



P-DUKE POWER

MAF300 Series

2 X 4 Inch AC-DC POWER SUPPLIES
Up to 300 Watts

5
YEARS
WARRANTY

ROHS
COMPLIANT

REACH
COMPLIANT

+85°C
-40°C
AMBIENT TEMP.



Medical



Automation



Datacom



IPC



Industry



Measurement



Telecom



Automobile



Boat



Charger



PV



Railway

UL US CB CE UK CA



| | | | | | | | | | | | |
|-----------------------|----------------------|--|----------------------------------|---|----------------------------------|--------------------------------|---|-----------------------------------|--------------------------------|--|-----------------------------|
| 2 x MOPP | PEAK POWER | 4000 VAC Reinforced Insulation | ADJ. Output Voltage | Internal EN55032 Class B Filter | LOW Leakage Current | LOW Standby Power | Operating Altitude 5000 meter | Protection Class I Class II | FAN Speed Control | REMOTE ON OFF | POWER GOOD |
| OCP | OTP | OVP | SCP | | | | | | | | |

PART NUMBER STRUCTURE

| MAF300 | U | S | 12 | A | - M | | F3 | |
|-------------|-----------------------|-----------------|--|---------------------------|-----|---|--|---|
| Series Name | Universal Input (VAC) | Output Quantity | Output Voltage (VDC) | Protection Type | | Package Options | Fan Control Options | Electrical Options |
| | 85-264 | Single | 12:12V 15:15V 18:18V 24:24V 28:28V 36:36V 48:48V 53:53V | A: CLASS I B: CLASS II | | <input type="checkbox"/> Open type <input checked="" type="checkbox"/> E1: Enclosed type <input checked="" type="checkbox"/> U2: Base plate type <input checked="" type="checkbox"/> D1: Din rail type | F3: No External FAN with fixed fan speed control F4: No External FAN with variable fan speed control For E1/D1 Type Only F1: External FAN with fixed fan speed control F2: External FAN with variable fan speed control | <input type="checkbox"/> Standby power <input type="checkbox"/> Remote control <input type="checkbox"/> Power Good signal N: None |

TECHNICAL SPECIFICATION All specifications are typical at 230VAC input, full load and 25°C unless otherwise noted

| Model Number | Input Range | Output Voltage | Output Current | | Input Power @ No Load | Efficiency | Maximum Capacitor Load |
|-----------------|-------------|----------------|--------------------|--------------------------------|-----------------------|------------|------------------------|
| | | | Natural Convection | Forced Air Cooling With 21 CFM | | | |
| | VAC | VDC | A | A | W | % | uF |
| MAF300US12A-MF3 | 85 ~ 264 | 12 | 15 | 25 | 0.3 | 91 | 20000 |
| MAF300US15A-MF3 | 85 ~ 264 | 15 | 12 | 20 | 0.3 | 92 | 12000 |
| MAF300US18A-MF3 | 85 ~ 264 | 18 | 10 | 16.66 | 0.3 | 93 | 9000 |
| MAF300US24A-MF3 | 85 ~ 264 | 24 | 7.5 | 12.5 | 0.3 | 93 | 2400 |
| MAF300US28A-MF3 | 85 ~ 264 | 28 | 6.42 | 10.71 | 0.3 | 93 | 2000 |
| MAF300US36A-MF3 | 85 ~ 264 | 36 | 5 | 8.33 | 0.3 | 93 | 1000 |
| MAF300US48A-MF3 | 85 ~ 264 | 48 | 3.75 | 6.25 | 0.3 | 93 | 650 |
| MAF300US53A-MF3 | 85 ~ 264 | 53 | 3.4 | 5.67 | 0.3 | 93 | 470 |

| INPUT SPECIFICATIONS | | | | | | |
|-------------------------------|----------------------|--------------------|------|------|--------------|-------|
| Parameter | Conditions | | Min. | Typ. | Max. | Unit |
| Operating input voltage range | AC input | | 85 | | 264 | VAC |
| | DC input | | 120 | | 370 | VDC |
| Input frequency | AC input | | 47 | | 63 | Hz |
| Input current | 100VAC and Full Load | | | | 3.9 | A |
| | 240VAC and Full Load | | | | 1.6 | |
| No load input power | 230VAC | Option-F(with Fan) | | 3 | | Watts |
| | | Others | | 0.3 | | |
| Leakage current | 264VAC | | | | 100 | μA |
| Power Factor | 230VAC and Full Load | | 0.9 | | | |
| Start up time | | | | | 2000 | ms |
| Rise time | | | | 30 | | ms |
| Hold up time | 115VAC and 225W | | 10 | | | ms |
| Input inrush current | 230VAC | Cold start | | | 70 | A |
| Input protection | Internal fuse | | | | T5.0A/250VAC | |

| OUTPUT SPECIFICATIONS | | | | | | |
|-------------------------------|---|--------------------------|---------------------------------|------|-------|----------------|
| Parameter | Conditions | | Min. | Typ. | Max. | Unit |
| Output power | Forced air cooling | | | | 300 | Watts |
| | Natural convection | | | | 180 | |
| Output peak power | Peak power | | | | 360 | Watts |
| | Peak power time | | | 5 | | s |
| | Peak power duty | | | 20 | | % |
| | Average operation power (% of Full Load) | | | 50 | | % |
| Initial set voltage accuracy | 230VAC and Full Load | | -1.0 | | +1.0 | % |
| Line regulation | Low Line to High Line at Full Load | | -0.2 | | +0.2 | % |
| Load regulation | No Load to Full Load | | -0.5 | | +0.5 | % |
| | 10% Load to 90% Load | | -0.4 | | +0.4 | |
| Voltage adjustability | Maximum output deviation is inclusive of remote sense | | -10 | | +10 | % |
| Minimum load | | | | 0 | | % |
| Ripple and noise | Measured by 20MHz bandwidth | | | | | mVp-p |
| | With a 1μF/100V 1206 X7R MLCC | | | | | |
| | 12Vout | | | 120 | | |
| | 15Vout | | | 150 | | |
| | 18Vout | | | 180 | | |
| | 24Vout | | | 240 | | |
| | 28Vout | | | 280 | | |
| | 36Vout | | | 360 | | |
| 48Vout | | | 480 | | | |
| 53Vout | | | 530 | | | |
| Temperature coefficient | | | -0.02 | | +0.02 | %/°C |
| Transient response | Load step from 50 ~ 75% change at 2.5A/μs | Peak deviation | | 3 | | % Vout |
| | Recovery within 1% Vout | Recovery time | | 600 | | μs |
| Over voltage protection | % of Vout(nom); Latch mode | | 115 | | 135 | % |
| Over load protection | % of Iout rated; Hiccup mode | | | 150 | | % |
| Short circuit protection | | | Continuous, automatics recovery | | | |
| Main output remote control | Positive Logic Referenced to "-Control" *Standby power always present | Main power ON | Open or 3 ~ 12 VDC | | | |
| | | Main power OFF | Short or 0 ~ 1.2VDC | | | |
| Main output Power Good signal | Referenced to "GND" | Input current of Control | -0.5 | | 1 | mA |
| | | Power good | | | | Low |
| | | Power off | | | | Open collector |
| Standby power supply | Standby and fan power supply total power 8W | 5Vout | | | 1000 | mA |
| Fan power supply | | 12Vout | | | 500 | mA |

GENERAL SPECIFICATIONS

| Parameter | Conditions | Min. | Typ. | Max. | Unit |
|----------------------|--|--------------|------|------|--|
| Isolation voltage | 1 minute (2MOPP insulation) Input to Output Input (Output) to F.G. | 4000 2500 | | | VAC |
| Isolation resistance | 500VDC | 0.1 | | | GΩ |
| Switching frequency | 230VAC, Full load | | 140 | | kHz |
| Safety approvals | IEC/ EN/ ANSI/AAMI ES 60601-1 IEC/ EN/ UL 62368-1 | | | | UL:E360199 UL:E193009 CB:UL(Demko) |
| Weight | Open type Enclosed type Base plate type Din rail type | | | | 210g (7.40oz) 318g (11.21oz) 260g (9.17oz) 340g (11.99oz) |
| MTBF | MIL-HDBK-217F Ta=25°C, Full load | | | | 1.056 x 10 ⁶ hrs |

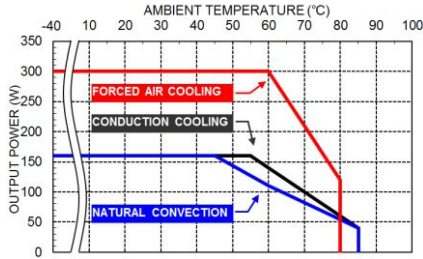
ENVIRONMENTAL SPECIFICATIONS

| Parameter | Conditions | Min. | Typ. | Max. | Unit |
|-------------------------------|---|------------|------|------------|---------------|
| Operating ambient temperature | With derating Option -F (With Fan) Others | -40 -40 | | +80 +85 | °C |
| Storage temperature range | Option -F (With Fan) Others | -40 -40 | | +80 +85 | °C |
| Over temperature protection | Internal thermistor ; Hiccup mode | | 125 | | °C |
| Operating altitude | | | | 5000 | m |
| Shock | | | | | IEC60068-2-27 |
| Vibration | | | | | IEC60068-2-6 |
| Relative humidity | Non-condensing | | | | 5% to 95% RH |

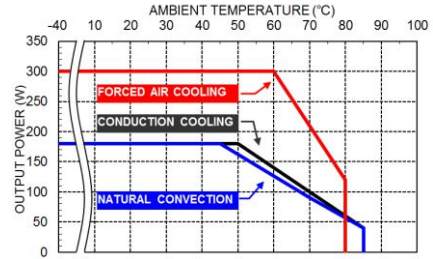
EMC SPECIFICATIONS

| Parameter | Conditions | Level |
|--------------------------------|--|---|
| EMI | EN55011, EN55032, EN60601-1-2 and FCC Part 18 / 15 | Conducted Radiated Class B Class A |
| Harmonic currents | EN61000-3-2 Full Load | Class A |
| Voltage flicker | EN61000-3-3 | |
| EMS | EN55035 and EN60601-1-2 | |
| ESD | EN61000-4-2 | Perf. Criteria A |
| Radiated immunity | EN61000-4-3 20 V/m | Perf. Criteria A |
| Fast transient | EN61000-4-4 ± 2kV | Perf. Criteria A |
| Surge | EN61000-4-5 DM ± 1kV and CM ± 2kV | Perf. Criteria A |
| Conducted immunity | EN61000-4-6 20 Vr.m.s | Perf. Criteria A |
| Power frequency magnetic field | EN61000-4-8 30 A/m | Perf. Criteria A |
| Dip and interruptions | EN61000-4-11 | |

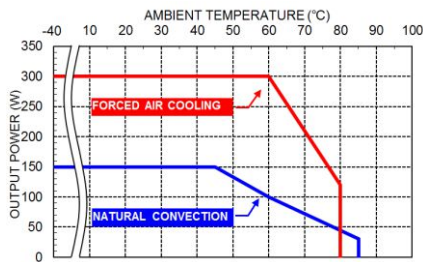
CHARACTERISTIC CURVE



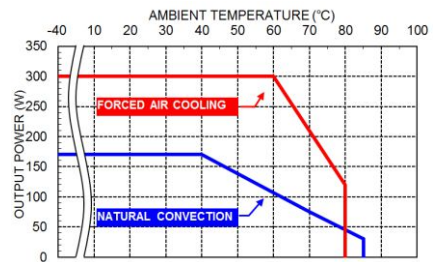
Derating Curve vs. Ambient Temperature
Vin=115VAC Open type



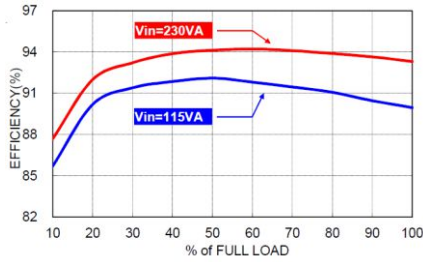
Derating Curve vs. Ambient Temperature
Vin=230VAC Open type



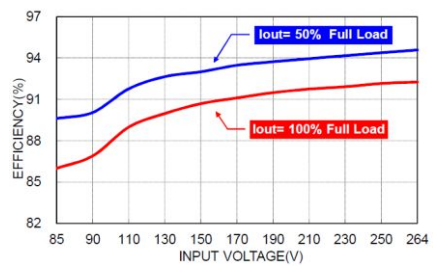
Derating Curve vs. Ambient Temperature
Vin=115VAC Enclosed type / Din rail type



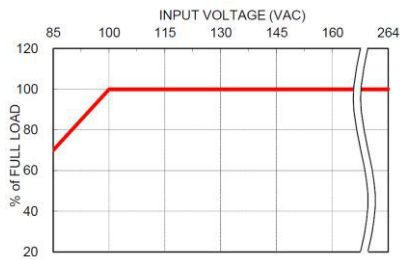
Derating Curve vs. Ambient Temperature
Vin=230VAC Enclosed type / Din rail type



Efficiency vs. Output Load
MAF300US24 with Forced air cooling



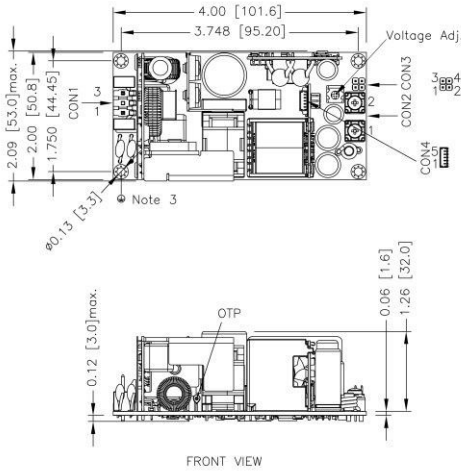
Efficiency vs. Input Voltage
MAF300US24 with Forced air cooling



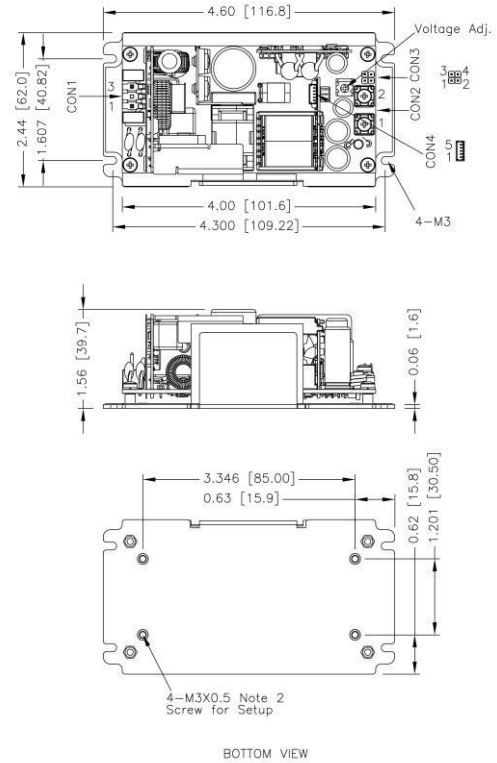
Derating Curve vs. Input Voltage
MAF300

MECHANICAL DRAWING

Open type



Base plate type



1.All dimensions in inch [mm]

Tolerance : x.xx±0.02 [x.x±0.5]
x.xxx±0.01 [x.xx±0.25]

2.The CON2 locked torque: MAX 16.8Kgf.cm/1.65N.m

3.The screws holes can be considered as PE connection for CLASS I application.

1.All dimensions in inch [mm]

Tolerance : x.xx±0.02 [x.x±0.5]
x.xxx±0.01 [x.xx±0.25]

2.The screw locked torque: MAX 5Kgf.cm/0.49N.m

3.The CON2 locked torque: MAX 16.8Kgf.cm/1.65N.m

CONNECTORS CONNECTIONS

| CON1 – Input Connector | |
|------------------------|---------|
| Pin 3 | Line |
| Pin 1 | Neutral |

Mates with
Molex housing :
09-93-0300, 09-50-3031,
09-50-8031
Molex crimp terminals : **2478**

| CON2 – Output Connector | |
|-------------------------|-------|
| Pin 1 | +Vout |
| Pin 2 | -Vout |

Mates with
KST ring terminal : **RVS2-3.7**

| CON3 – Aux Connector | |
|----------------------|----------|
| Pin 1 | +Fan |
| Pin 2 | -Fan |
| Pin 3 | +V Sense |
| Pin 4 | -V Sense |

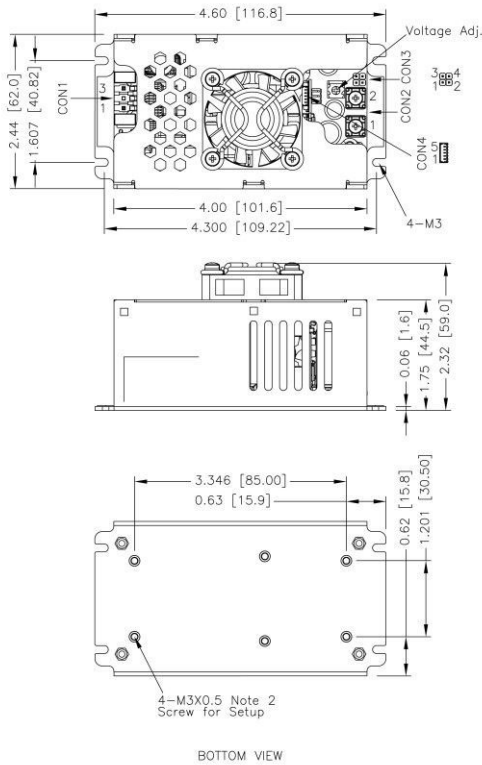
Mates with
Molex housing : **90143-0004**
Molex crimp terminals : **90119**

| CON4 – Aux Connector | |
|----------------------|----------|
| Pin 1 | +Standby |
| Pin 2 | -Standby |
| Pin 3 | +PG |
| Pin 4 | -Control |
| Pin 5 | +Control |

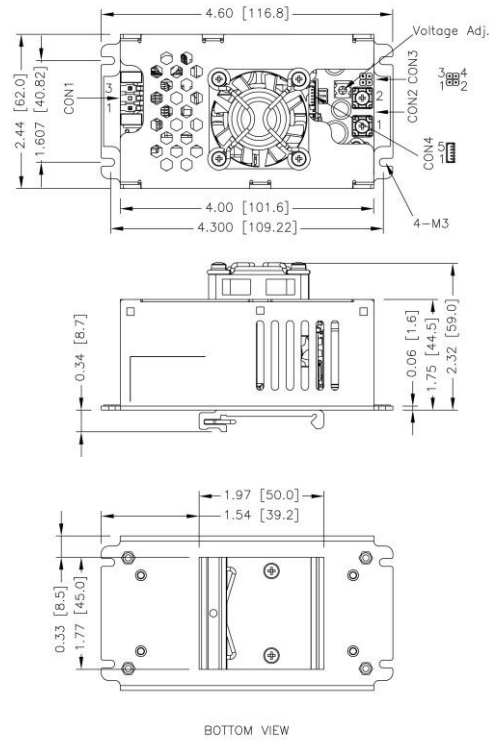
Mates with
Molex housing : **51021-0500**
Molex crimp terminals :
50058,50079

MECHANICAL DRAWING

Enclosed type with FAN



Din rail type with FAN



1.All dimensions in inch [mm]

Tolerance : $x.xx \pm 0.02$ [$x.x \pm 0.5$]
 $x.xxx \pm 0.01$ [$x.xx \pm 0.25$]

2.The screw locked torque: MAX 5Kgf.cm/0.49N.m

3.The CON2 locked torque: MAX 16.8Kgf.cm/1.65N.m

1.All dimensions in inch [mm]

Tolerance : $x.xx \pm 0.02$ [$x.x \pm 0.5$]
 $x.xxx \pm 0.01$ [$x.xx \pm 0.25$]

2.The CON2 locked torque: MAX 16.8Kgf.cm/1.65N.m

CONNECTORS CONNECTIONS

| CON1 – Input Connector | |
|------------------------|---------|
| Pin 3 | Line |
| Pin 1 | Neutral |

Mates with
Molex housing :
09-93-0300, 09-50-3031,
09-50-8031
Molex crimp terminals : **2478**

| CON2 – Output Connector | |
|-------------------------|-------|
| Pin 1 | +Vout |
| Pin 2 | -Vout |

Mates with
KST ring terminal : **RVS2-3.7**

| CON3 – Aux Connector | |
|----------------------|----------|
| Pin 1 | +Fan |
| Pin 2 | -Fan |
| Pin 3 | +V Sense |
| Pin 4 | -V Sense |

Mates with
Molex housing : **90143-0004**
Molex crimp terminals : **90119**

| CON4 – Aux Connector | |
|----------------------|----------|
| Pin 1 | +Standby |
| Pin 2 | -Standby |
| Pin 3 | +PG |
| Pin 4 | -Control |
| Pin 5 | +Control |

Mates with
Molex housing : **51021-0500**
Molex crimp terminals :
50058,50079