EPG300 Series

300 W AC-DC Power Supply

Industrial

The EOS Power EPG300 Series of AC-DC power supplies accommodate a universal input voltage of 90 – 264 VAC, delivering up to 300 W of output power with forced air cooling. The power supplies are available in six single output voltages ranging from 12 V to 58 V.

The EPG300 Series can be used in a broad array of space-constrained applications in which minimal power loss and easy thermal management are required.

RoHS compliant and CE marked, the power supplies are safety agency certified and meet the latest regulatory requirements.

FEATURES

- New Efficient GaN power technology design
- Efficiency up to 94 %
- Form factor 4 x 2 x 1.6 in (101.6 x 50.8 x 40.64 mm)
- Output power up to 300 W (forced air cooling), or up to 250 W (convection cooling)
- High power density 23.43 W/inch^3
- Operating temperature - 40 to +70°C
- Thermal shut-down feature
- Available with metal enclosures / accessories
- IEC / EN / UL 62368 Ed 3.0 compliant
- MTBF > 800 000 hours
- Over temperature, OV, OC and SC protection

APPLICATIONS

- Industrial Process Control / Automation & Monitoring
- Test & Measurement
- Broadcasting / Networking / Telecommunication
- Video Walls / Advertising Signage / Entertainment

1. MODEL SELECTION

MODEL NUMBER [1]	CONNECTION	OUTPUT VOLTAGE [V]	MIN LOAD [A]	MAX LOAD [A]		RIPPLE [3] [%]
				CONVECTION	375 LFM	
EPG300-0012 [2]	Screw Terminal	12	0.0	15.00	20.84	2
EPG300-0312 [2]	JST Connector	12	0.0	15.00	18	2
EPG300-1012 [2]	Screw Terminal	12	0.0	11.67	20.84	2
EPG300-1312 [2]	JST Connector	12	0.0	11.67	18	2
EPG300-0015 [2]	Screw Terminal	15	0.0	12.00	16.67	2
EPG300-0315 [2]	JST Connector	15	0.0	12.00	16.67	2
EPG300-1015 [2]	Screw Terminal	15	0.0	09.33	16.67	2
EPG300-1315 [2]	JST Connector	15	0.0	09.33	16.67	2
EPG300-0024	Screw Terminal	24	0.0	10.42	12.5	1
EPG300-0324	JST Connector	24	0.0	10.42	12.5	1
EPG300-1024	Screw Terminal	24	0.0	8.33	12.5	1
EPG300-1324	JST Connector	24	0.0	8.33	12.5	1
EPG300-0030	Screw Terminal	30	0.0	8.33	10	1
EPG300-0330	JST Connector	30	0.0	8.33	10	1
EPG300-1030	Screw Terminal	30	0.0	6.67	10	1
EPG300-1330	JST Connector	30	0.0	6.67	10	1
EPG300-0048	Screw Terminal	48	0.0	5.21	6.25	1
EPG300-0348	JST Connector	48	0.0	5.21	6.25	1
EPG300-1048	Screw Terminal	48	0.0	4.17	6.25	1
EPG300-1348	JST Connector	48	0.0	4.17	6.25	1
EPG300-0058	Screw Terminal	58	0.0	4.31	5.17	1
EPG300-0358	JST Connector	58	0.0	4.31	5.17	1
EPG300-1058	Screw Terminal	58	0.0	3.45	5.17	1
EPG300-1358	JST Connector	58	0.0	3.45	5.17	1

[1] *When used in Cover Kit, derate output power to 70% under all operating conditions, page 7.*

[2] *See Derating Curves, page 5.*

[3] *Output ripple can be more than 2 % of the output voltage at low load condition.*
Ripple is peak to peak with 20 MHz bandwidth and 10 µF (Electrolytic capacitor) in parallel with a 0.1 µF capacitor at rated line voltage and load ranges.

All specifications are measured at nominal input voltage, 25°C, unless otherwise specified.

2. MODEL NUMBER KEY

EPG300 - Z X VV - YYY W - MMMM

Product Series
EPG300 = EOS Power GaN 300 W Series

Baseplate
0 = With base
1 = Open frame

Type of Connector
0 = Screw terminal
3 = JST connector

Output Voltage
12 = 12 V **15** = 15 V **24** = 24 V
30 = 30 V **48** = 48 V **58** = 58 V

Accessories
Blank = Open frame
U = U-channel
L = L-bracket
CK = Cover Kit
CKF = Cover Kit with Fan (on top or inside)

Mounting Hole
Blank = 3.75 x 1.75 in
G = 3.66 x 1.66 in

Minor Output Variations
Any alpha, numeric or alphanumeric character or blank

3. INPUT SPECIFICATIONS

PARAMETER	DESCRIPTION / CONDITIONS	MIN	TYP	MAX	UNIT
Input voltage	Derate linearly from 100% at 115 VAC to 80% at 90 VAC [4]	90		264	VAC
Input frequency		47		63	Hz
Input current				4	A
Inrush current				75	A
Leakage current			300		µA
Touch current				100	µA
No load input power				2	W
Power factor		0.9			

[4] *Refer to Derating curves*

4. OUTPUT SPECIFICATIONS[5]

PARAMETER	DESCRIPTION / CONDITIONS		MIN	TYP	MAX	UNIT
Output power	Forced air cooling 375 LFM (115 to 264 VAC)				300	W
	Convection cooling (180 to 264 VAC)	EPG300-0XXX models EPG300-1XXX models			250 200	
Efficiency	At 230 VAC		92		94	%
Hold-up time				8		ms
Line regulation			-0.5		+0.5	%
Load regulation			-0.5		+0.5	%
Output voltage adjustability			-3		+3	%
Rise time				55		ms
Set point tolerance			-1		+1	%
Transient response	Max excursion 5%; 50% step load change at 0.1 A/µs slew rate, 50% duty cycle, 50 Hz Recovery time			5		ms
Switching frequency	PFC PWM		 100	130	 200	kHz
Start up delay	115/230 VAC Full Load				2	s
Drift	After 20 minutes warm-up		-0.2		0.2	%
Over / Undershoot	Turn On / Off				5	%
Temperature coefficient					0.02	%/°C

[5] *Specifications are for nominal input voltage 230 VAC, 25°C unless otherwise stated.*

5. PROTECTIONS

PARAMETER	DESCRIPTION / CONDITIONS	MIN	TYP	MAX	UNIT
Over current protection	Hiccup mode; auto recovery	110			%
Over voltage protection	Hiccup mode; auto recovery	110		140	%
Short circuit protection	Hiccup mode; auto recovery				

6. ENVIRONMENTAL SPECIFICATIONS

PARAMETER	DESCRIPTION / CONDITIONS	MIN	TYP	MAX	UNIT
Operating temperature	-40 to 0°C start-up is guaranteed with spec. deviation[6]	-40		+70	°C
Storage temperature		-40		+85	°C
Humidity	Relative	5		95	%
Altitude	Operating, RH, non-condensing			16000	ft
	Non operating, non-condensing			40000	ft

[6] *Output ripple can be more than 10 % of the output voltage.*

7. EMC SPECIFICATIONS

PARAMETER	DESCRIPTION / CONDITIONS	CLASS / LEVEL / CRITERION
Conducted emissions	EN 55032, CISPR22-B, FCC PART15-B	Level B
Radiated emissions	EN 55032, With external core (King core K5B RC 25x12x15-M or equivalent in input cable)	Level A Level B
Harmonic current	EN 61000-3-2	Class A
Fluctuation and Flicker	EN 61000-3-3	Compliance
ESD immunity	EN 61000-4-2	Level 4, Criterion A
Radiated field immunity	EN 61000-4-3	Level 3, Criterion A
Electrical fast transient	EN 61000-4-4	Level 3, Criterion A
Surge immunity	EN 61000-4-5	Level 3, Criterion A
Conducted immunity	EN 61000-4-6	Level 3, Criterion A
Magnetic field immunity	EN 61000-4-8	Level 4, Criterion A
Voltage dips, interruptions	EN 61000-4-11	Criterion A & B

8. SAFETY SPECIFICATIONS

PARAMETER	DESCRIPTION / CONDITIONS	MIN	TYP	MAX	UNIT
Safety approvals (Pending)	IEC 62368-1, EN 62368-1 UL 62368-1 & CAN/CSA C22.2 No. 62368-1	Information Technology			
Equipment protection class	Class I				
Isolation	Input to Output Input to Ground	4000 2500			VDC
MTBF	Telcordia -SR332-issue 3	800			khrs

9. CONNECTORS & PIN DESCRIPTION

CONNECTION	PIN	PIN	DESCRIPTION	CONNECTOR	MANUFACTURER PN
AC Input	J1	Pin 1 Pin 2 Pin 3	AC LINE NOT FITTED AC NEUTRAL		Molex: 26-60-4030 Mating: 09-50-3031; Pins: 08-50-0106
	J1 [7]	Pin 1 Pin 2	AC LINE AC NEUTRAL		TYCO: 5-1376382-1 or equivalent Mating: 1376388-1 (TYCO) or equivalent
DC Output	J2	Pin 1, 2, 3 Pin 4, 5, 6	V1 +VE V1 -VE	Screw terminal	6-32 inches Screw Pan HD Vertical Mating: Designed to accept Ring Tongue Terminal AMP: 8-31886-1
				JST connector	JST p/n: B6P-VH(LF)(SN) Mating: JST p/n: VHR-6M or MOLEX p/n: 511440600 or TE connectivity p/n: 2132781-6, Pins: SVH-41T-P1.1
	J2 [7]	Pin 1, 2 Pin 3, 4	V1 +VE V1 -VE		Molex: 39-28-1043 or equivalent Mating : 39-01-2040 (Molex) or equivalent
Aux Output (Fan)	J3	Pin 1 Pin 2	FAN + FAN -		Molex: 22-05-7025 Mating: 50-37-5023

[7] *AC Input (J1) and DC Output (J2) connectors for EPG300-1XXX-G models*

10. MECHANICAL SPECIFICATIONS

PARAMETER	DESCRIPTION / CONDITIONS	MIN	TYP	MAX	UNIT
Dimensions	EPG300-0XXX [with base]		101.6 x 50.8 x 40.64 4 x 2 x 1.6		mm in
	EPG300-1XXX [Open frame]		101.6 x 50.8 x 36.40 4 x 2 x 1.43		mm in
Weight			300		g
Cooling	Forced air cooling (375 LFM) Convection cooling (natural air flow)				

11. DERATING CURVES

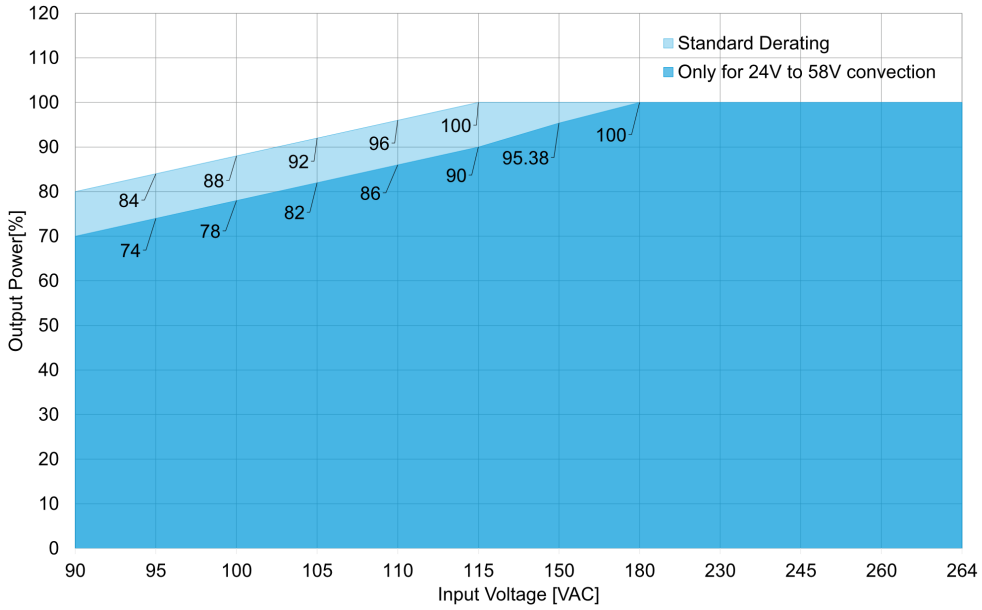
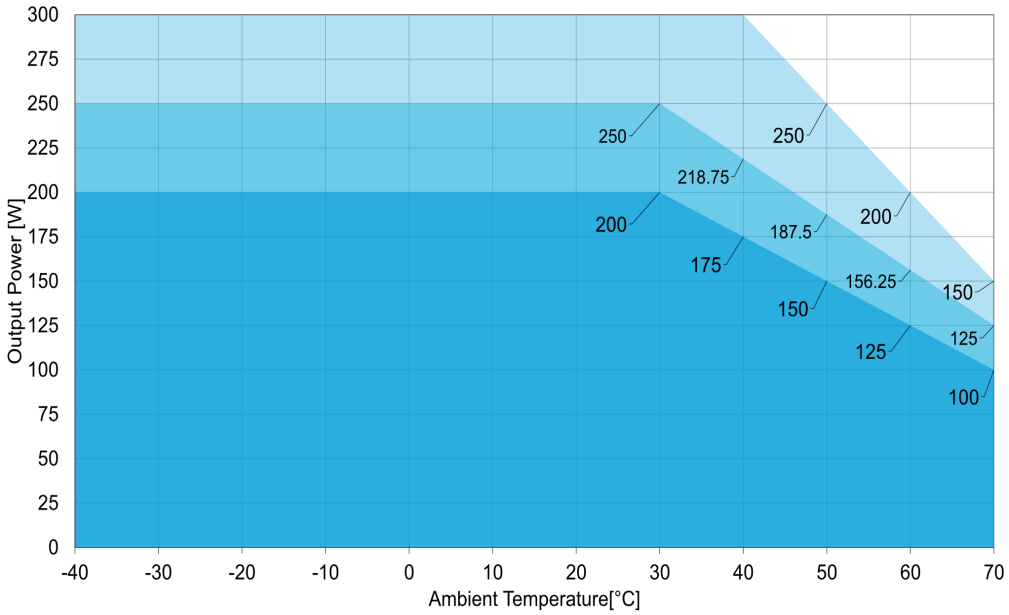
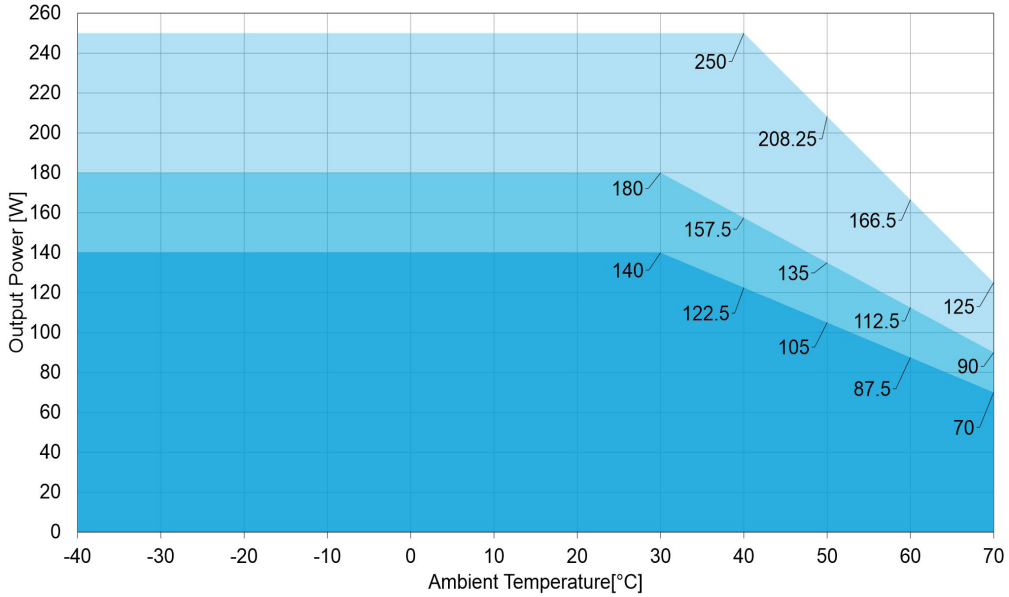


Figure 1. Output Power Derating w.r.t. Input voltage



Notes: Convection load: 200 W up to 30°C; derate above 30°C @ 1.25% per °C (EPG300-1XXX models)
Convection load: 250 W up to 30°C; derate above 30°C @ 1.25% per °C (EPG300-0XXX models)
Forced air load: 300 W up to 40°C; derate above 40°C @ 1.67% per °C

Figure 2. Power Derating of 24 V, 30 V, 48 V & 58 V models (Open frame / L channel / U bracket options)



Notes: Convection load: 140 W up to 30°C; derate above 30°C @ 1.25% per °C (EPG300-1XXX models)
Convection load: 180 W up to 30°C; derate above 30°C @ 1.25% per °C (EPG300-0XXX models)
Forced air load: 250 W up to 40°C; derate above 40°C @ 1.67% per °C

Figure 3. Power Derating of 12 V & 15 V models (Open frame / L channel / U bracket options)

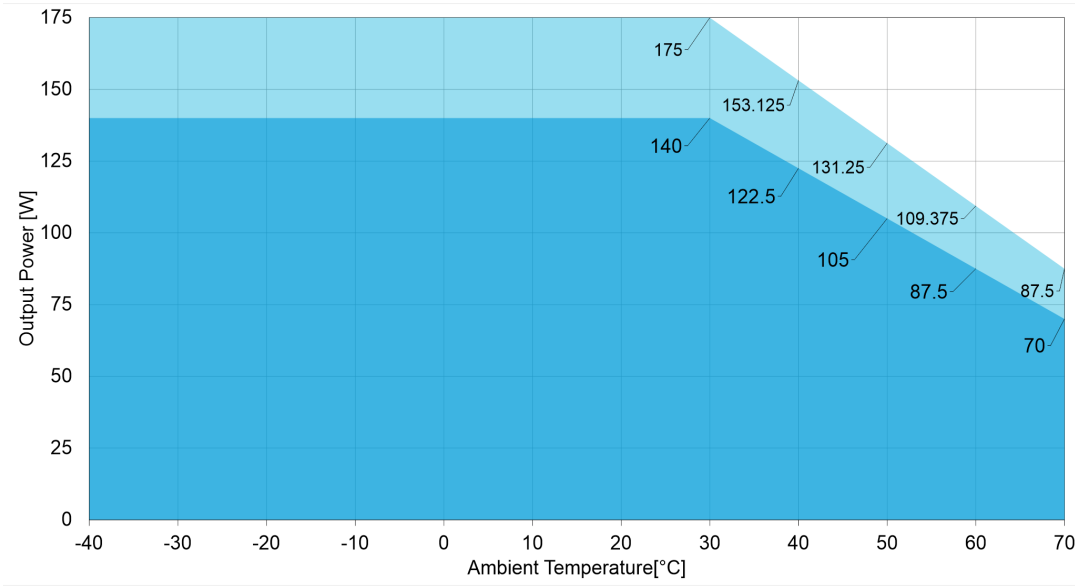


Figure 4. Power Derating of 24 V, 30 V, 48 V & 58 V models (Cover kit option)

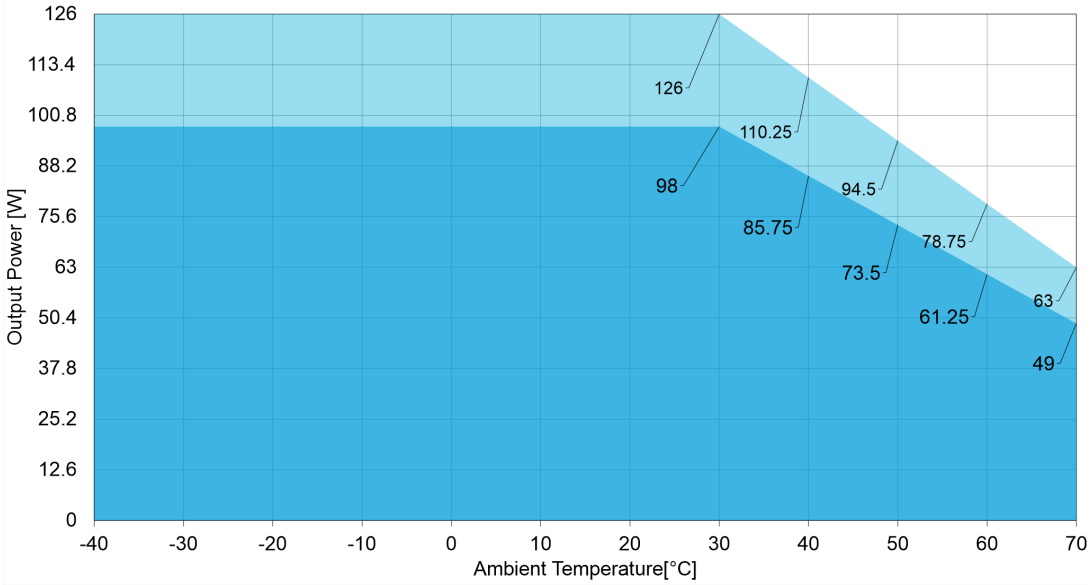


Figure 5. Power Derating of 12 V & 15 V models (Cover kit option)

12. MECHANICAL DRAWINGS

EPG300-0XXX MODELS

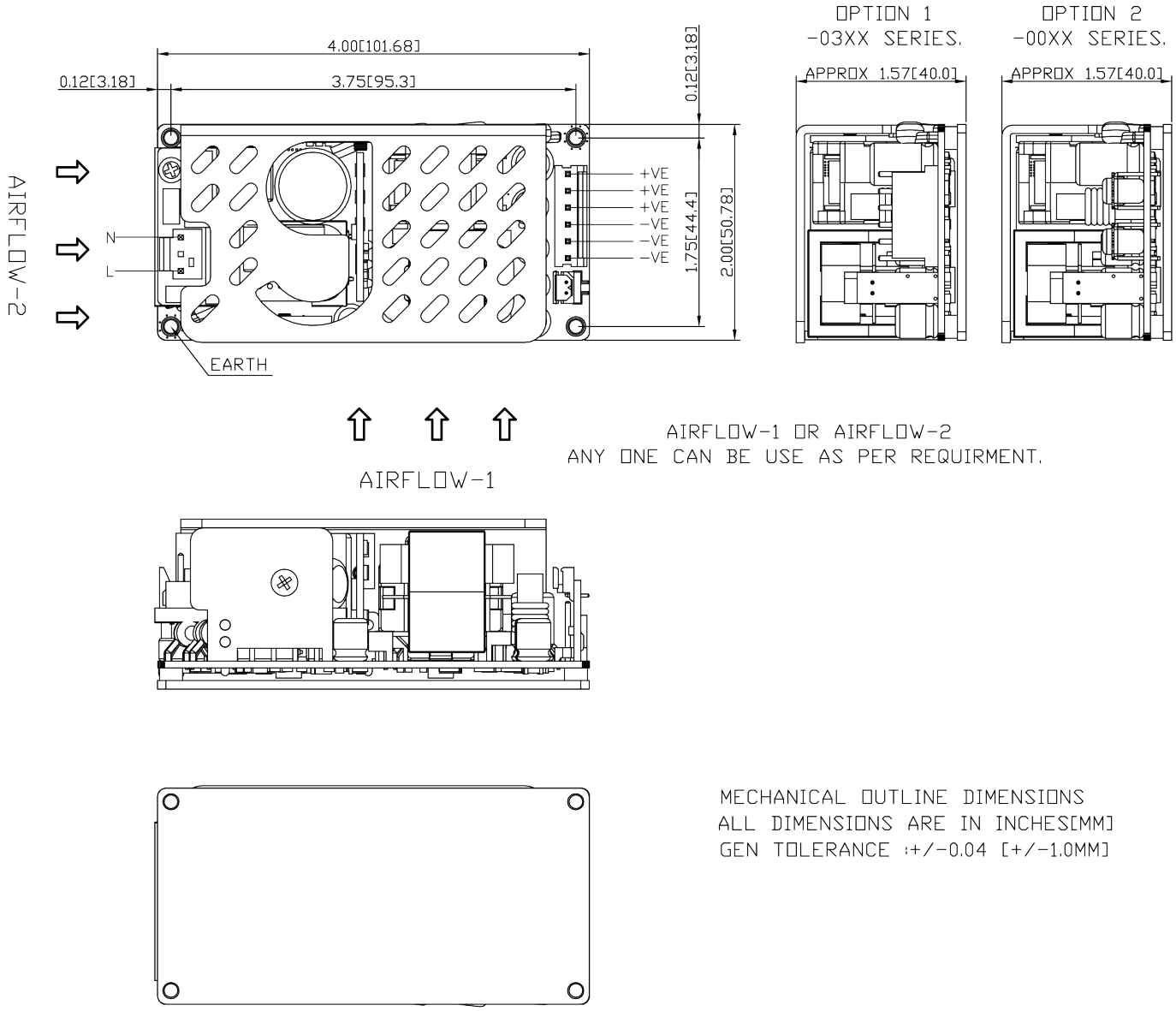


Figure 6. Mechanical Drawing – EPG300-0XXX models

EPG300-1XXX MODELS

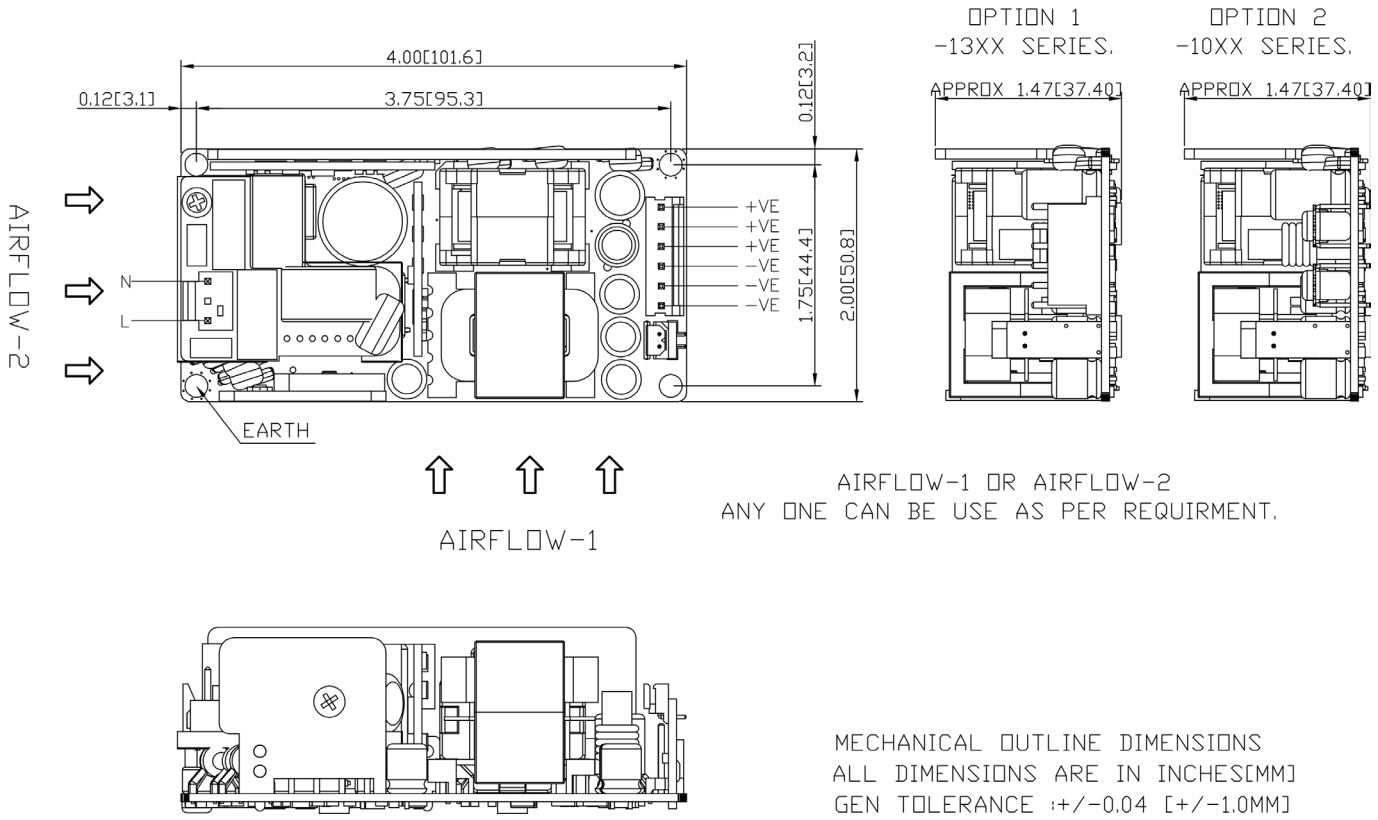
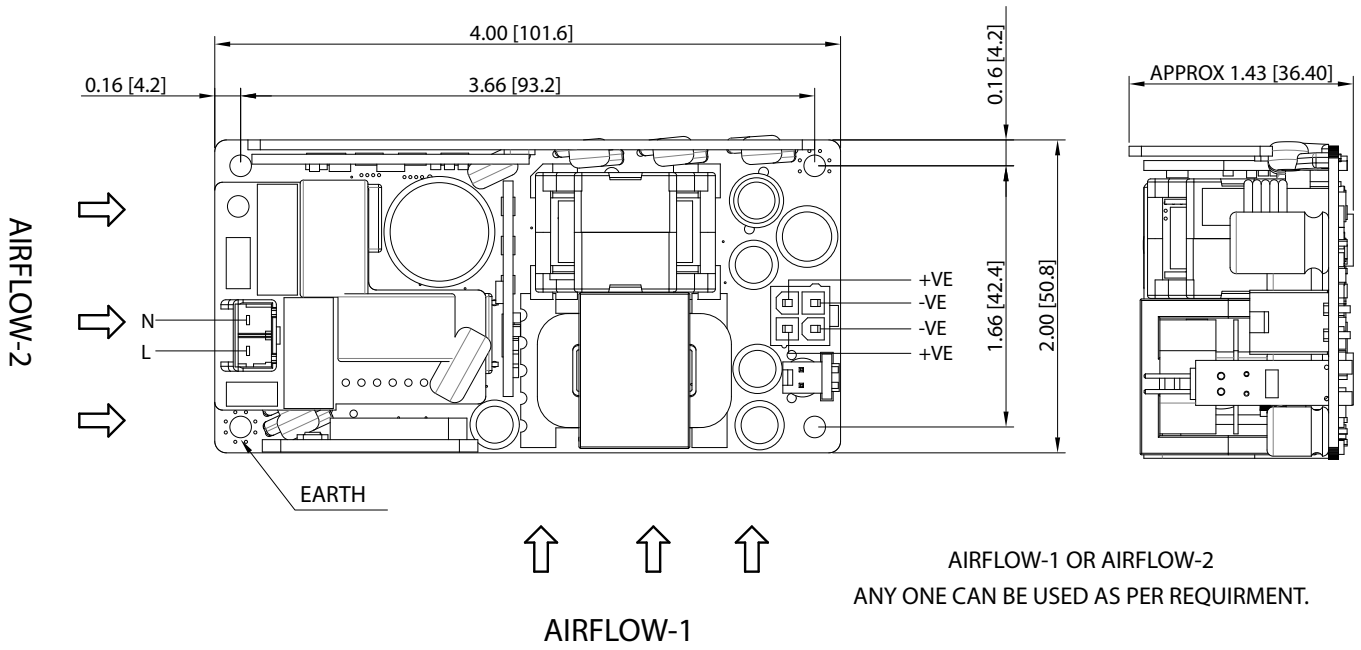
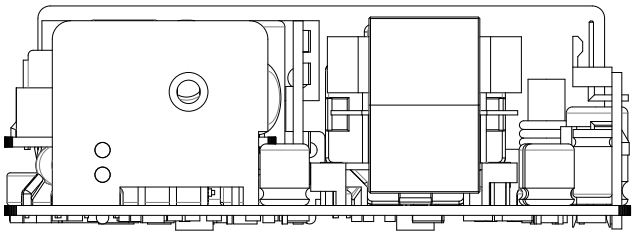


Figure 7. Mechanical Drawing – EPG300-1XXX models

EPG300-1XXX G





MECHANICAL OUTLINE DIMENSIONS
ALL DIMENSIONS ARE IN INCHES [MM]
GEN. TOLERANCE: +/-0.04 [+/-1.0 MM]

Figure 8. Mechanical Drawing – EPG300-1XXX-G models

EPG300-0XXX-L

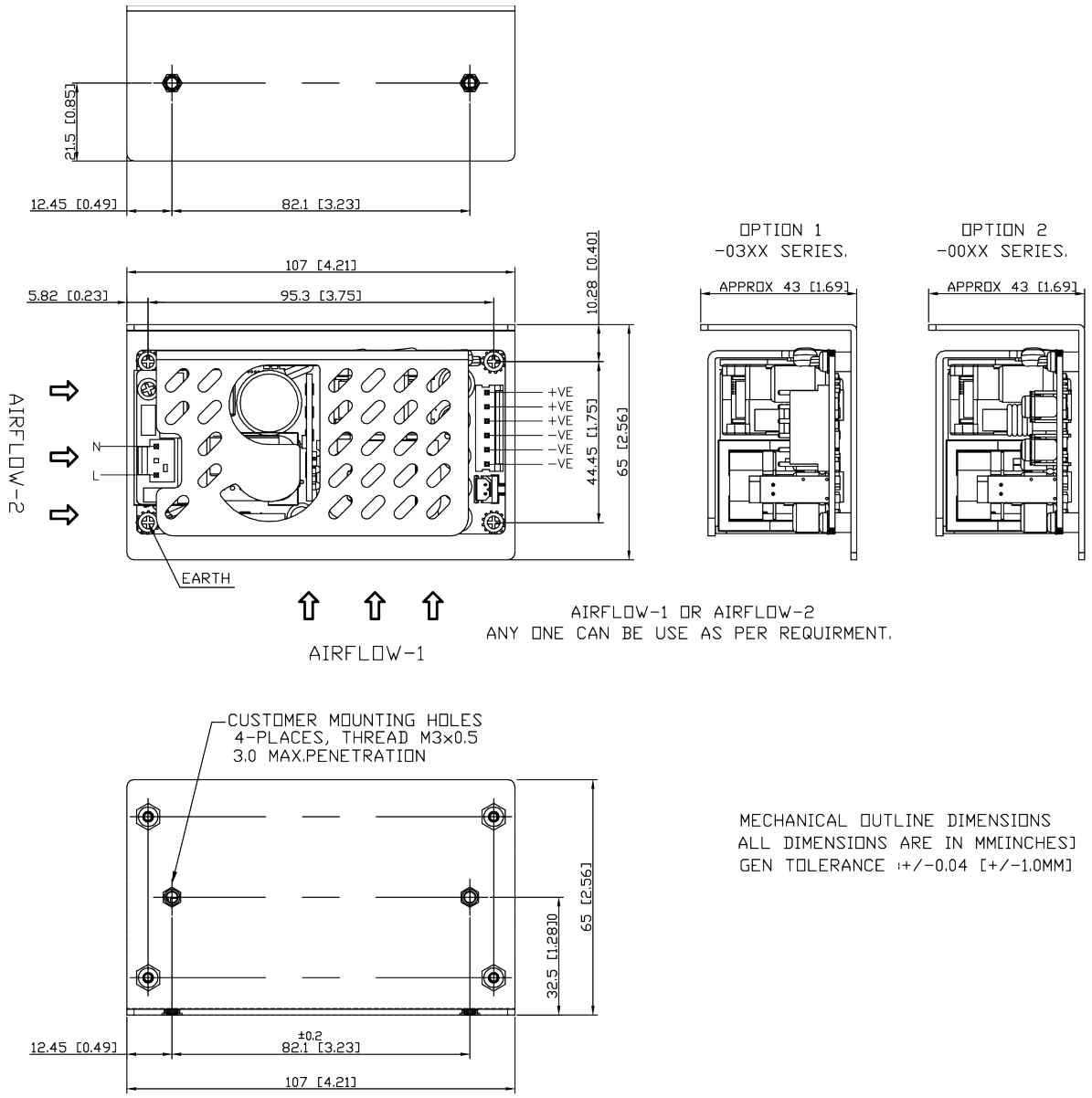


Figure 9. Mechanical Drawing – EPG300-0XXX-L

EPG300-1XXX-L

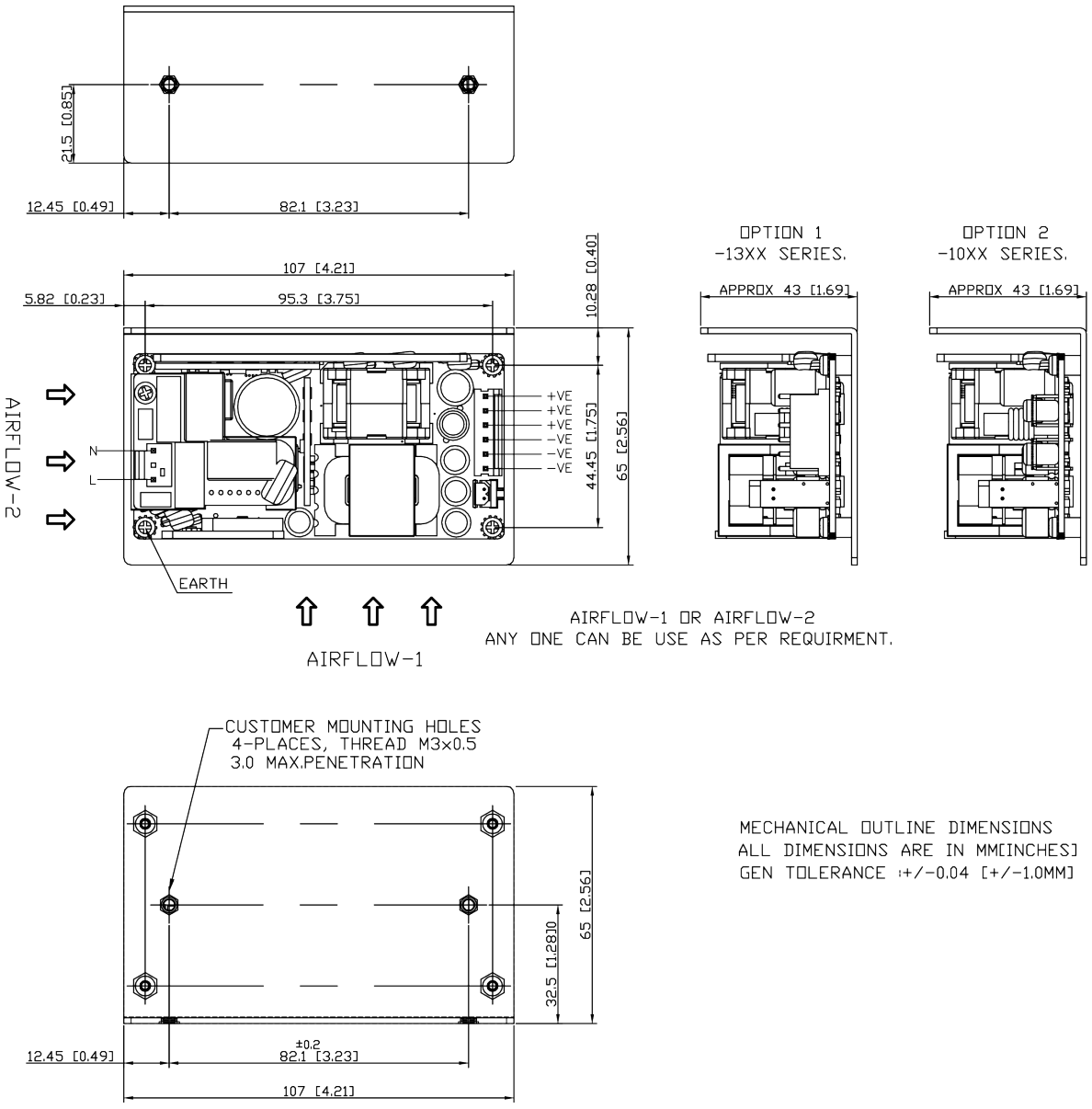


Figure 10. Mechanical Drawing – EPG300-1XXX-L

EPG300-0XXX-U

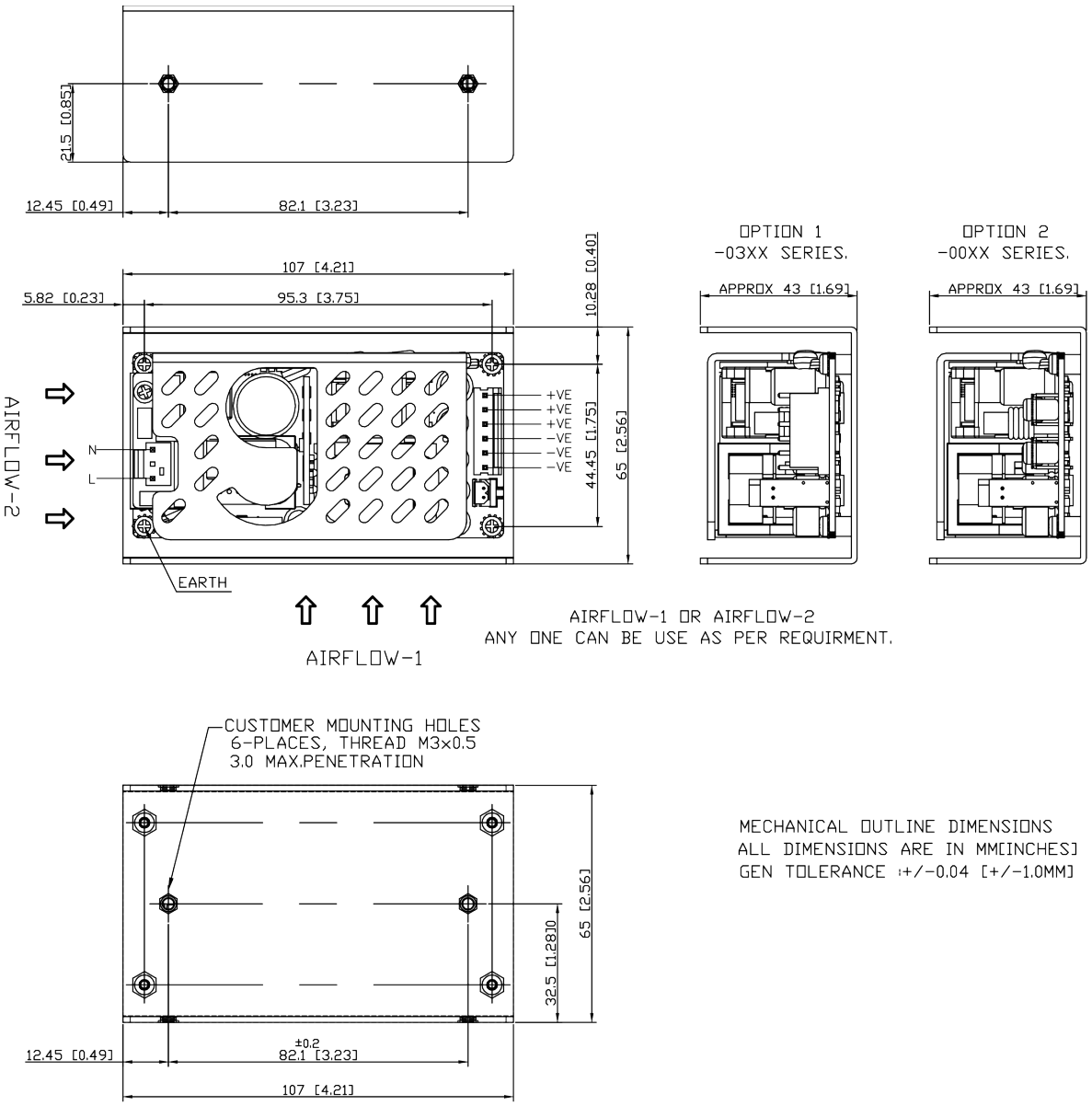


Figure 11. Mechanical Drawing – EPG300-0XXX-U

EPG300-1XXX-U

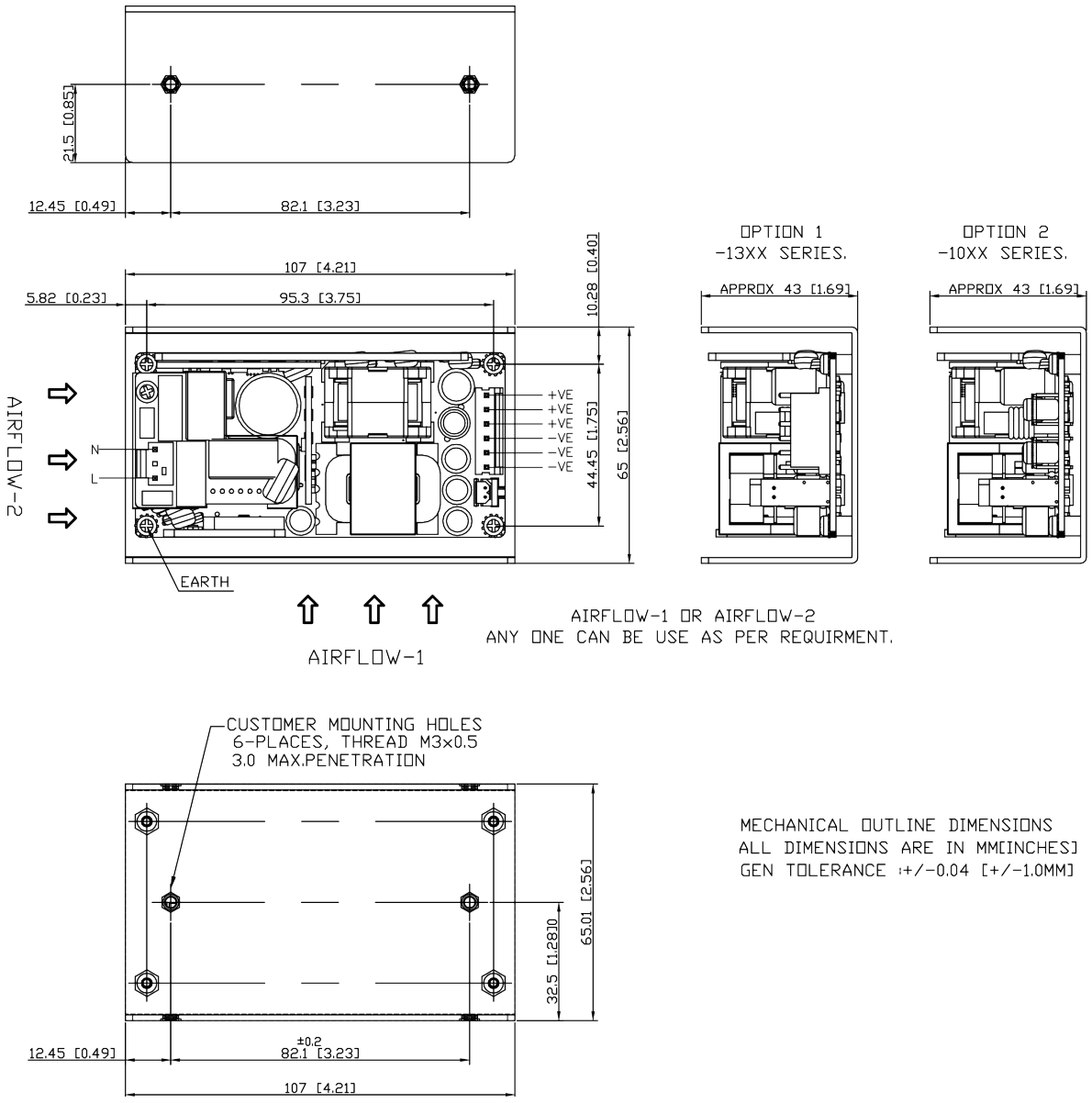


Figure 12. Mechanical Drawing – EPG300-1XXX-U

EPG300-XXXX-CK

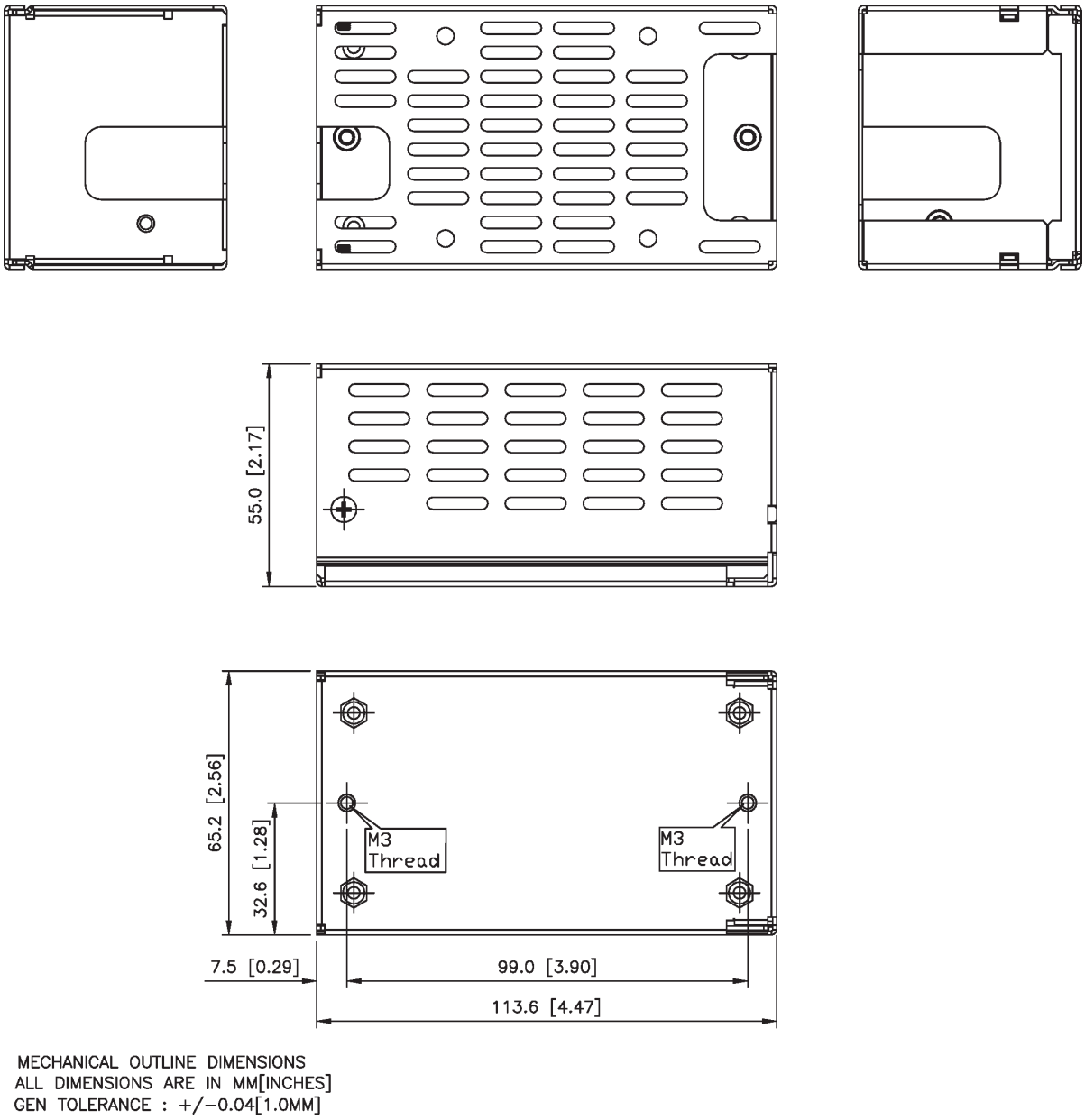
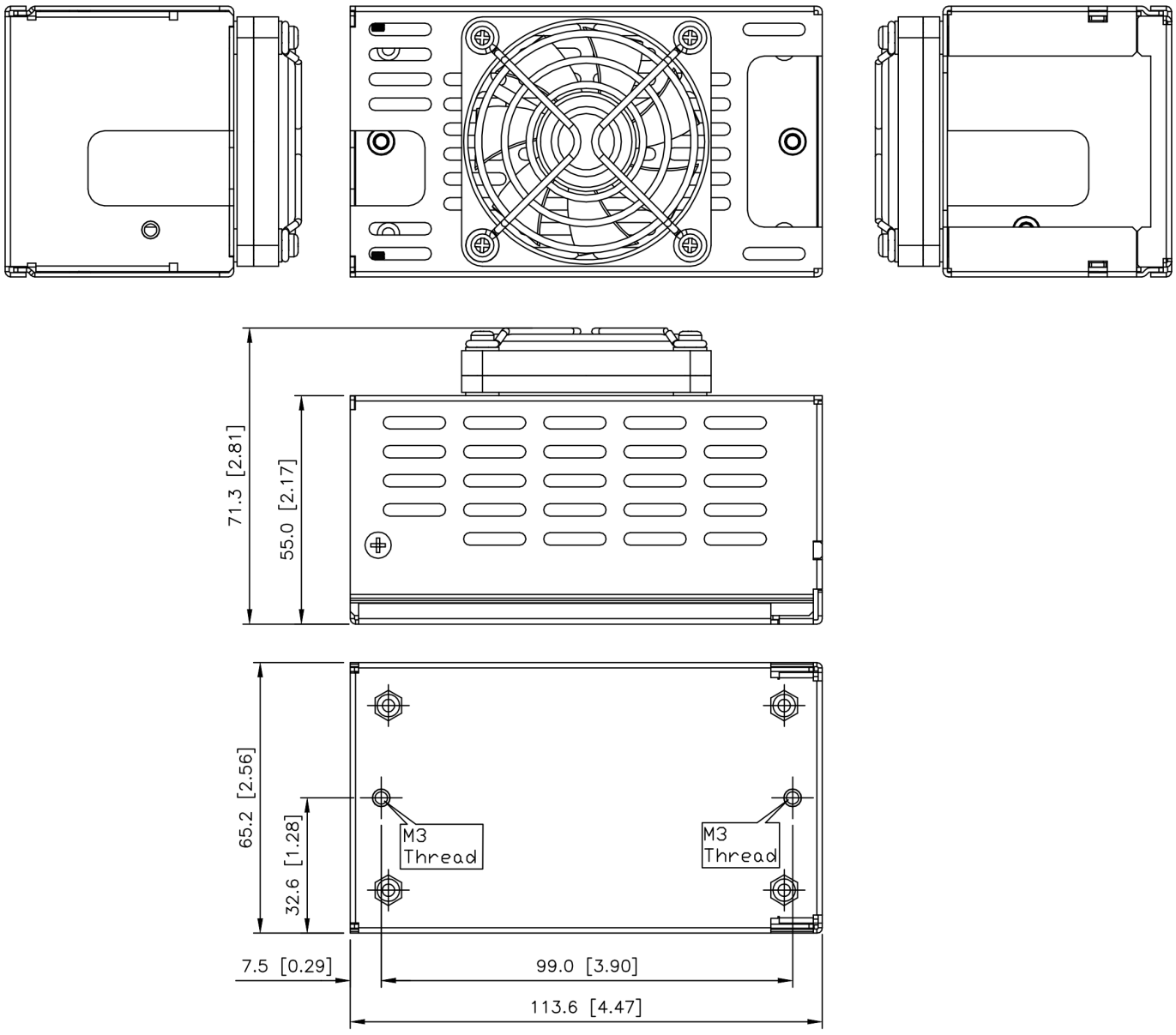


Figure 13. Mechanical Drawing – EPG300-XXXX-CK models

EPG300-XXXX-CKF



MECHANICAL OUTLINE DIMENSIONS
ALL DIMENSIONS ARE IN MM[INCHES]
GEN TOLERANCE : +/−0.04[1.0MM]

Figure 14. Mechanical Drawing – EPG300-XXXX-CKF models

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