



SPECIFICATION

For

SWITCHING POWER SUPPLY

M/N: MPE-K250 Series

Revision history

REV.	May. 9 th 2012	Established.
REV.	Aug. 31 th 2012	Canceled +5Vsb output; Revised pin assignment.
REV.	Dec. 17 th 2012	Updated performance curves.
REV.	Jan. 11 th 2013	Updated.
REV.	Mar. 18 th 2013	Updated performance curves (derated output power @ 70°C).
REV.	Apr. 29 th 2013	Added input voltage derating specification.
REV.	May. 27 th 2013	Revised the condition of turn-on delay; Updated the mechanical drawing.
REV.	Oct. 3 rd 2014	Add optional cover drawing and derating curve



FEATURES

- 250W convection-cooled at wide- range ambient
- Active power factor correction
- High efficiency up to 90%
- 1U form factor
- < 0.5W no-load power consumption
- Remote sense & built-in fan supply
- PG / PF signal
- Optional cover-kit.
- Design to meet standard IEC 60950-1 & EN 60950-1 & UL 60950-1, 2nd edition
- Meets EMI CISPR/FCC class B
- Optional cover kits

1. Description

Model No.	Output Voltage	Mini. Output Current	Rated. Output Current	Line Regulation <small>(Note 1)</small>	Load Regulation <small>(Note 1)</small>	Ripple & Noise p-p <small>(Note 1)</small>	Initial Setting Accuracy <small>(Note 2)</small>
MPE-K253	+12V	0 A	20.9 A	±1%	±1%	1%	11.8V~12.2V
MPE-K255	+24V	0 A	10.5 A	±1%	±1%	1%	23.8V~24.2V
MPE-K256	+48V	0 A	5.3 A	±1%	±1%	1%	47.6V~48.4V
Fan supply	+12V	<small>(Note 4)</small>	0.2 A			N / A	

Total Output Power: Max. 250W convection cooled at 50°C environment temperature. Max. 250W with 11.7 CFM at 70°C environment temperature (Note 3).

- Note: 1) Please refer to paragraph 3 for the detail notes & conditions.
 2) Initial Setting Accuracy is at Input 115VAC and all output at 60% rated load.
 3) Air flow from the top to the body of PSU with distance 50 mm maximum, and also see the performance curves in paragraph 6.
 4) To stabilizing the fan supply, the unit needs min. load 10W on main output.

2. Input Specification

Parameter	Conditions/Description	Min.	Nom.	Max.	Units
Input Voltage	Continuous input range.	85	115 / 230	264	VAC
		125		373	VDC
Label Voltage		100		240	
Input Frequency	AC input.	47	50 / 60	63	Hz
Power Factor		0.9			
Input Current	Nominal AC Input Voltage (115/230VAC), rated load.			3.5	A
Inrush Current	Nominal AC Input Voltage (115/230VAC), one cycle at 25°C cold start.			30 / 60	A
Input Protect	Non-user serviceable internally located AC input line fuse.				
No-load Consumption	Nominal AC Input Voltage (115/230VAC), without fan connected.			0.3 / 0.5	W



3. Output Specification

Parameter	Conditions/Description	Min.	Nom.	Max.	Units
Output Voltage	See Chart of Description	12		48	VDC
Output Power				250	W
Efficiency	At input 230VAC, rated load ^(Note 1)	88	89	90	%
Average Efficiency	Measured at nominal AC input voltage (115 / 230VAC) with 25%, 50%, 75% and 100% load. ^(Note 1)	87			%
Minimum load		See Chart of Description			
Ripple & Noise	Rated load, measured by a 20MHz bandwidth limited oscilloscope and the each output is connected with a 10µF Electrolytic Capacitor and a 0.1µF Ceramic Capacitor.	See Chart of Description			
Output Power	Continuous output power.			250	W
Line Regulation	Less than ±1% at rated load with ±10% changing in input voltage at 115VAC.	See Chart of Description			
Load Regulation	Measured from 60% to 100% rated load and from 60% to 20% rated load (60% ±40% rated load).	See Chart of Description			
Turn-on Delay	At input 115VAC, 100% rated load, 25°C. ^(Note 2)		1	1.5	Sec
Hold Up Time	Nominal AC Input Voltage (115VAC), rated load.	20			mS
Leakage Current	At input 264VAC, 63Hz, rated load			1	mA

Note: 1) Warm up above 0.5 hr.

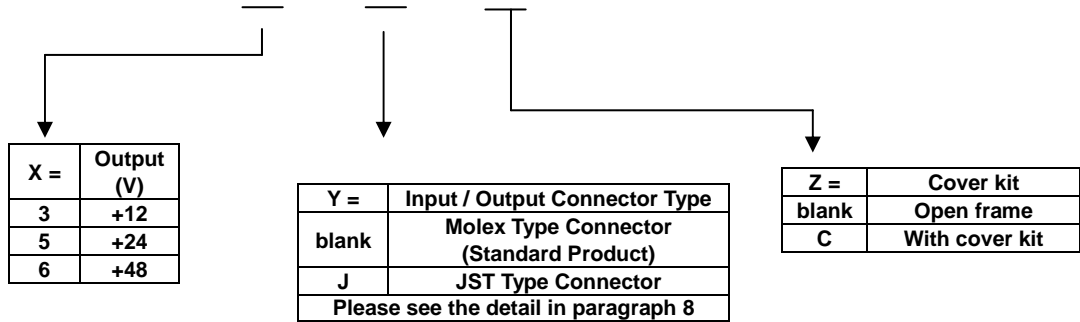
2) Defined at AC input voltage only.

4. Interface Signals and Internal Protection

Parameter	Conditions/Description
Short Circuit Protection	Fully protected against output overload and short circuit. Automatic recovery upon of overload condition.
Over Voltage Protection	For some reason the power supply fails to control itself, the build-in over voltage protection circuit will auto recovery the outputs to prevent damaging external circuits, the trigger point is around 110%~135% of output voltage.
Remote Voltage Sense	Compensates for wire voltage drop.
PG / PF signal	PG signal: When power is turned on, the power good signal will go high 100ms to 500ms after all output DC voltages are within regulation limits. PF signal: The power fail signal will go low at least 1ms before the output voltages fall below the regulation limits.

5. Model no. coding

M P E - K 2 5 X - Y - Z

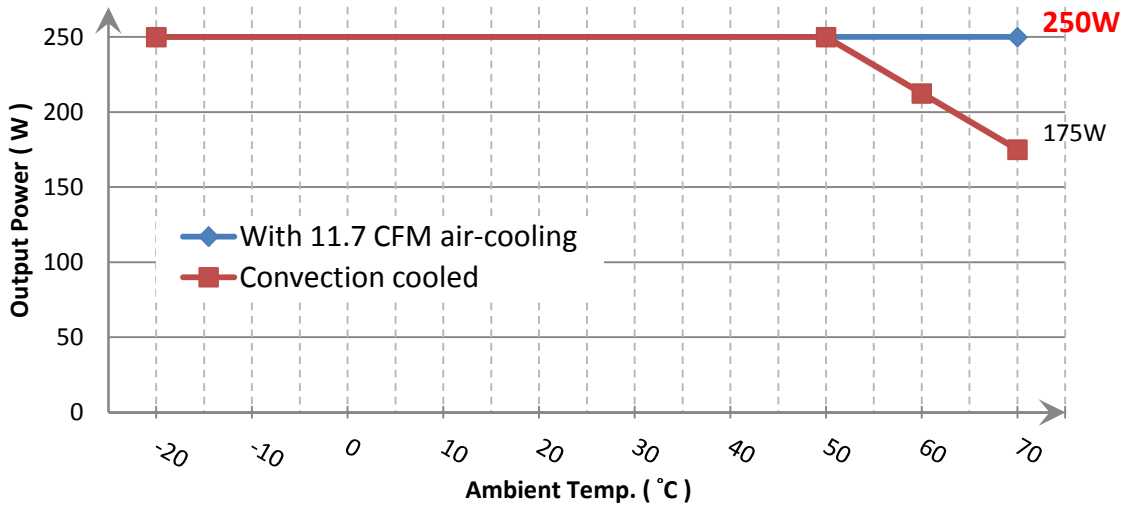




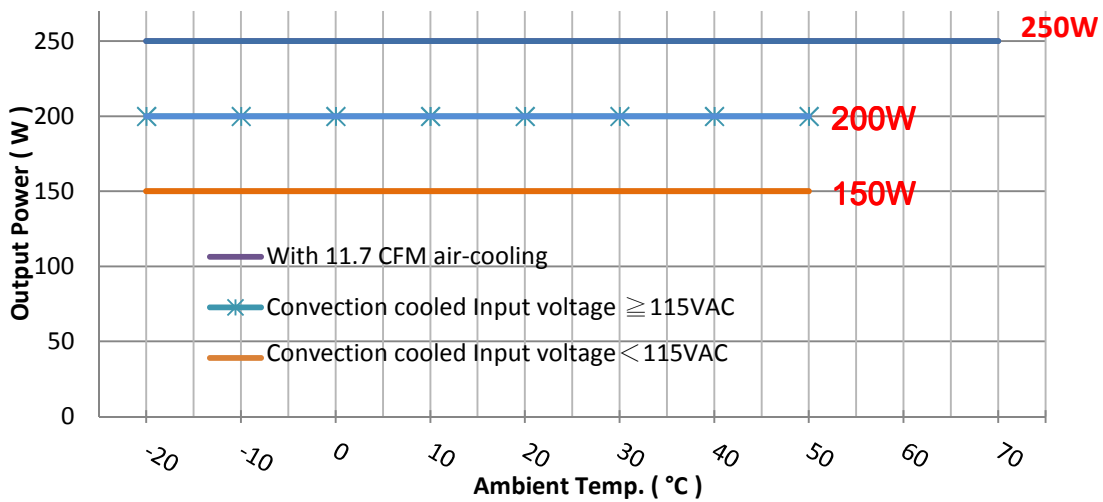
6. Environment Specification

Parameter	Conditions/Description	Min.	Nom.	Max.	Units
Operating Temperature	Please refer to the performance curves below	-20		+70	°C
Storage Temperature		-40		+85	°C
Relative Humidity	Non-condensing.	5		95	%RH
Altitude	Operating			3K	Meter
	Non-operating			4K	

Performance curves



Performance of MPE-K250 Series



Performance of MPE-K250-C Series



7. Safety Approvals, EMI and EMS Specification

Parameter	Conditions/Description	Min.	Nom.	Max.	Units	
Approvals	IEC 60950-1, 2 nd edition				CB approved	
	EN 60950-1, 2 nd edition				CE declaration	
	UL 60950-1, 2nd Edition				UL approved	
	CSA C22.2 No. 60950-1-07, 2nd Edition				cUL approved	
Dielectric Withstand	Input to Output	3000				
	Input to FG	2500			VAC	
	Output to FG	500				
EMI ^(Note 1.)	EN 55022 / CISPR 22 & FCC Part 15	B				
	EN 61000-3-2	D			Class	
	EN 61000-3-3					
	EN 61204-3	B				
EMS ^(Note 1.)	IEC 61000-4-2	±8KV air discharge, ±6KV contact discharge	A			
	IEC 61000-4-3	10V/m	A			
	IEC 61000-4-4	±2KV Line & PE	A			
	IEC 61000-4-5	L-N:±1KV, L/N-PE:±2KV	A			
	IEC 61000-4-6	10Vrms	A			
	IEC 61000-4-8	10A/m	A		Criteria	
	IEC 61000-4-11	Voltage dips >95%, 0.5 cycle	A			
		Voltage dips >30%, 25 cycles	A			
	Voltage dips >60%, 5 cycles	A / B ^(Note 2.)				
	Voltage interruptions >95%, 250 cycles	C				

Note: 1) As a build-in type power supply, the power supply needs to be installed in a suitable enclosure to pass the EMI/EMC tests. The final assembly has to comply with the valid EMI/EMC and safety.

2) The test result of input 240VAC / 100VAC is criteria A / B.



8. Mechanical Specification

Parameter Conditions/Description

Dimension 152.4 (L) x 101.6 (W) x 41 (H) mm, Tolerance +/- 0.4mm.

Connector & Pin Assignment	Location	Pin (Note 1)		Assignment	Proposed Housing	Proposed Terminals
	CN1 (Input)	MX 5	JT 1	FG	a. MOLEX: 09-50-1051 (5195-05) or 09-52-4054 (5239-05); b. JST: VHR-5N (Note 2)	a. MOLEX: 5194 or 5225 2478, 2578,5176 or 5168; b. JST: SVH-21T-P1.1
		MX 4	JT 2	N/A		
		MX 3	JT 3	AC in (N)		
		MX 2	JT 4	N/A		
		MX 1	JT 5	AC in (L)		
	CN2 (Output)	MX 8	JT 1	0 V	a. MOLEX: 09-50-1081 (5195-08) or 09-52-4084 (5239-08); b. JST: VHR-8N (Note 2)	a. MOLEX: 5194 or 5225 2478, 2578,5176 or 5168; b. JST: SVH-21T-P1.1
		MX 7	JT 2	0 V		
		MX 6	JT 3	0 V		
		MX 5	JT 4	0 V		
		MX 4	JT 5	+ V		
		MX 3	JT 6	+ V		
		MX 2	JT 7	+ V		
	CN3	MX 1	JT 2	Remote sense +	a. MOLEX: 22-01-1022 (5051-02) or 51191-0200; b. JST: XHP-2 (Note 2)	a. MOLEX: 2759 or 5159 50802; b. JST: SXH-001T-P0.6N, SXH-001T-P0.6 or SXH-002T-P0.6
		MX 2	JT 1	Remote sense -		
	CN4 (Fan)	MX 1	JT 2	+ V	a. MOLEX: 22-01-1022 (5051-02) or 51191-0200; b. JST: XHP-2 (Note 2)	a. MOLEX: 2759 or 5159 50802; b. JST: SXH-001T-P0.6N, SXH-001T-P0.6 or SXH-002T-P0.6
		MX 2	JT 1	0 V		
	CN5	MX 1	JT 2	PG / PF	a. MOLEX: 22-01-1022 (5051-02) or 51191-0200; b. JST: XHP-2 (Note 2)	a. MOLEX: 2759 or 5159 50802; b. JST: SXH-001T-P0.6N, SXH-001T-P0.6 or SXH-002T-P0.6
		MX 2	JT 1	Return		

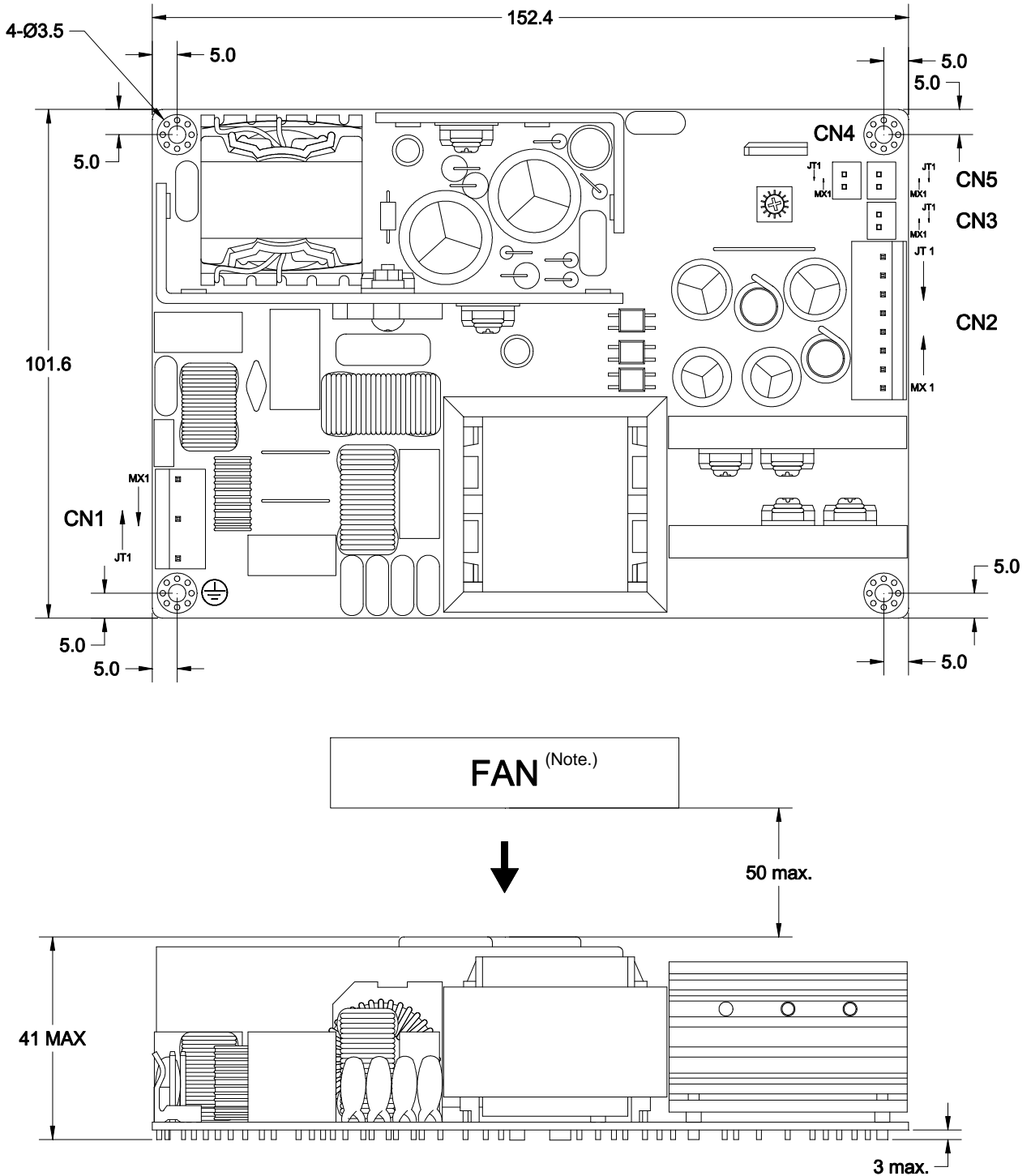
Note: 1) Please see the mechanical drawing for pin assignment.
2) Exist with model no. suffixed -J, please see the comparison in paragraph 5.



Mechanical drawing

M/N:MPE-K253

Unit: mm



Note.: Air cooling if necessary, please see performance curves in paragraph 6.



Mechanical drawing MPE-K25X-C (X=3, 5, 6), 192.4 x 160 x 49.5mm, Tolerance +/- 0.5mm.

