

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 type="checkbox"/> E1: Enclosed type <input type="checkbox"/> U2: Base plate type <input 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		3		Watts
	Option-F(with Fan) 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			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 With a 1μF/100V 1206 X7R MLCC	12Vout	120		mVp-p
		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 Recovery within 1% Vout	Peak deviation	3		% 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, automatic 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
Standby power supply	Standby and fan power supply total power 8W	Power off			Open collector
		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

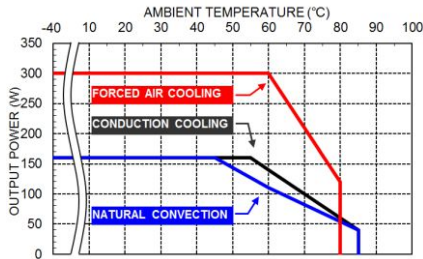
ENVIRONMENTAL SPECIFICATIONS

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

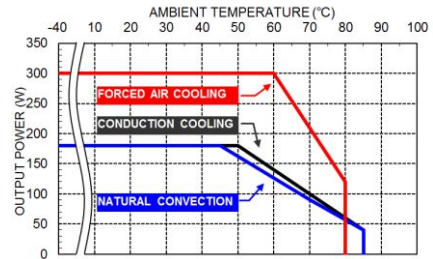
EMC SPECIFICATIONS

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	

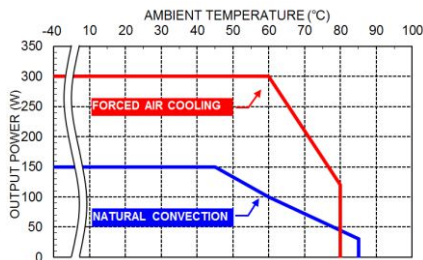
CHARACTERISTIC CURVE



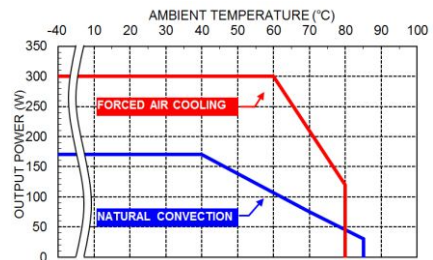
Derating Curve vs. Ambient Temperature
Vin=115VAC Open type



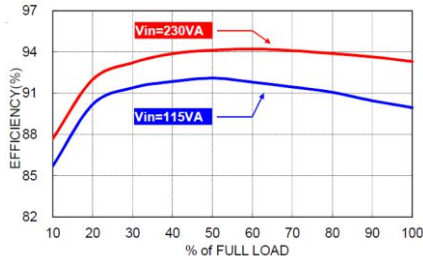
Derating Curve vs. Ambient Temperature
Vin=230VAC Open type



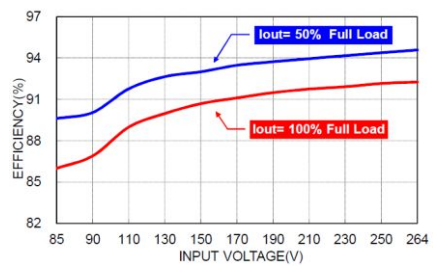
Derating Curve vs. Ambient Temperature
Vin=115VAC Enclosed type / Din rail type



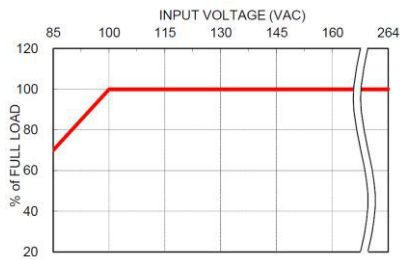
Derating Curve vs. Ambient Temperature
Vin=230VAC Enclosed type / Din rail type



Efficiency vs. Output Load
MAF300US24 with Forced air cooling



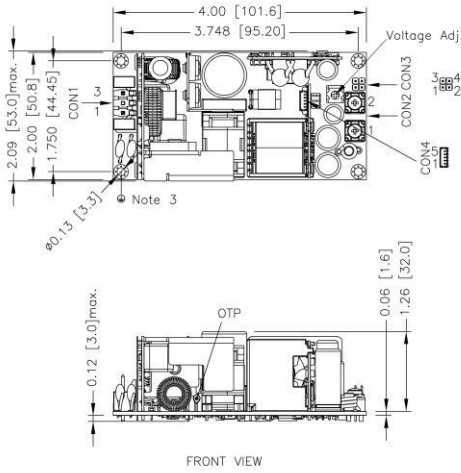
Efficiency vs. Input Voltage
MAF300US24 with Forced air cooling



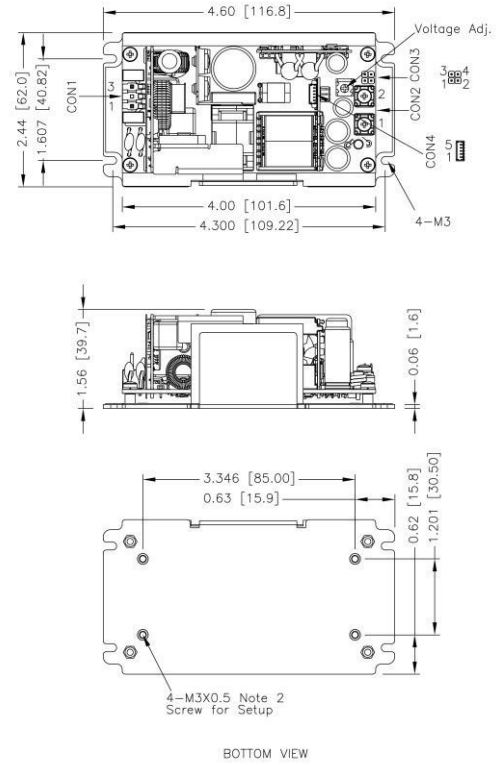
Derating Curve vs. Input Voltage
MAF300

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

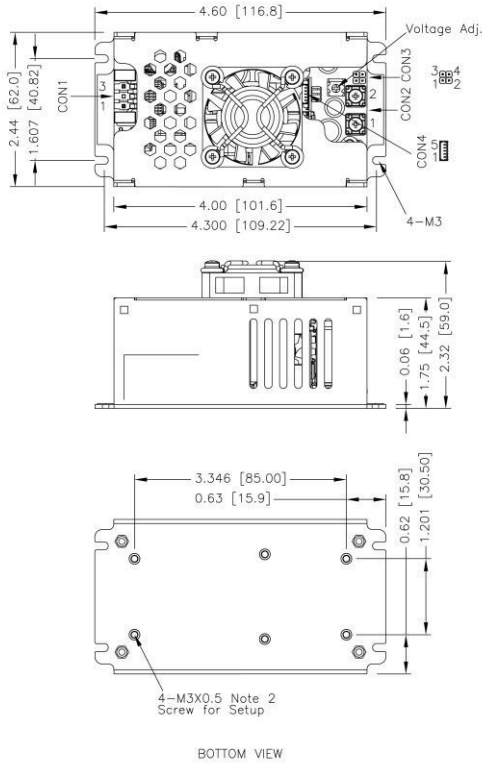
Mates with
Molex housing : **90143-0004**
Molex crimp terminals : **90119**

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

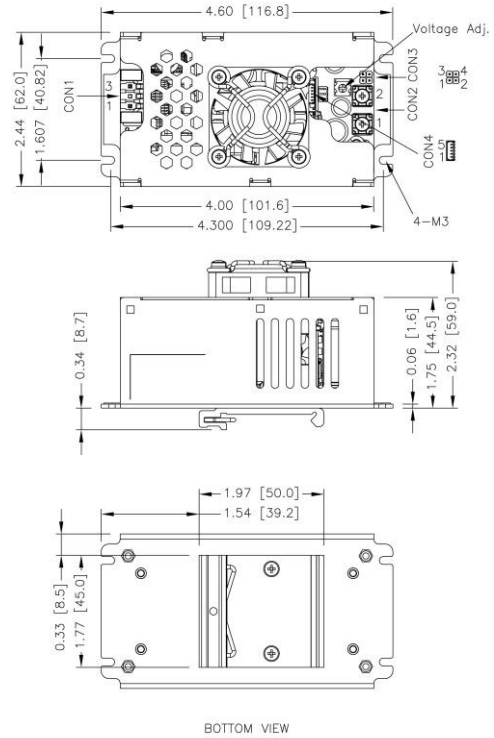
Mates with
Molex housing : **51021-0500**
Molex crimp terminals :
50058,50079

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