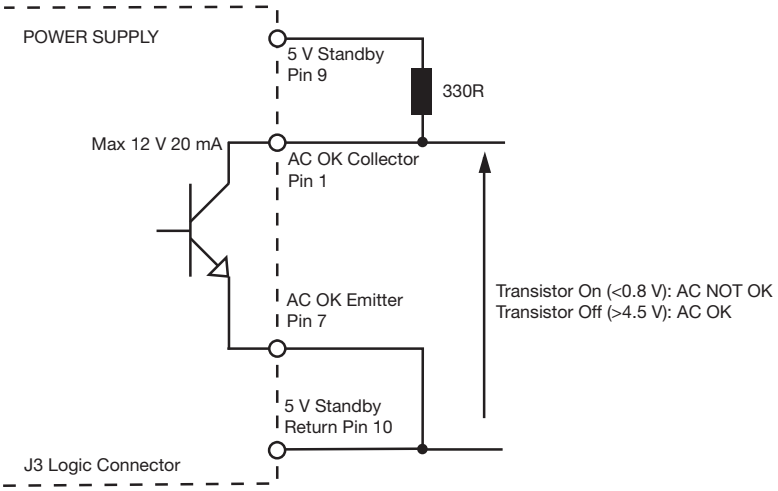



Figure 10

## DC OK

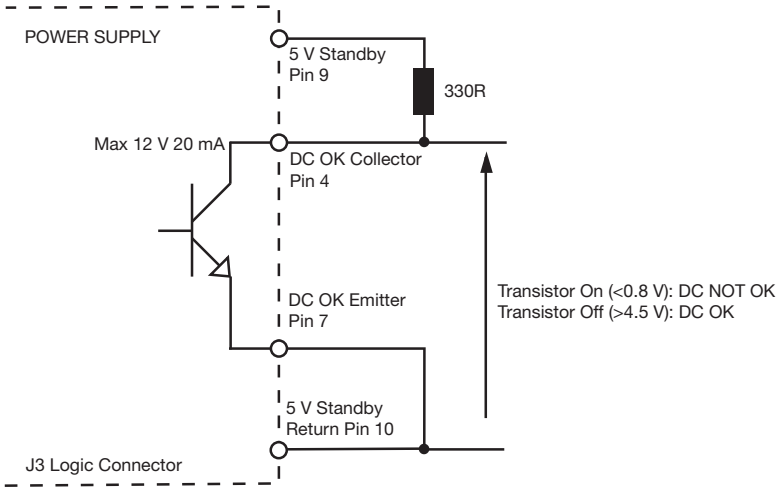



Figure 11

## Remote On/Off (Inhibit)

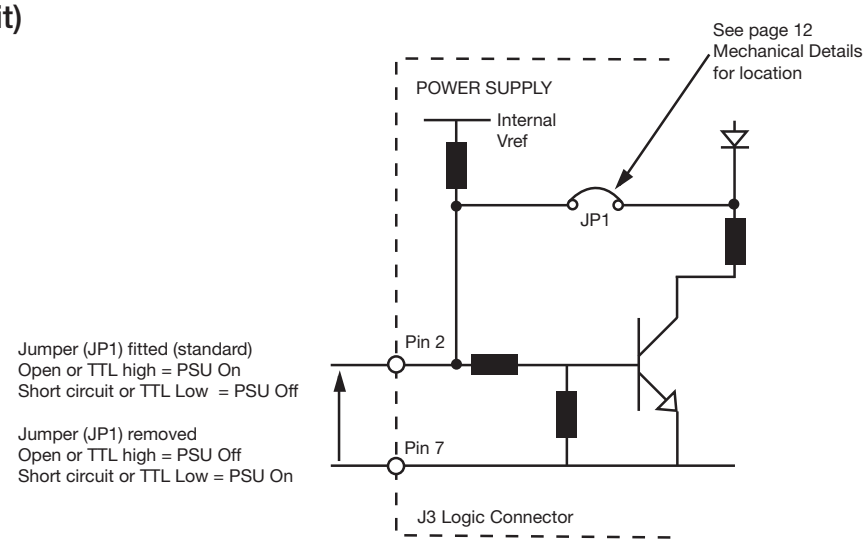



Figure 12

# Signals

## Parallel Load & Current Share Connections

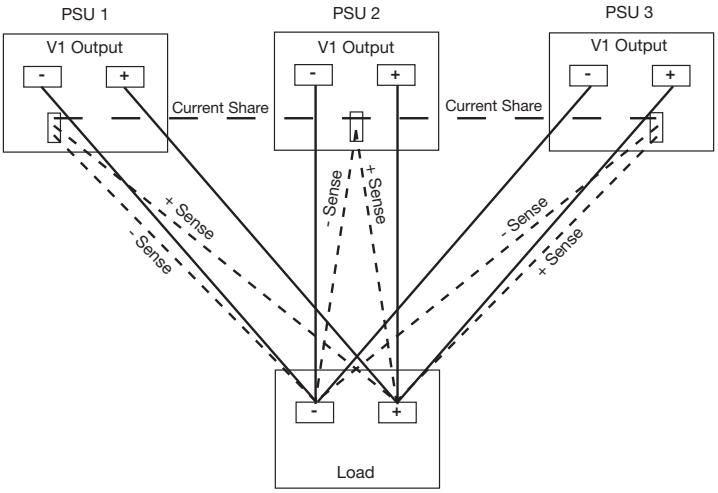



Figure 13

## Parallel AC OK Connection (DC OK follows same format)

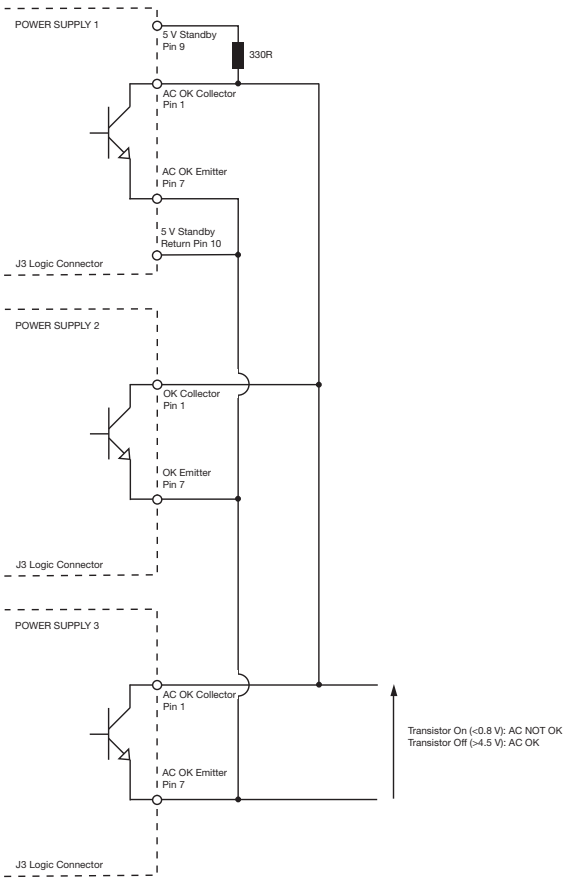



Figure 14

## Parallel Remote On/Off (Inhibit) Connection

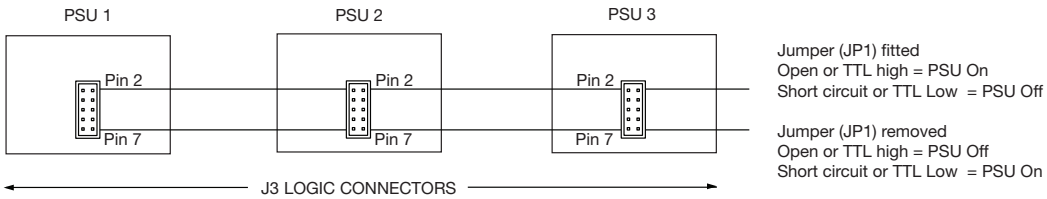



Figure 15

Jumper (JP1) fitted
Open or TTL high = PSU On
Short circuit or TTL Low = PSU Off

Jumper (JP1) removed
Open or TTL high = PSU Off
Short circuit or TTL Low = PSU On

## Signals

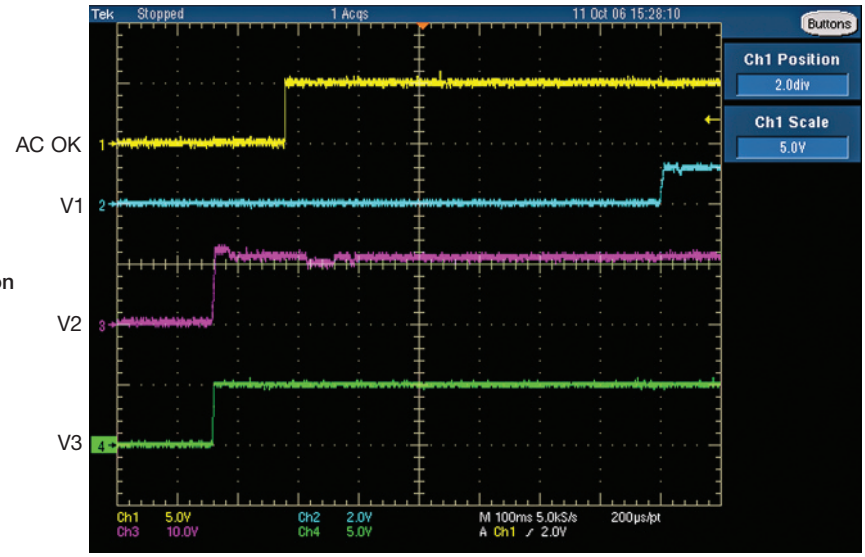



Figure 16
AC OK signal at AC switch on

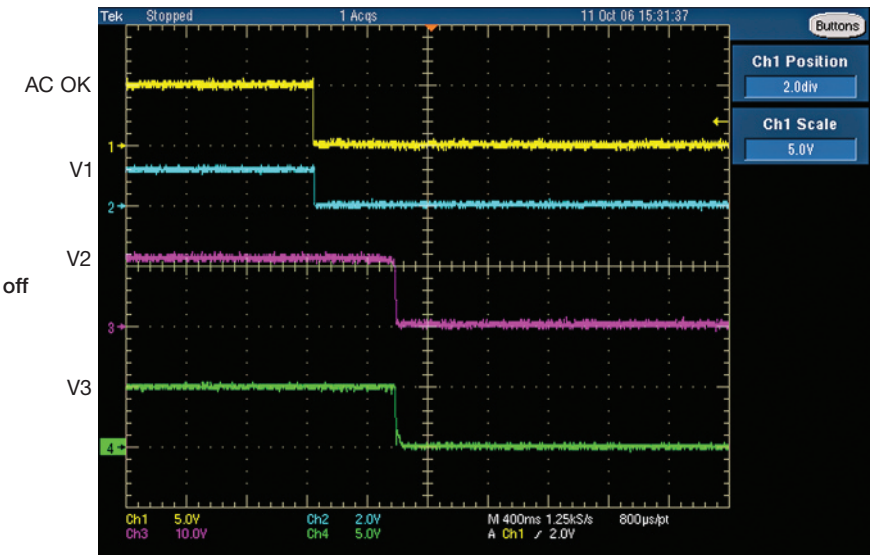



Figure 17
AC OK signal at AC switch off

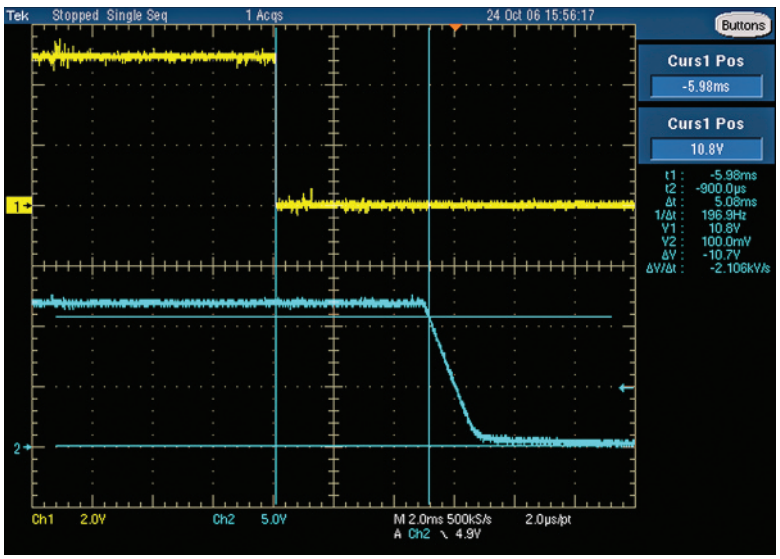



Figure 18
V1 warning time at AC OK signal
90 VAC full load (MFA350PS12)

## Signals

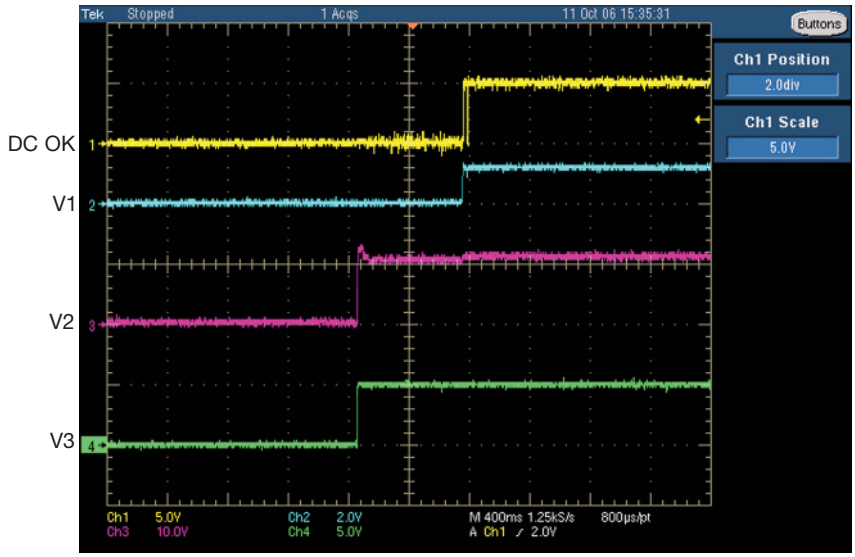



Figure 19
DC OK at AC switch on

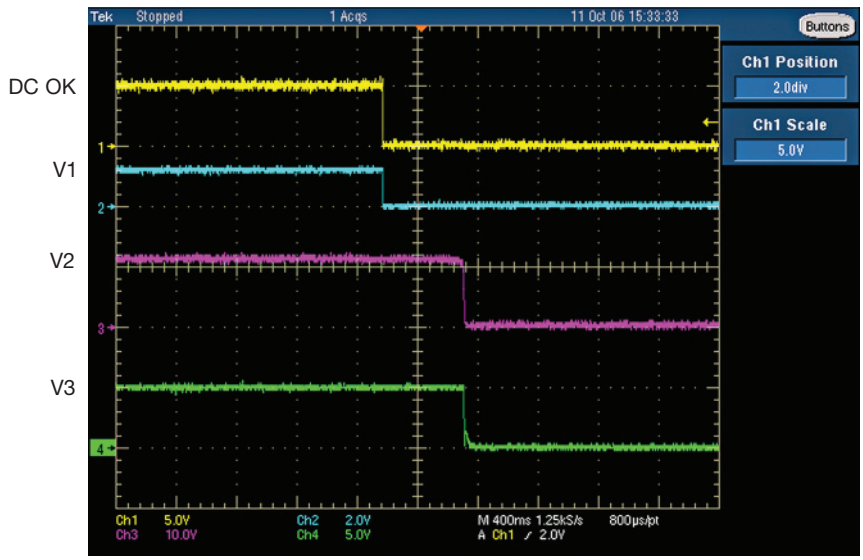



Figure 20
DC OK at AC switch off

## Environmental

| Characteristic | Minimum | Typical | Maximum | Units | Notes & Conditions |
|---|---|---|---|---|---|
| Operating Temperature | -10 | | +70 | °C | Derate linearly from +50 °C at 2.5%/°C to 50% at 70 °C when forced cooled. See Thermal Considerations. |
| Storage Temperature | -20 | | +85 | °C | |
| Cooling | 13 | | | CFM | U Channel Version. -TF & -EF models have integral fan. See Thermal Considerations for U Channel. |
| Humidity | 5 | | 95 | %RH | Non-condensing |
| Operating Altitude | | | 3000 | m | |
| Shock | | | | | 3 x 30 g/11 ms shocks in both +ve & -ve directions along the 3 orthogonal axis, total 18 shocks. |
| Vibration | | | | | Single axis 10-500 Hz at 2 g x 10 sweeps |

## Electromagnetic Compatibility - Immunity

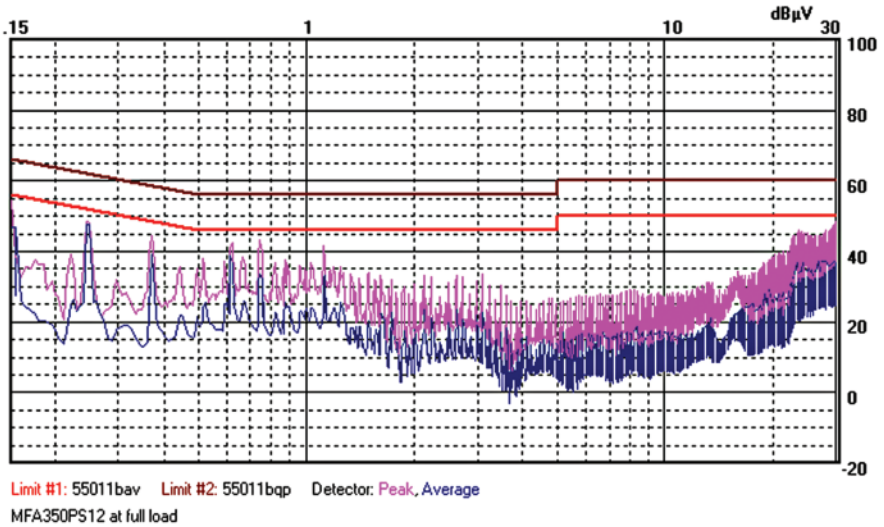
| Phenomenon | Standard | Test Level | Criteria | Notes & Conditions |
|---|---|---|---|---|
| Harmonic Current | EN61000-3-2 | Class A | | |
| | | Class C | | For loads ≥20% |
| EFT | EN61000-4-4 | 3 | A | |
| Surges | EN61000-4-5 | Installation Class 3 | A | |
| Conducted | EN61000-4-6 | 10 V rms | A | |
| Dips and Interruptions | EN61000-4-11 | 30% 10 ms | A | |
| | | 60% 100 ms | B | |
| | | 100% 5000 ms | B | |

## Electromagnetic Compatibility - Emissions

| Phenomenon | Standard | Test Level | Criteria | Notes & Conditions |
|---|---|---|---|---|
| Conducted | EN55032 | Class B | | See fig. 21 |
| Radiated | EN55032 | Class A | | |
| Voltage Fluctuations | EN61000-3-3 | | | |

## Typical EMC Plot

Figure 21

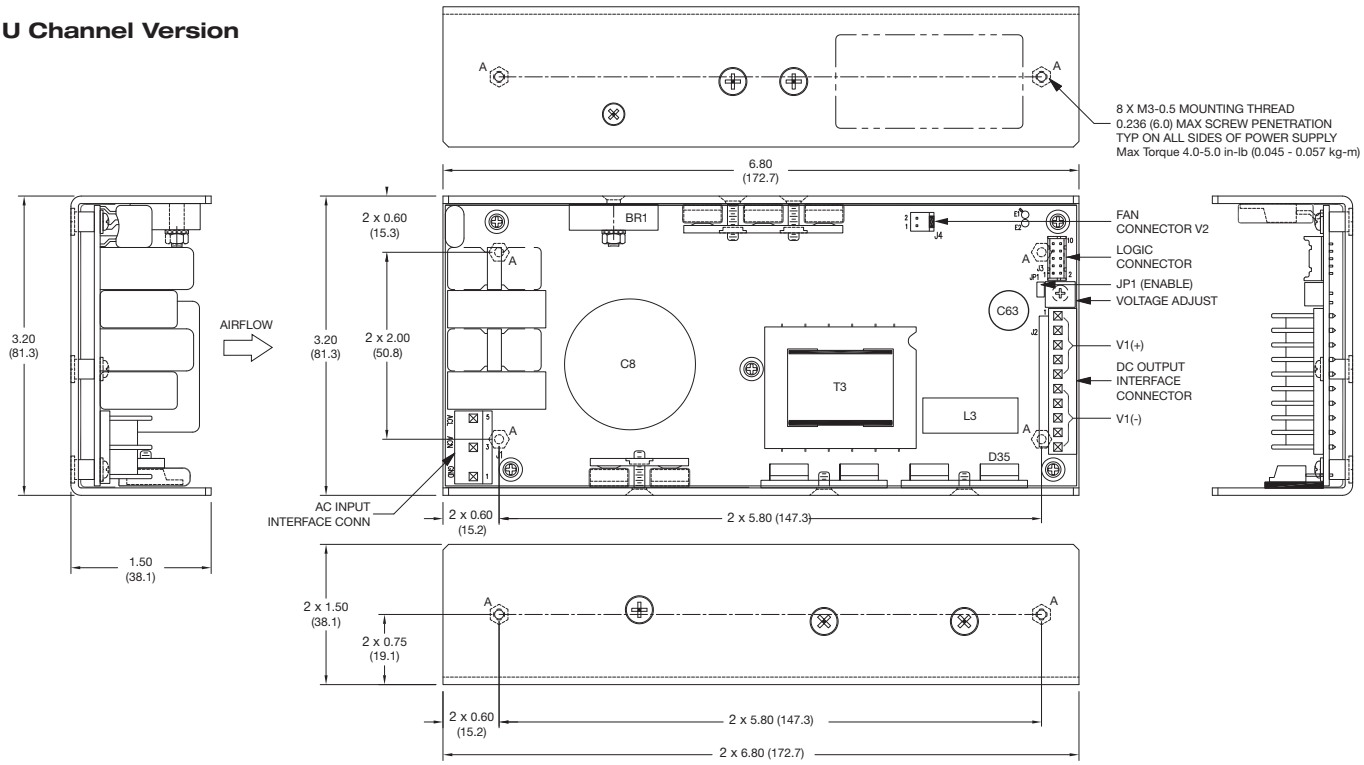



## Safety Agency Approvals

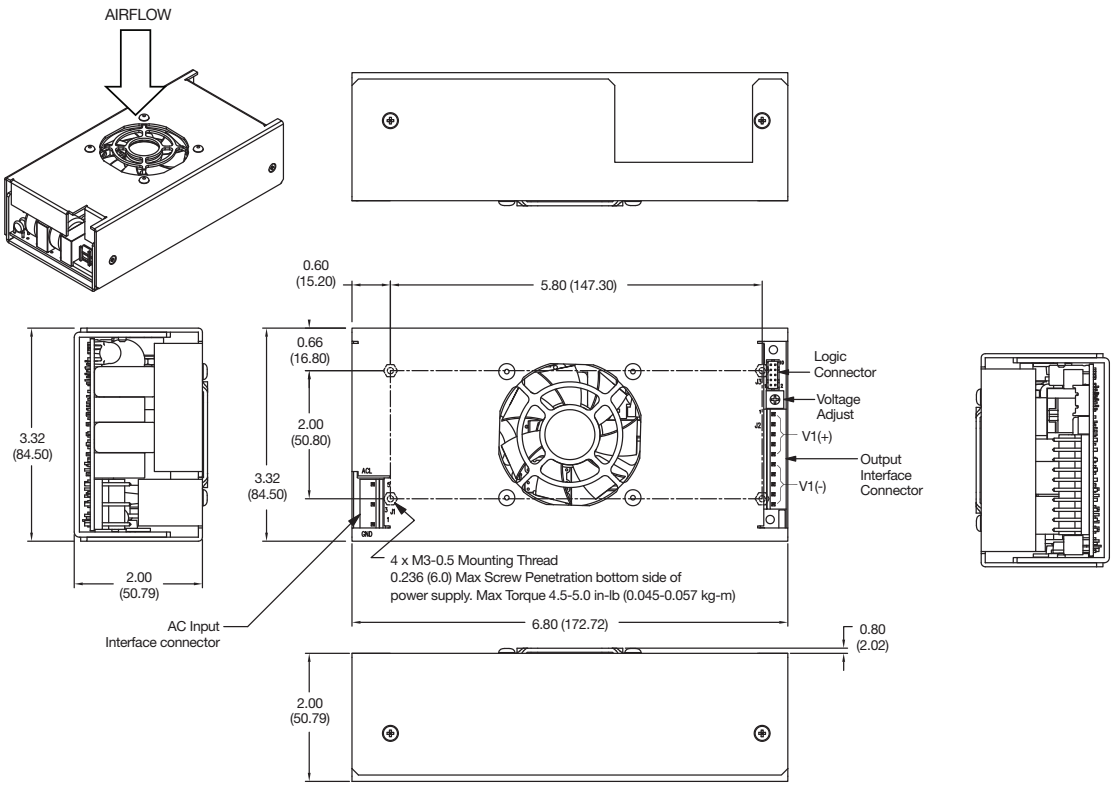
| Safety Agency | Safety Standard | Category |
|---|---|---|
| CB Report | IEC60950-1:2005 Ed 2 / IEC62368-1:2014 | Information Technology |
| CSA | CAN/CSA C22.2 No. 62368-1-14 | Information Technology |
| UL | UL 62368-1 | Information Technology |
| TUV | EN62368-1:2014/A11:2017 | Information Technology |
| CE | LVD | |

# Mechanical Details

## U Channel Version




## Top Fan Version (Suffix TF)

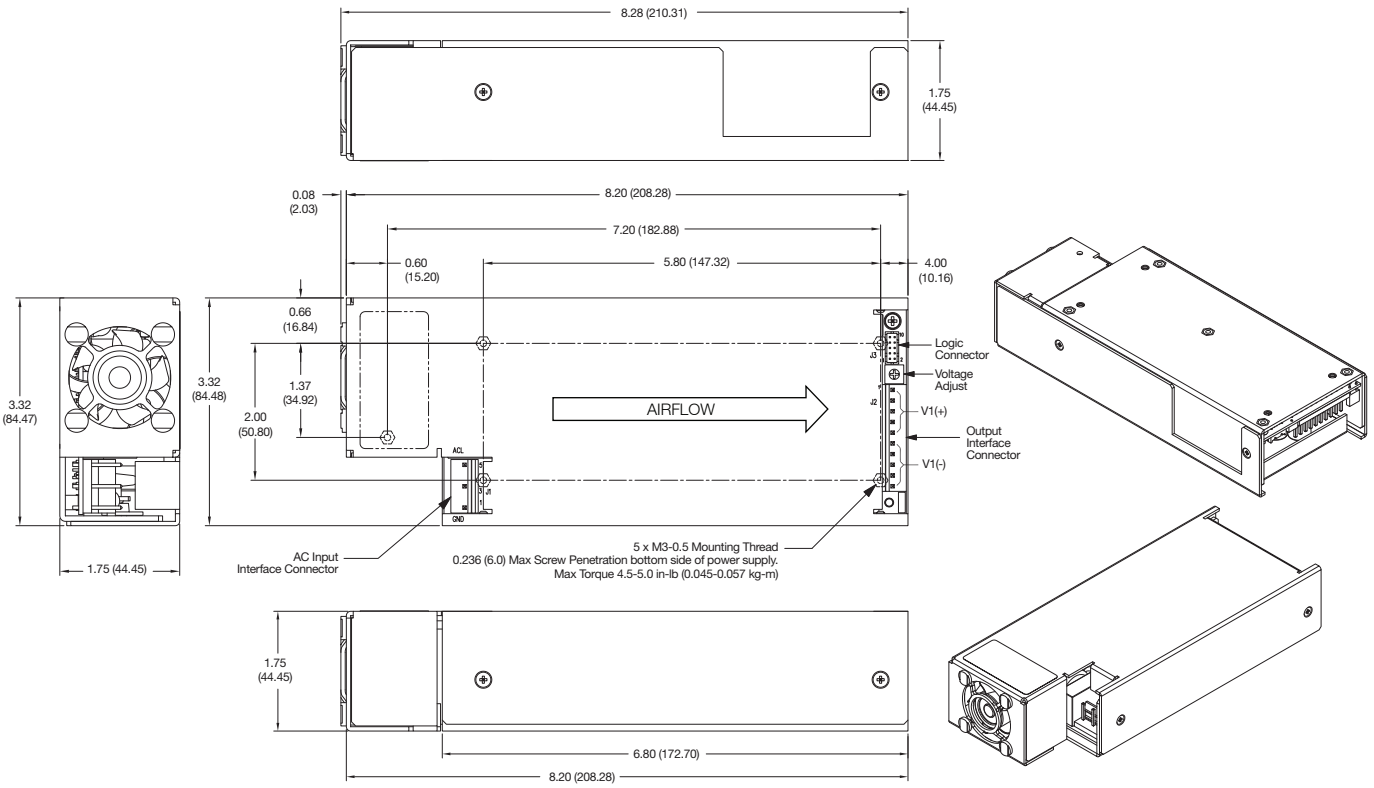



## Notes

1. All dimensions in inches (mm).
2. Tolerance: X.XX = ±0.02 (±0.50), X.XXX = ±0.01 (±0.25)

# Mechanical Details

### End Fan Version (Suffix EF)




**Notes**
1. All dimensions in inches (mm).
2. Tolerance: X.XX = ±0.02 (±0.50), X.XXX = ±0.01 (±0.25)

# Mechanical Details - Pin Connections

| PIN CONNECTIONS AC INPUT J1 AMP/TE CONN = 640445-5 | |
|---|---|
| 1 | GND |
| 3 | Neutral |
| 5 | Line |

Mating Parts:
AMP/TE CONN Housing = 640250-5
Contact 350980-1

Option '-S' screw terminals
Phoenix Contact:
MKDS 1/5-3.81 or similar accepts 26-16 AWG wire (contacts 2 & 4 removed)

Max Torque 1.73 in-lb (0.02 kg-m)

| PIN CONNECTIONS DC OUTPUT J2 AMP/TE CONN = 1-640445-0 | |
|---|---|
| 1 | +V1 |
| 2 | +V1 |
| 3 | +V1 |
| 4 | +V1 |
| 5 | +V1 |
| 6 | -V1 |
| 7 | -V1 |
| 8 | -V1 |
| 9 | -V1 |
| 10 | -V1 |

Mating Parts:
AMP/TE CONN = 1-640250-0
Contact 350980-1

Option '-S' screw terminals
2 x Phoenix Contact:
MKDS 1/5-3.81 or similar accepts 26-16 AWG wire

Max Torque 1.73 in-lb (0.02 kg-m)

| PIN CONNECTIONS LOGIC CONNECTOR J3 JST B10B-PHDSS (LF) (SN) | |
|---|---|
| 1 | AC OK |
| 2 | ROF (Inhibit/Enable) |
| 3 | Current Share |
| 4 | DC OK |
| 5 | Not used |
| 6 | +Sense |
| 7 | -Sense |
| 8 | Not Used |
| 9 | 5 V Standby V3 |
| 10 | 5 V Standby Return V3 |

Mating Parts:
JST Housing PHDR-10VS
Contact SPHD-001T-P0.5

| PIN CONNECTIONS FAN OUTPUT J4 Molex 22-04-1021 | |
|---|---|
| 1 | -V2 |
| 2 | +V2 |

Mating Parts:
Molex Housing 22-01-1024
Contact 08-70-0057

## Thermal Considerations (U Channel)

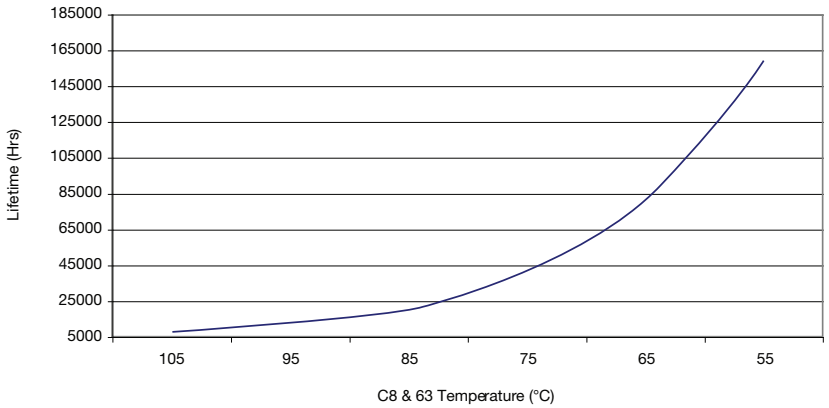
In order to ensure correct and reliable operation of the PSU in the most adverse conditions permitted in the end-use equipment, the temperature of the components listed in the table below must not be exceeded. See drawing on page 12 for component locations. Temperature should be monitored using K type thermocouples placed on the hottest part of the component (out of any direct air flow).

| Temperature Measurements (Ambient ≤ 50 °C) | |
|---|---|
| **Component** | **Max Temperature °C** |
| T3 | 90 °C |
| BR1 | 105 °C |
| D35 | 85 °C |
| L3 | 90 °C |

## Service Life

The estimated service life of the MFA350 is determined by the cooling arrangements and load conditions experienced in the end application. Due to the uncertain nature of the end application this estimated service life is based on the actual measured temperature of two key capacitors within the product when installed in the end application. The highest of the two component temperatures should be used. The graph below expresses the estimated lifetime for a given component temperature and assumes continuous operation at this temperature.

## Estimated Service Life vs Component Temperature



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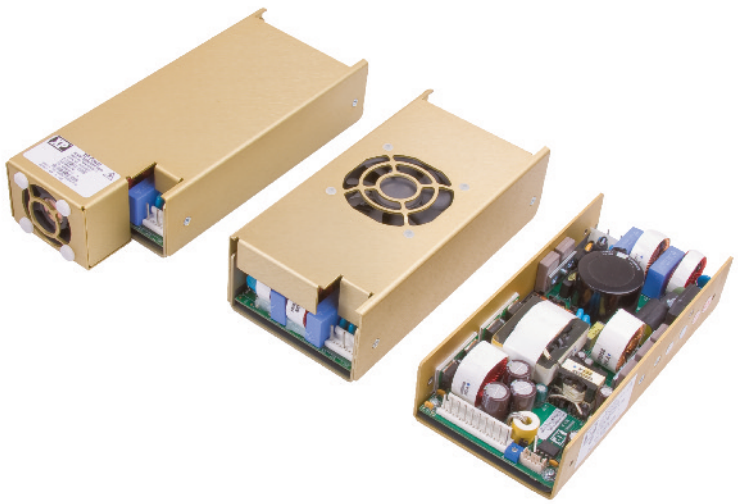

- Screw Terminals Available
- U Channel & Cover Fan Formats
- High Power Density 11.1 W/in$^3$
- 5 V Standby & 12 V Fan Outputs
- Active Current Share
- Remote On/Off
- AC & DC OK Signals
- –10 °C to +70 °C Operation
- Level B Conducted Emissions

The MFA350 has been designed with multiple mechanical options to facilitate its integration into a wide range of applications. Designers of these systems demand higher power from AC-DC units in industry-standard formats as processing power and functionality grows within tight space constraints. The MFA350 delivers over 350 W across the full universal AC input range from an industry-standard 3.2 x 6.8 inch (81.3 x 172.7 mm) footprint. It is 1.5 inches (38.1 mm) high and achieves 11.1 Watts per cubic inch power density without compromising performance or functionality.

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## Models and Ratings

| Output Voltage V1 | Maximum Output Current | Fan Output [2] V2 | Standby Supply V3 | Max Power 13 CFM Airflow | Model Number [1] |
|---|---|---|---|---|---|
| 12.0 VDC | 29.0 A | 12 V/1 A | 5 V/0.3 A | 361 W | MFA350PS12 |
| 24.0 VDC | 14.5 A | 12 V/1 A | 5 V/0.3 A | 361 W | MFA350PS24 |
| 48.0 VDC | 7.3 A | 12 V/1 A | 5 V/0.3 A | 364 W | MFA350PS48 |

**Notes**

1. Units supplied with AMP/TE connections for J1 & J2 as standard. Add suffix '-S' to model number to replace with screw terminals. Add suffix '-TF' for covered version with top fan and suffix '-EF' for covered version with end fan. Example:- MFA350PS12-STF, 12 V unit fitted with screw terminals and top fan.
2. Not available for -TF & -EF versions.

## Input Characteristics

| Characteristic | Minimum | Typical | Maximum | Units | Notes & Conditions |
|---|---|---|---|---|---|
| Input Voltage - Operating | 85 | | 264 | VAC | Derate output power 10% < 90 VAC |
| Input Frequency | 47 | 50/60 | 63 | Hz | |
| Power Factor | | >0.9 | | | EN61000-3-2 class A |
| | | | | | EN61000-3-2 class C for loads ≥20% |
| Input Current - No Load | | 100 | | mA | |
| Input Current - Full Load | | 3.6/1.8 | | A | 115/230 VAC |
| Inrush Current | | | 60 | A | 230 VAC cold start |
| Earth Leakage Current | | 1 | | mA | 230 VAC/50 Hz |
| Input Protection | T6.3A/250 V internal fuse in line | | | | |

## Output Characteristics

| Characteristic | Minimum | Typical | Maximum | Units | Notes & Conditions |
|---|---|---|---|---|---|
| Output Voltage - V1 | 12 | | 48 | VDC | See Models and Ratings table |
| Initial Set Accuracy | | | ±1 [V1], ±5 [V2] & ±3 [V3] | % | |
| Output Voltage Adjustment | ±10 | | | % | |
| Minimum Load | 0 | | | | No minimum load required |
| Start Up Delay | | 1 | 2 | s | 90 VAC full load (see fig. 1) |
| Hold Up Time | 16 | 20 | | ms | 90 VAC full load (see fig. 2 & 3) |
| Drift | | | ±0.2 | % | After 20 min warm up |
| Line Regulation | | | ±0.5[V1], ±3 [V2] & ±3 [V3] | % | |
| Load Regulation | | | ±1 [V1], ±5 [V2] & ±3 [V3] | % | 0-100% load. V2 10-100% load |
| Transient Response - V1 | | | 4 | % | Recovery within 1% in less than 500 µs for a 50-75% and 75-50% load step |
| Over/Undershoot - V1 | | | 1 | % | (see fig. 4) |
| Ripple & Noise | | | 1 [V1 & V3] & 2 [V2] | % pk-pk | 20 MHz bandwidth (see fig. 6 & 7) |
| Overvoltage Protection | 115 | | 140 | % | Vnom DC. Output 1 only, recycle input to reset |
| Overload Protection | 110 | | 140 | % I nom | Output 1 only, auto reset (see fig. 5) |
| Short Circuit Protection | | | | | Continuous |
| Temperature Coefficient | | | 0.05 | %/°C | |
| Overtemperature Protection | | 75 | | °C | Thermal sensor under PCB |

## Start Up Delay From AC Turn On

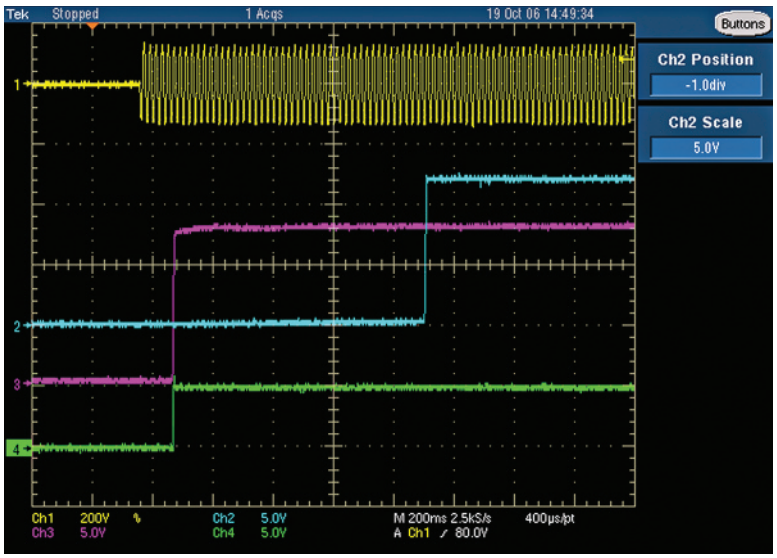



Figure 1
Example of start up all outputs

## Hold Up Time From Loss of AC

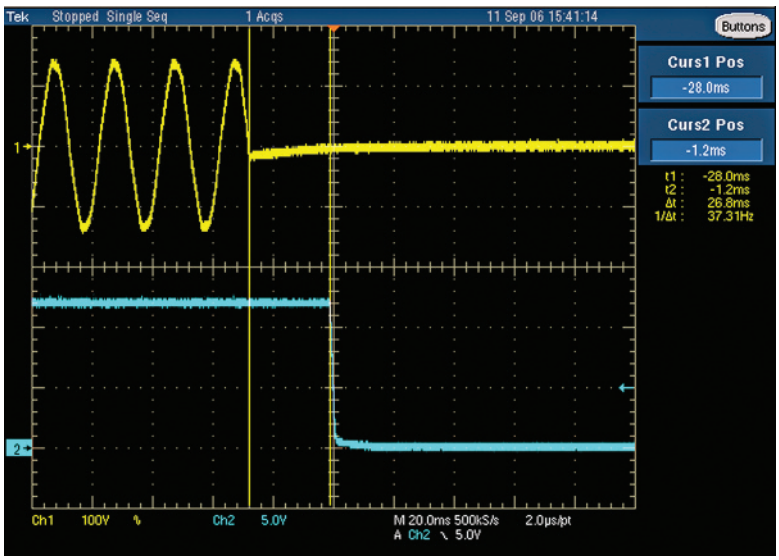



Figure 2
V1 hold up at full load with 90 VAC input (26.8 ms)

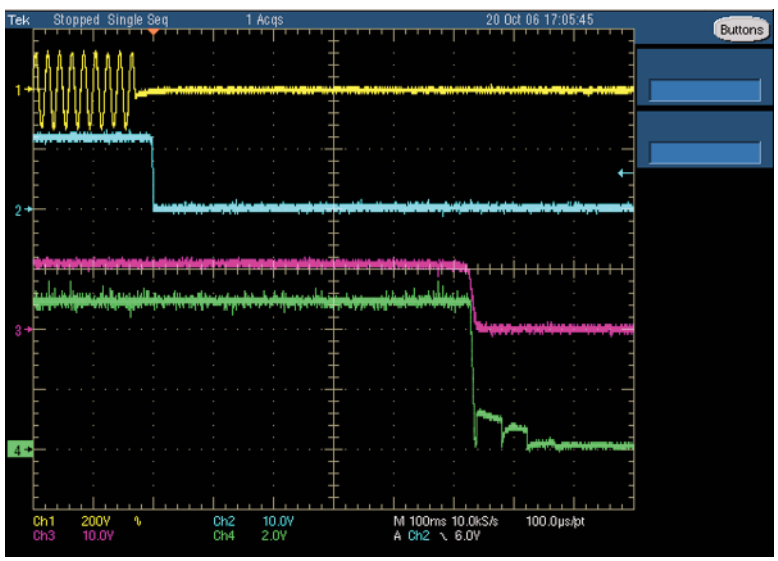



Figure 3
Full load 90 VAC input

## Output Overshoot

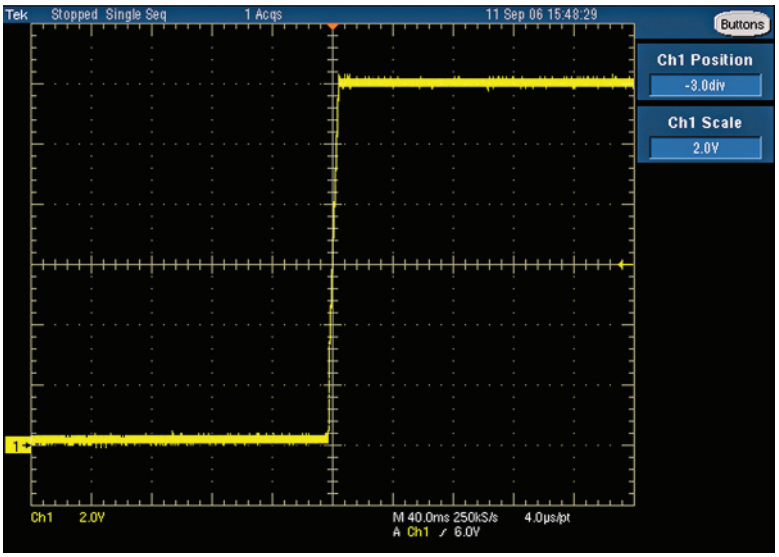



Figure 4
Typical Output Overshoot
(MFA350PS12)

## Output Overload Characteristic

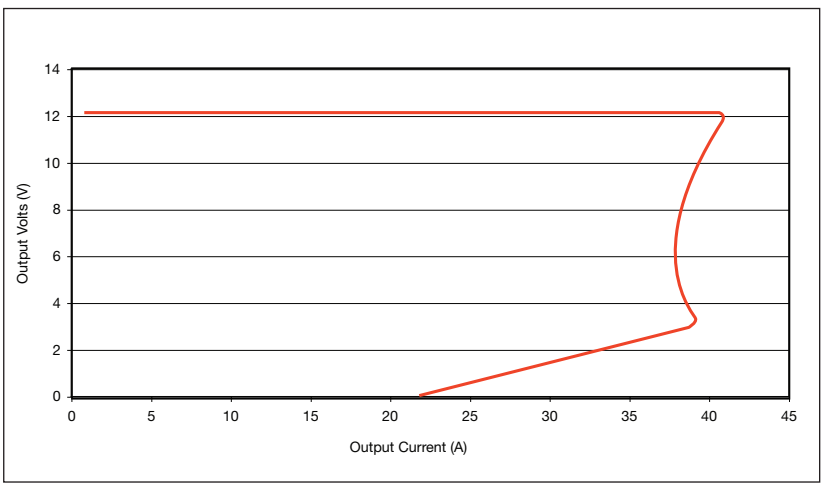



Figure 5

## Output Ripple & Noise

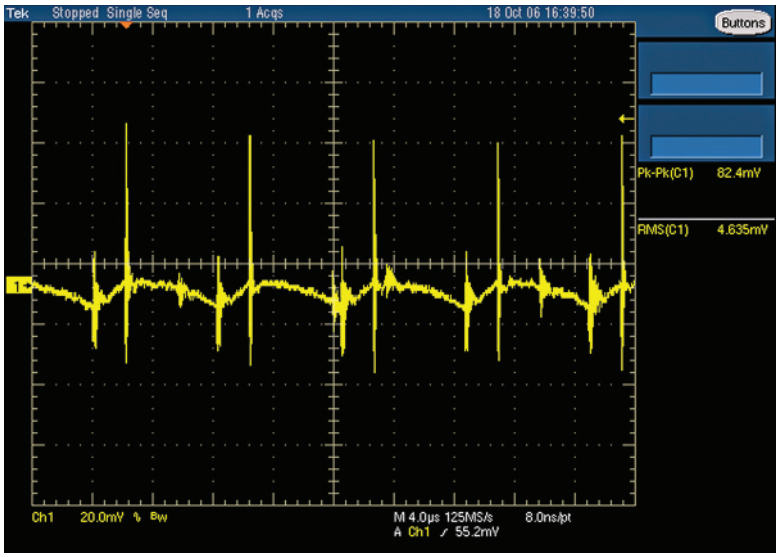



Figure 6
V1 MFA350PS12 (full load)
80 mV pk-pk ripple. 20 MHz BW

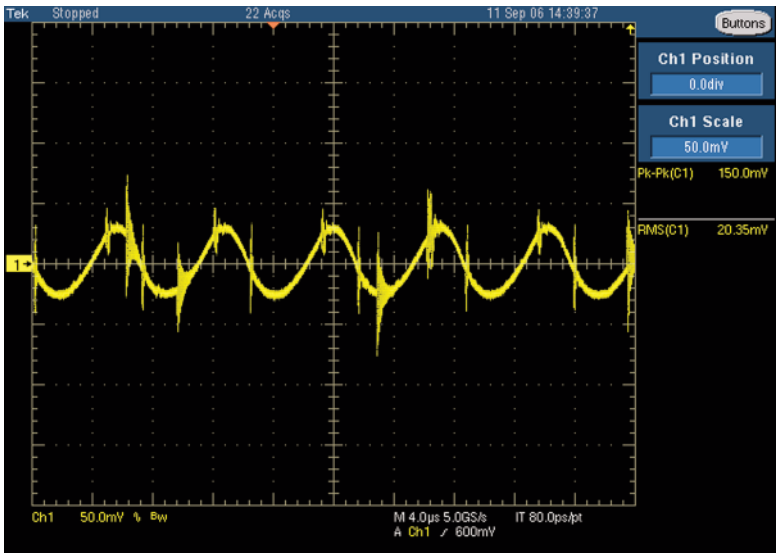



Figure 7
V1 MFA350PS48 (full load)
150 mV pk-pk ripple. 20 MHz BW

## General Specifications

| Characteristic | Minimum | Typical | Maximum | Units | Notes & Conditions |
|---|---|---|---|---|---|
| Efficiency | | 86 | | % | Full load (see fig. 8 & 9) |
| Isolation: Input to Output | 3000 | | | VAC | |
| Input to Ground | 1500 | | | VAC | |
| Output to Ground | 100 | | | VDC | |
| Switching Frequency: PFC | | 62 | | kHz | |
| Main Converter | | 157 | | kHz | |
| Power Density | | | 11.1 | W/in$^3$ | |
| Mean Time Between Failure | | 460 | | kHrs | MIL-HDBK-217F, Notice 2 +25 °C GB |
| Weight | | | 1.35 (612) | lb (g) | |

| Characteristic | Notes & Conditions |
|---|---|
| Signals | |
| AC OK/Powerfail | Open collector referenced to output 0V, transistor normally off when AC is good (see fig. 10, 16, 17 & 18)<br>AC OK: Provides ≥ 5 ms warning of loss of output from AC failure |
| DC OK | Open collector referenced to 0 V, transistor normally off when DC is good (see fig. 11, 19 & 20).<br>Provides warning of DC output failure |
| Remote On/Off (Inhibit/Enable) | Remotely switches outputs off, can also be configured as enable (see fig.12) |
| Current Share | Up to 3 supplies can be connected in parallel. Output current is shared within 10% at full load. Derate overall output current to 90% when used in parallel (see fig.13, 14 & 15) |
| Remote Sense | Compensates for 0.5 V total voltage drop |

## Efficiency Versus Load

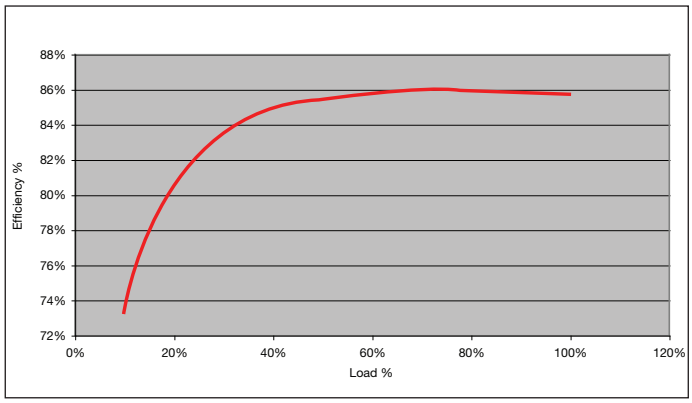



**Figure 8**
**MFA350PS12 @ 230 VAC**

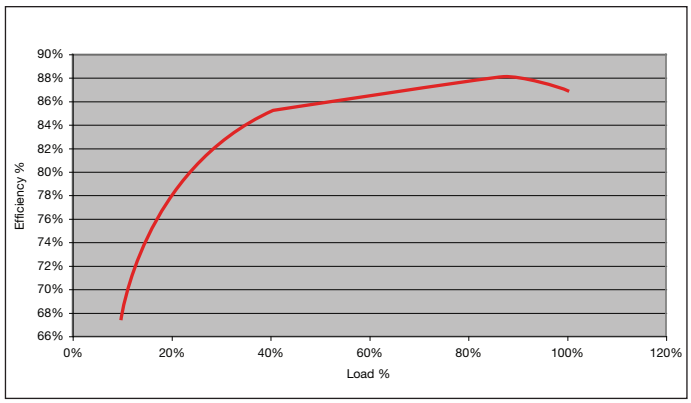



**Figure 9**
**MFA350PS48 @ 230 VAC**

# Signals

## AC OK/Power Fail

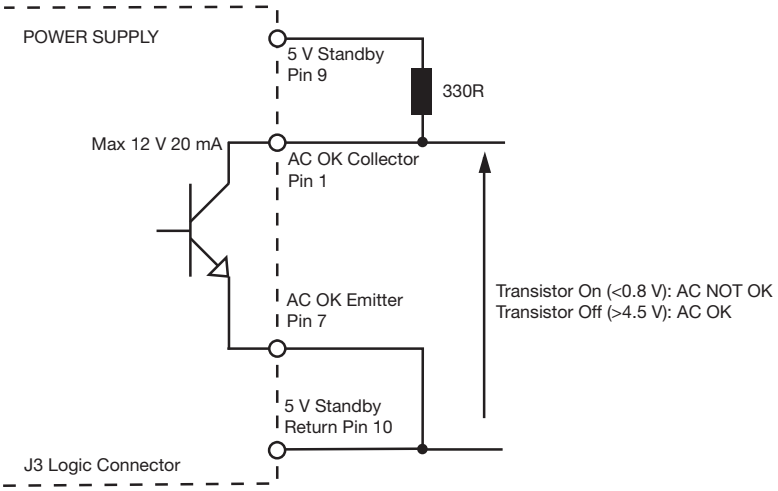



Figure 10

## DC OK

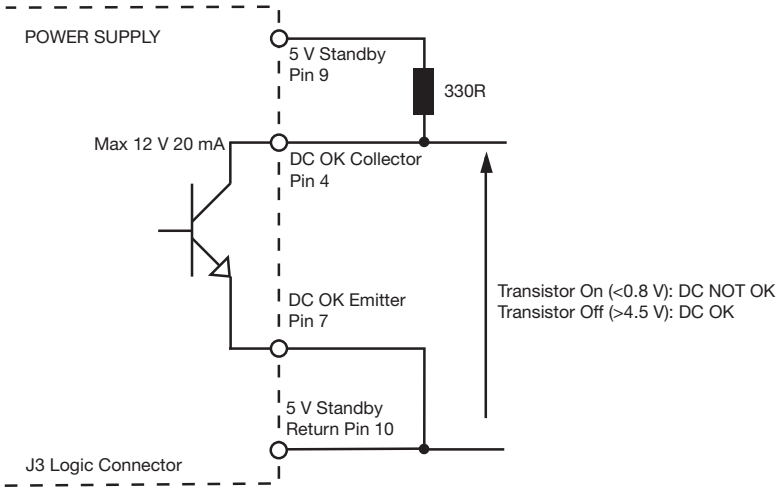



Figure 11

## Remote On/Off (Inhibit)

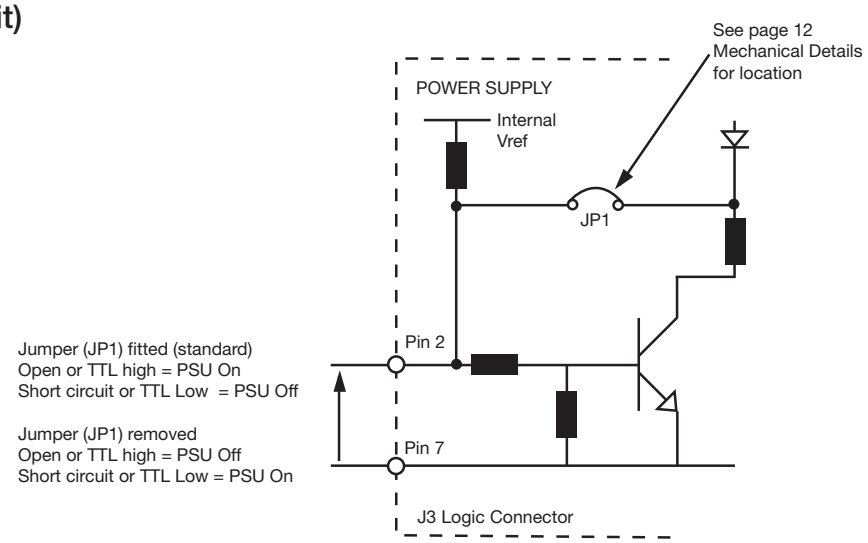



Figure 12

# Signals

## Parallel Load & Current Share Connections

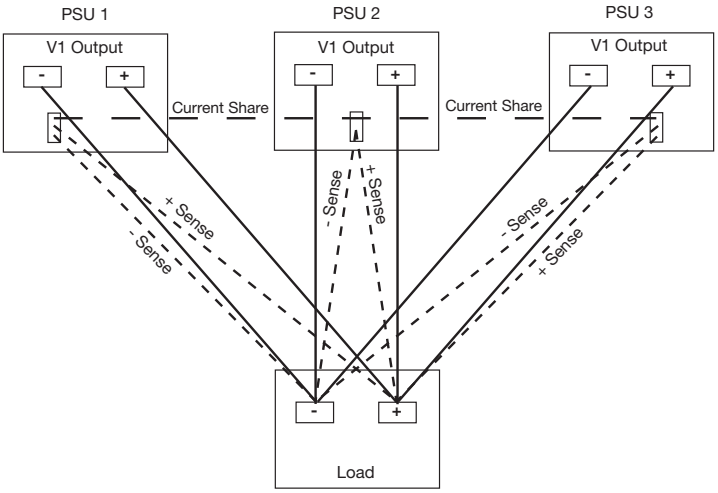



Figure 13

## Parallel AC OK Connection (DC OK follows same format)

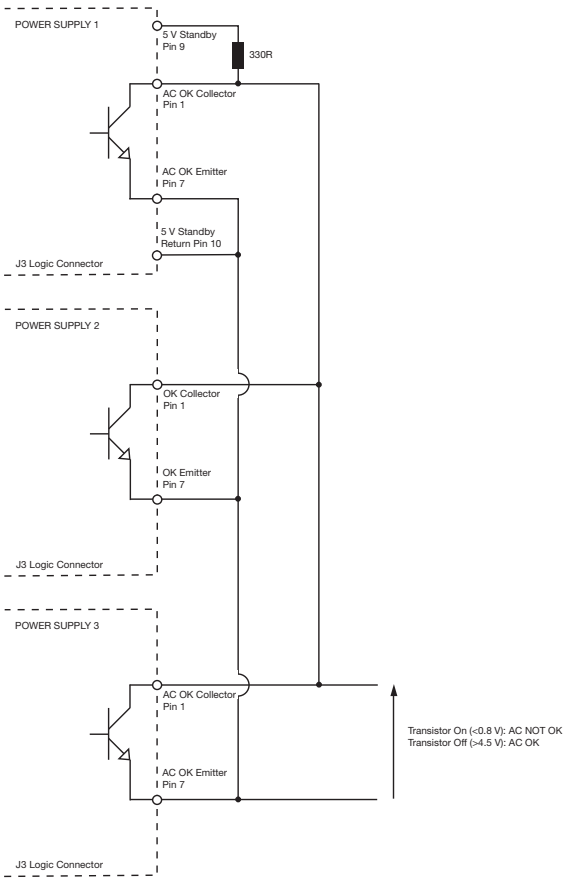



Figure 14

## Parallel Remote On/Off (Inhibit) Connection

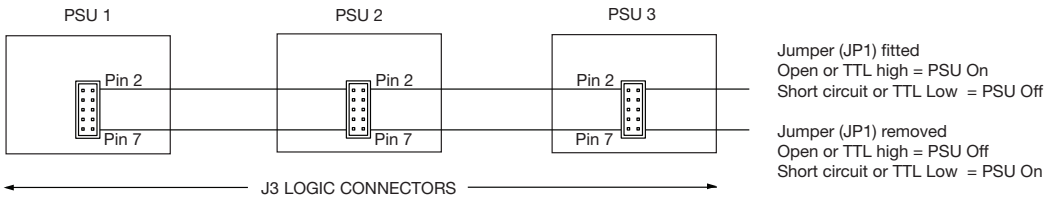



Figure 15

Jumper (JP1) fitted
Open or TTL high = PSU On
Short circuit or TTL Low = PSU Off

Jumper (JP1) removed
Open or TTL high = PSU Off
Short circuit or TTL Low = PSU On

## Signals

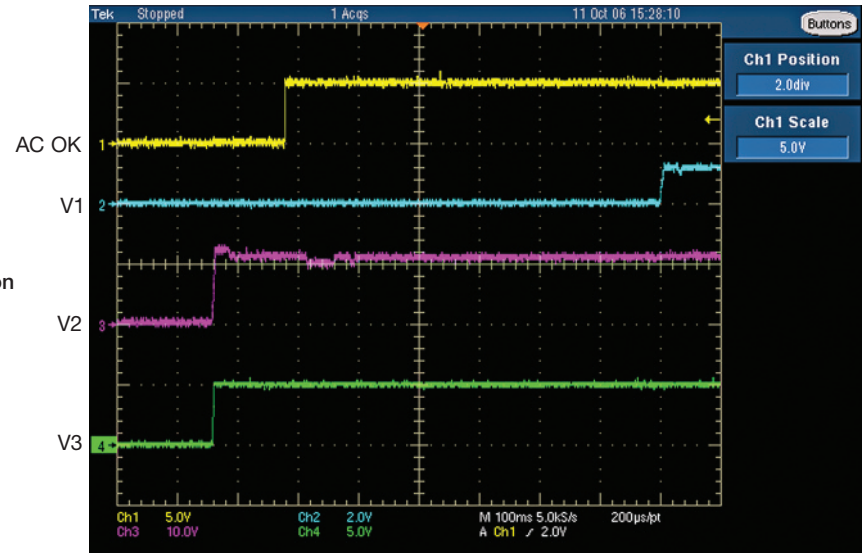



Figure 16
AC OK signal at AC switch on

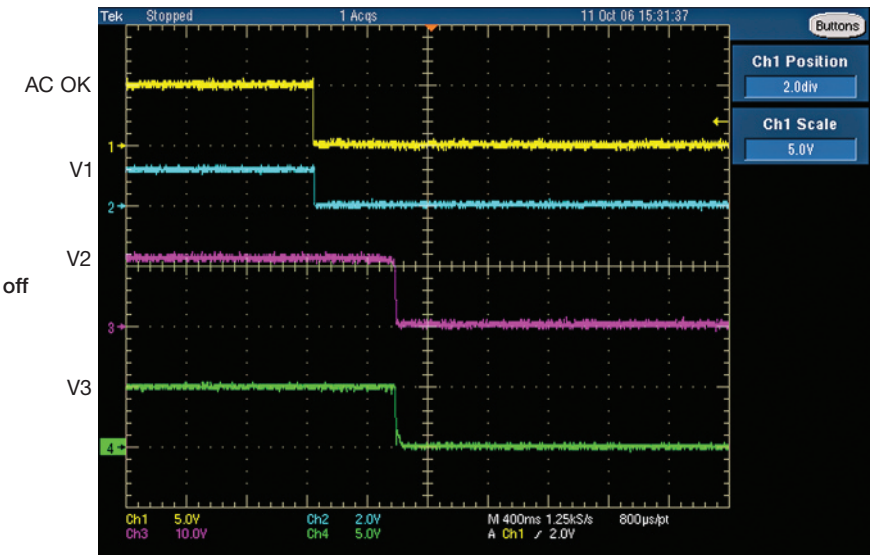



Figure 17
AC OK signal at AC switch off

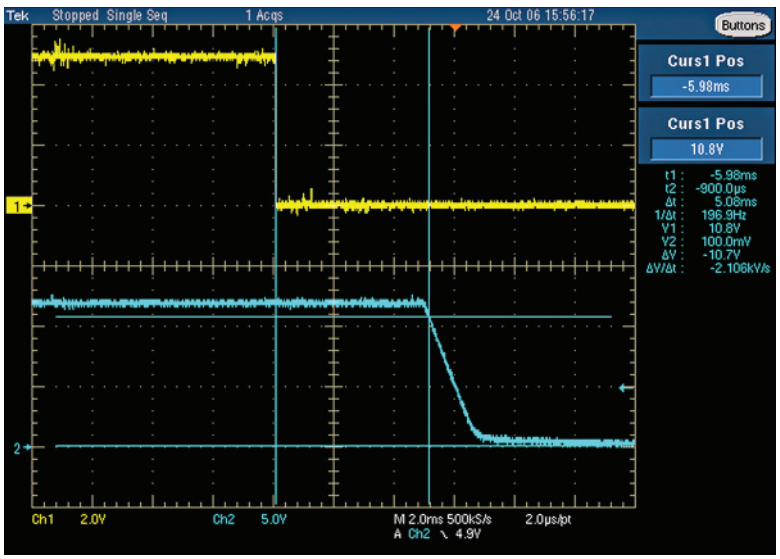



Figure 18
V1 warning time at AC OK signal
90 VAC full load (MFA350PS12)

## Signals

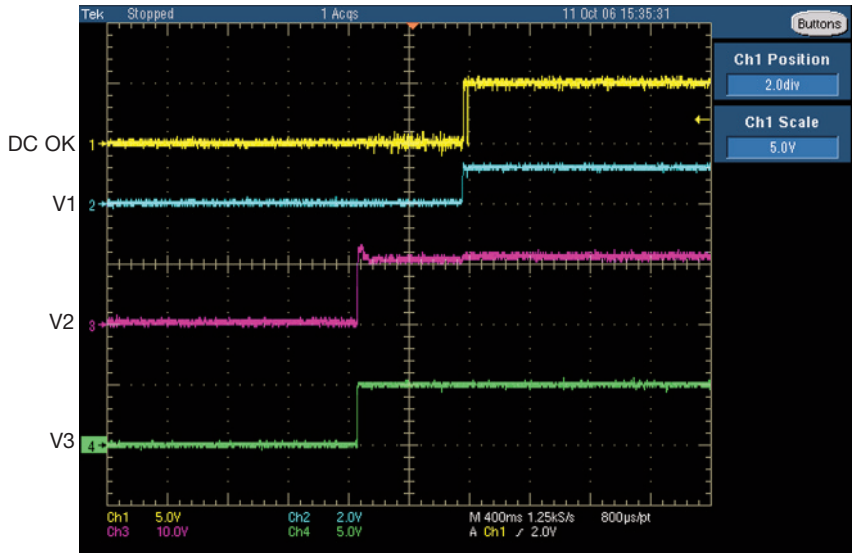



Figure 19
DC OK at AC switch on

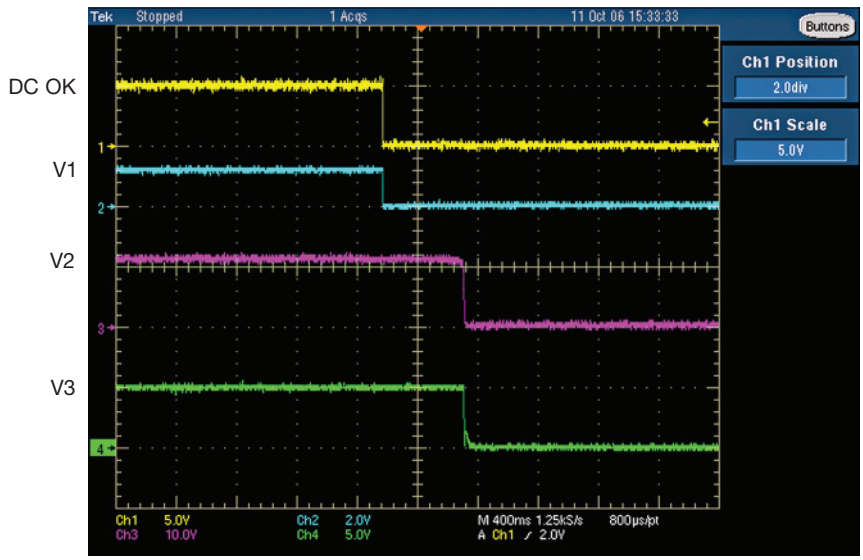



Figure 20
DC OK at AC switch off

## Environmental

| Characteristic | Minimum | Typical | Maximum | Units | Notes & Conditions |
|---|---|---|---|---|---|
| Operating Temperature | -10 | | +70 | °C | Derate linearly from +50 °C at 2.5%/°C to 50% at 70 °C when forced cooled. See Thermal Considerations. |
| Storage Temperature | -20 | | +85 | °C | |
| Cooling | 13 | | | CFM | U Channel Version. -TF & -EF models have integral fan. See Thermal Considerations for U Channel. |
| Humidity | 5 | | 95 | %RH | Non-condensing |
| Operating Altitude | | | 3000 | m | |
| Shock | | | | | 3 x 30 g/11 ms shocks in both +ve & -ve directions along the 3 orthogonal axis, total 18 shocks. |
| Vibration | | | | | Single axis 10-500 Hz at 2 g x 10 sweeps |

## Electromagnetic Compatibility - Immunity

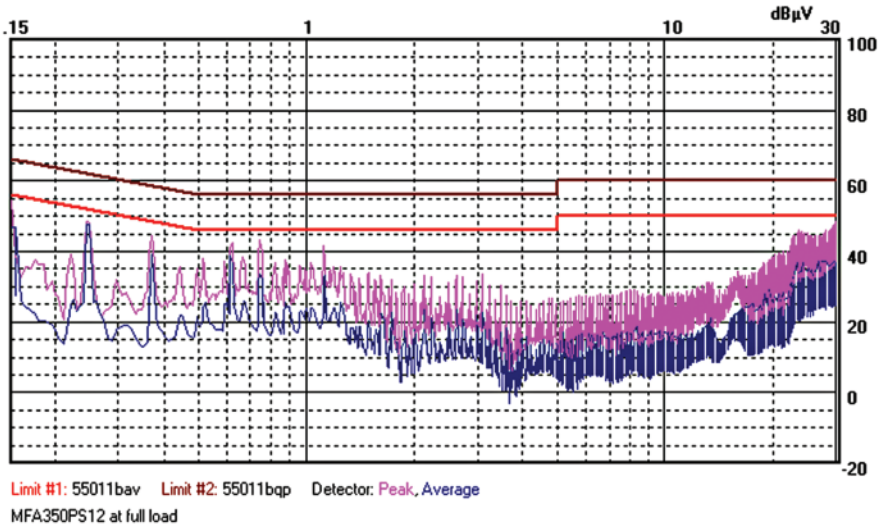
| Phenomenon | Standard | Test Level | Criteria | Notes & Conditions |
|---|---|---|---|---|
| Harmonic Current | EN61000-3-2 | Class A | | |
| | | Class C | | For loads ≥20% |
| EFT | EN61000-4-4 | 3 | A | |
| Surges | EN61000-4-5 | Installation Class 3 | A | |
| Conducted | EN61000-4-6 | 10 V rms | A | |
| Dips and Interruptions | EN61000-4-11 | 30% 10 ms | A | |
| | | 60% 100 ms | B | |
| | | 100% 5000 ms | B | |

## Electromagnetic Compatibility - Emissions

| Phenomenon | Standard | Test Level | Criteria | Notes & Conditions |
|---|---|---|---|---|
| Conducted | EN55032 | Class B | | See fig. 21 |
| Radiated | EN55032 | Class A | | |
| Voltage Fluctuations | EN61000-3-3 | | | |

## Typical EMC Plot

Figure 21

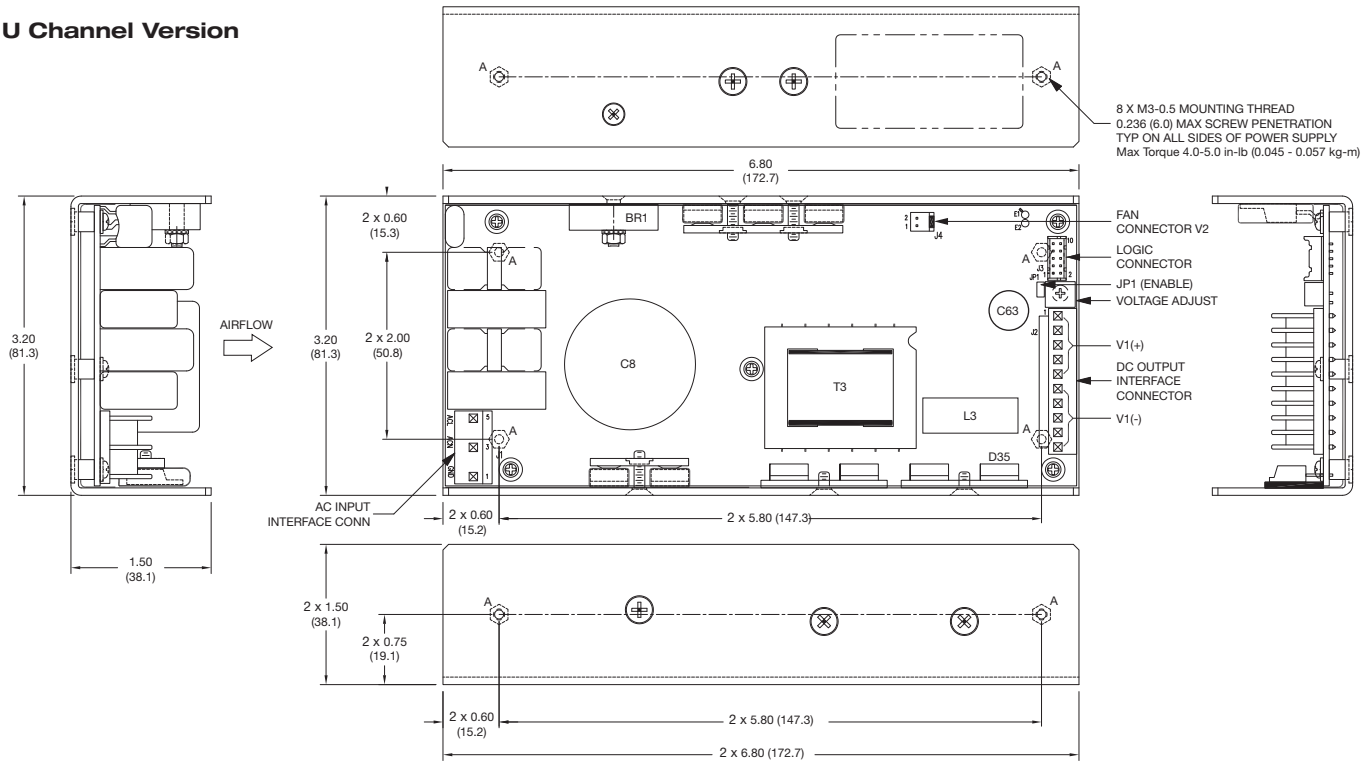



## Safety Agency Approvals

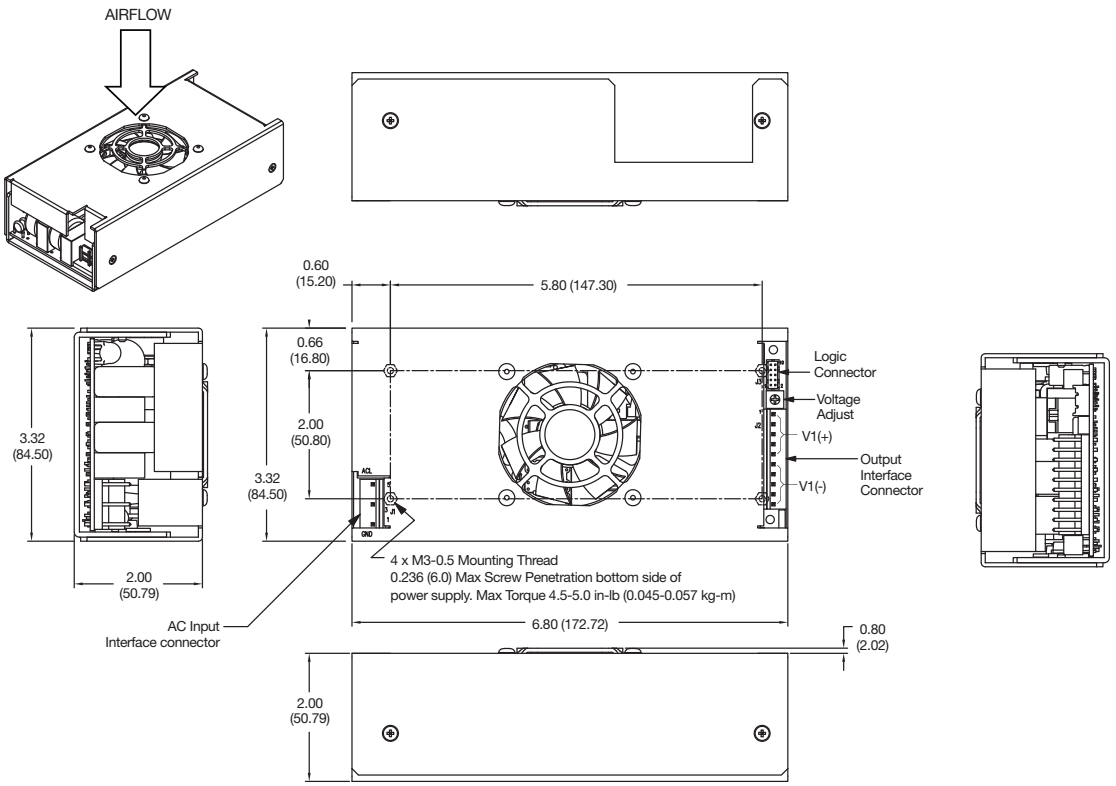
| Safety Agency | Safety Standard | Category |
|---|---|---|
| CB Report | IEC60950-1:2005 Ed 2 / IEC62368-1:2014 | Information Technology |
| UL/CSA | UL 62368-1 / CAN/CSA C22.2 No. 62368-1-14 | Information Technology |
| TUV | EN62368-1:2014/A11:2017 | Information Technology |
| CE | LVD | |

# Mechanical Details

## U Channel Version




## Top Fan Version (Suffix TF)

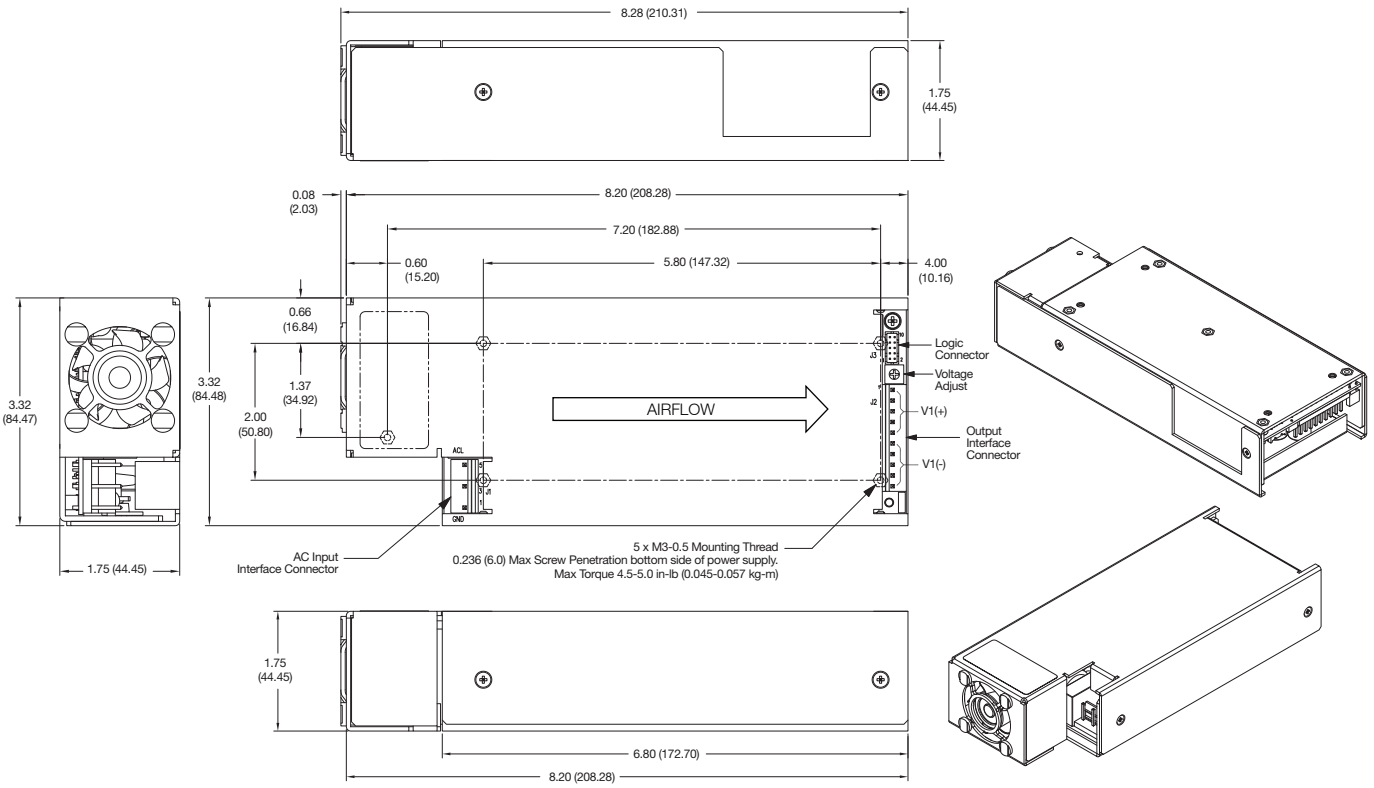



## Notes

1. All dimensions in inches (mm).
2. Tolerance: X.XX = ±0.02 (±0.50), X.XXX = ±0.01 (±0.25)

# Mechanical Details

### End Fan Version (Suffix EF)




**Notes**
1. All dimensions in inches (mm).
2. Tolerance: X.XX = ±0.02 (±0.50), X.XXX = ±0.01 (±0.25)

# Mechanical Details - Pin Connections

| PIN CONNECTIONS AC INPUT J1 AMP/TE CONN = 640445-5 | |
|---|---|
| 1 | GND |
| 3 | Neutral |
| 5 | Line |

Mating Parts:
AMP/TE CONN Housing = 640250-5
Contact 350980-1

Option '-S' screw terminals
Phoenix Contact:
MKDS 1/5-3.81 or similar accepts 26-16 AWG wire (contacts 2 & 4 removed)

Max Torque 1.73 in-lb (0.02 kg-m)

| PIN CONNECTIONS DC OUTPUT J2 AMP/TE CONN = 1-640445-0 | |
|---|---|
| 1 | +V1 |
| 2 | +V1 |
| 3 | +V1 |
| 4 | +V1 |
| 5 | +V1 |
| 6 | -V1 |
| 7 | -V1 |
| 8 | -V1 |
| 9 | -V1 |
| 10 | -V1 |

Mating Parts:
AMP/TE CONN = 1-640250-0
Contact 350980-1

Option '-S' screw terminals
2 x Phoenix Contact:
MKDS 1/5-3.81 or similar accepts 26-16 AWG wire

Max Torque 1.73 in-lb (0.02 kg-m)

| PIN CONNECTIONS LOGIC CONNECTOR J3 JST B10B-PHDSS (LF) (SN) | |
|---|---|
| 1 | AC OK |
| 2 | ROF (Inhibit/Enable) |
| 3 | Current Share |
| 4 | DC OK |
| 5 | Not used |
| 6 | +Sense |
| 7 | -Sense |
| 8 | Not Used |
| 9 | 5 V Standby V3 |
| 10 | 5 V Standby Return V3 |

Mating Parts:
JST Housing PHDR-10VS
Contact SPHD-001T-P0.5

| PIN CONNECTIONS FAN OUTPUT J4 Molex 22-04-1021 | |
|---|---|
| 1 | -V2 |
| 2 | +V2 |

Mating Parts:
Molex Housing 22-01-1024
Contact 08-70-0057

## Thermal Considerations (U Channel)

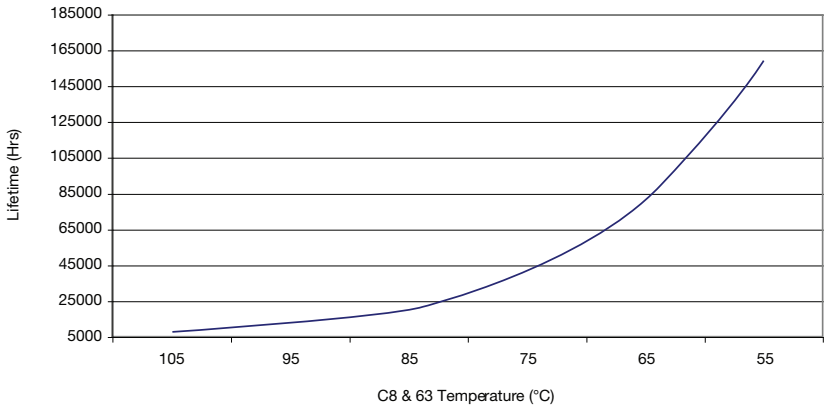
In order to ensure correct and reliable operation of the PSU in the most adverse conditions permitted in the end-use equipment, the temperature of the components listed in the table below must not be exceeded. See drawing on page 12 for component locations. Temperature should be monitored using K type thermocouples placed on the hottest part of the component (out of any direct air flow).

| Temperature Measurements (Ambient ≤ 50 °C) | |
|---|---|
| **Component** | **Max Temperature °C** |
| T3 | 90 °C |
| BR1 | 105 °C |
| D35 | 85 °C |
| L3 | 90 °C |

## Service Life

The estimated service life of the MFA350 is determined by the cooling arrangements and load conditions experienced in the end application. Due to the uncertain nature of the end application this estimated service life is based on the actual measured temperature of two key capacitors within the product when installed in the end application. The highest of the two component temperatures should be used. The graph below expresses the estimated lifetime for a given component temperature and assumes continuous operation at this temperature.

## Estimated Service Life vs Component Temperature



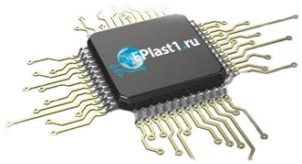
Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits,General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.




**Как с нами связаться**

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**Электронная почта:** org@eplast1.ru
**Адрес:** 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.