AC-DC Converter

POWER SOLVE

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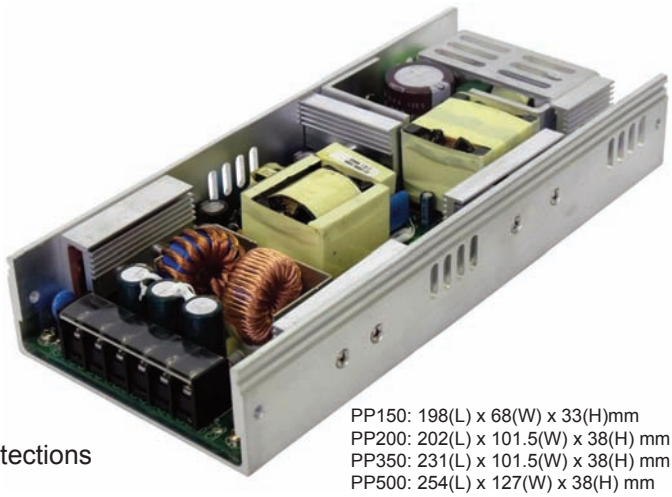
PP150/PP200/PP350/PP500 Series
150W - 500W Active PFC
Single Output



PP150: 198(L) x 68(W) x 33(H)mm
PP200: 202(L) x 101.5(W) x 38(H) mm
PP350: 231(L) x 101.5(W) x 38(H) mm
PP500: 254(L) x 127(W) x 38(H) mm

Features

- Universal AC Input with active PFC
- Operating Temperature Range -20°C to +70°C
- U-bracket low profile: 38mm
- High efficiency, long life and high reliability
- Remote ON/OFF Control (PP350 & PP500)
- Output Short Circuit Protection
- Overvoltage, Overload & Over Temperature Protections

Electrical Specification	
Input Voltage	90-264VAC full range, 47-63Hz / 127-370VDC
Power Factor	>0.90 at 230VAC / >0.95 at 115VAC
AC Input Current (typ.)	2.0A at 115VAC / 1.0A at 230VAC (PP150) 2.4A at 115VAC / 1.2A at 230VAC (PP200) 4A at 115VAC / 2A at 230VAC (PP350) 6A at 115VAC / 3A at 230VAC (PP500)
Inrush Current	30A at 115VAC / 60A at 230VAC (PP150) 25A at 115VAC / 50A at 230VAC (PP200) 22A at 115VAC / 44A at 230VAC (PP350) 30A at 115VAC / 50A at 230VAC (PP500)
Leakage Current	<1mA at 230VAC (PP150) / <2mA at 230VAC (PP200,PP350,PP500)
Output Voltage	See Table
Output Current	See Table
Voltage Tolerance	±1% (PP150) / ±2% (PP200,PP350,PP500)
Overload Protection	>110-135% (PP150) / >105% (PP200,PP350,PP500) of rated output power.
Overvoltage Protection	115-150% of rated output voltage.
Over Temperature Protection	90°C ±5°C (PP150 & PP200) 100°C ±5°C (PP350) 95°C ±5°C (PP500)
Operating Temperature Range	-20°C to +70°C. Above 50°C, derate linearly to 50% load at 70°C (PP150,PP200) -20°C to +65°C. Above 50°C, derate linearly to 50% load at 65°C (PP350) -20°C to +60°C. Above 50°C, derate linearly to 65% load at 60°C (PP500)
Operating Humidity	20-90% RH non-condensing
Storage Temperature Range	-20°C to +85°C (PP150) / -40°C to +85°C (PP200,PP350,PP500)
Storage Humidity	10-95% RH non-condensing
Temperature Coefficient	±0.05%/°C (0-50°C) (PP150) / ±0.03%/°C (0-50°C) (PP200,PP350,PP500)
Vibration	10-500Hz, 2G 10min/1 cycle, period 60 mins. Each along X, Y & Z axis
Safety Standards	UL60950-1 2nd Edition, TUV EN60950-1: 2006+A11 Approved
Withstand Voltage	I/P-O/P: 4242VDC, I/P-FG: 2121VDC for 1 minute
Isolation Resistance	I/P-O/P, I/P-FG, O/P-FG: 100MΩ / 500VDC
EMI Conduction & Radiation	EN55022: 2006 Class B, EN61204-3: 2000, EN61000-6-3: 2007
Harmonic Current	EN61000-3-2: 2006 Class A, EN61000-3-3: 1995+A1: 2001+A2: 2005: 2008
EMS Immunity	EN55024: 1998+A1: 2001+A2: 2003 light industry level, criteria A, EN61204-3: 2000,
Cooling	Convection cooling (PP150, PP200) Convection cooling up to 300W, 10.5CFM fan for 350W (PP350) Convection cooling up to 400W, 23.5CFM fan for 500W (PP500)
Dimensions	198(L) x 68(W) x 33(H) mm (PP150) 202(L) x 101.5(W) x 38(H) mm (PP200) 231(L) x 101.5(W) x 38(H) mm (PP350) 254(L) x 127(W) x 38(H) mm (PP500)
Weight	0.42Kg (PP150) 0.70Kg (PP200) 1.06Kg (PP350) 1.70Kg (PP500)

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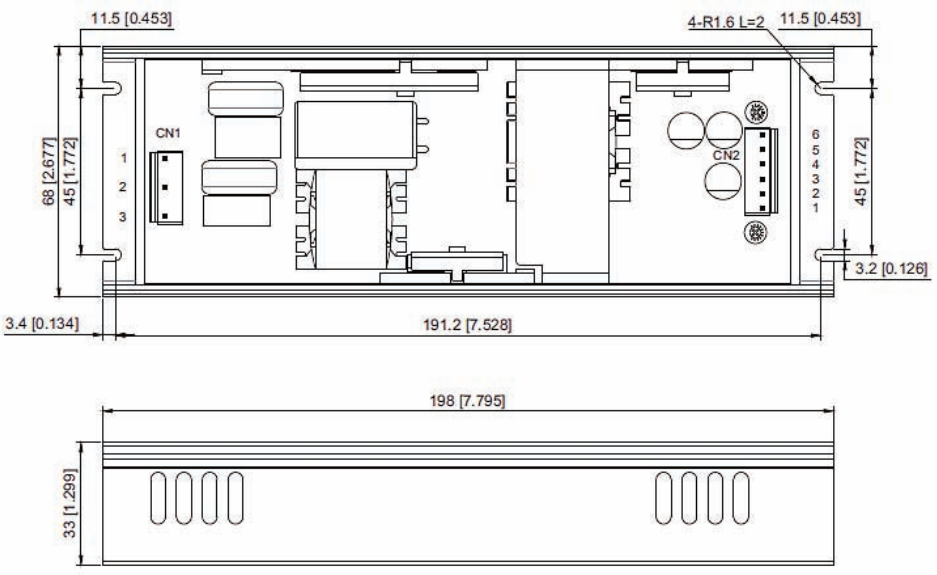
Output Voltage and Current Ratings

MODEL	OUTPUT VOLTAGE	MAX OUTPUT CURRENT	VOLTAGE Adj. RANGE	RIPPLE & NOISE	LINE REG.	LOAD REG.	POWER Max.	EFF.
PP150-12	12V	11A	10.8-13.2V	150mV p-p	±1%	±2%	132W	88%
PP150-15	15V	10A	13.5-16.5V	150mV p-p	±1%	±2%	150W	88%
PP150-20	20V	7.5A	18.0-22.0V	150mV p-p	±1%	±2%	150W	89%
PP150-24	24V	6.3A	21.6-26.4V	240mV p-p	±1%	±2%	151.2W	90%
PP150-30	30V	5.0A	27.0-33.0V	240mV p-p	±1%	±2%	150W	90%
PP150-36	36V	4.2A	32.4-39.6V	240mV p-p	±1%	±2%	151.2W	90%
PP150-48	48V	3.2A	43.2-52.8V	240mV p-p	±1%	±2%	153.6W	90%
PP200-12	12V	16.7A	10.8-13.2V	120mV p-p	±1%	±2%	200.4W	87%
PP200-15	15V	13.4A	13.5-16.5V	150mV p-p	±1%	±2%	201W	87%
PP200-24	24V	8.4A	21.6-26.4V	180mV p-p	±1%	±2%	201.6W	88%
PP200-48	48V	4.2A	43.2-52.8V	150mV p-p	±1%	±2%	200W	88%
PP350-12	12V	29.2A	10.8-13.2V	150mV p-p	±1%	±2%	350W	88%
PP350-15	15V	23.4A	13.5-16.5V	150mV p-p	±1%	±2%	351W	89%
PP350-24	24V	14.6A	21.6-26.4V	150mV p-p	±1%	±2%	350.4W	89%
PP350-48	48V	7.3A	43.2-52.8V	150mV p-p	±1%	±2%	350.4W	90%
PP500-12	12V	42A	10.8-13.2V	150mV p-p	±1%	±2%	504W	90%
PP500-15	15V	33.5A	13.5-16.5V	150mV p-p	±1%	±2%	502.5W	90%
PP500-24	24V	21A	21.6-26.4V	150mV p-p	±1%	±2%	504W	90%
PP500-48	48V	10.5A	43.2-52.8V	150mV p-p	±1%	±2%	504W	91%

NOTE:
Maximum current ratings shown for PP350 & PP500 units are with forced air cooling. See electrical specification table for required CFM and derating for convection cooling

Mechanical & Connection Details

PP150: 198(L) x 68(W) x 33(H) mm; Weight: 424g; (Option: Screw terminals for input and output: Model No. PP150T-XX)



Connection Details

AC Input Connector

Pin	Function
1	Earth
2	Neutral
3	Live

Mating connector: JST VHR-5N

DC Output Connector

Pin	Function
1-3	-Vo
4-6	+Vo

Mating connector: JST VHR-6N

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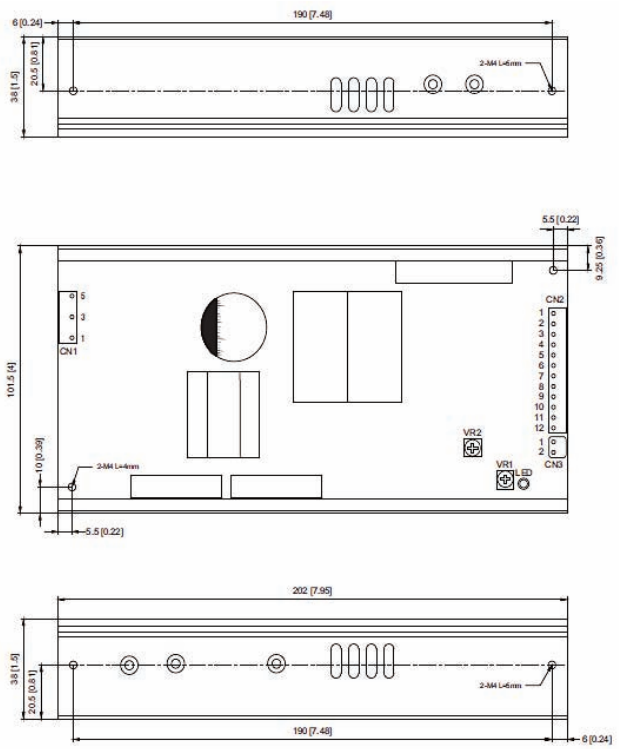
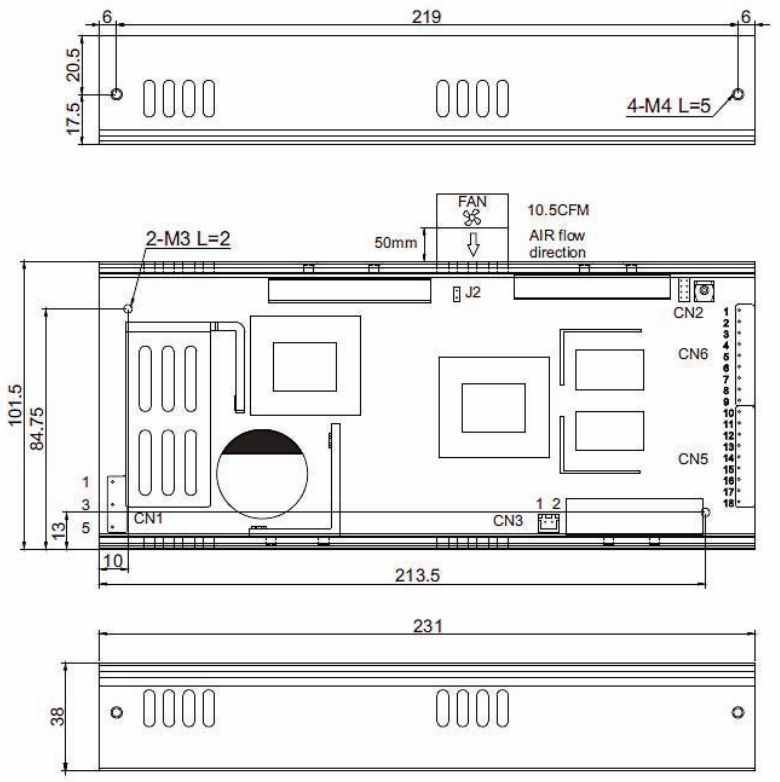
PP200: 202(L) x 101.5(W) x 38(H) mm; Weight: 700g; (Option: Screw terminals for output: Model No. PP200T-XX)



Connection Details	
CN1: AC Input Connector	
Pin	Function
1	Earth
2	No Pin
3	Neutral
4	No Pin
5	Live
Mating connector: JST VHR-5N or equiv.	
CN3: DC Output Connector	
Pin	Function
1	Com
2	N.C.
Mating connector: JST VHR-2N or equiv.	
CN2: DC Output Connector	
Pin	Function
1-6	-Vo
7-12	+Vo
Mating connector: JST VHR-6N (2 off)	

PP350: 231(L) x 101.5(W) x 38(H) mm; Weight: 1060g; (Option: Screw terminals for output: Model No. PP350T-XX)



Connection Details	
CN1: AC Input Connector	
Pin	Function
1	Earth
2	No Pin
3	Neutral
4	No Pin
5	Live
Mating connector: JST VHR-5N or equiv.	
CN2: Auxiliaries Connector	
Pin	Function
1	+VS
2	S GND
3	-INH
4	N/C
5	-VS
6	POK
7	+INH
8	-VS
Mating connector: JST PHD-08VS or equiv.	
CN3: Fan Power Connector	
Pin	Function
1	S GND
2	+12V
Mating connector: JST XHP-2 or equiv.	
CN5/CN6: DC Output Connector	
Pin	Function
1-9	-Vo
10-18	+Vo
Mating connector: JST VHR-9N or equiv.	

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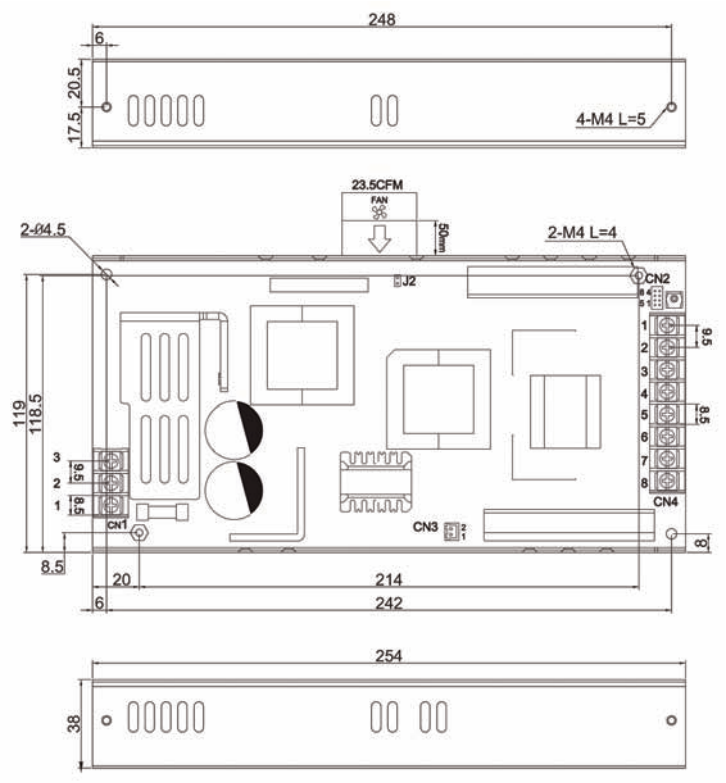
PP500: 254(L) x 127(W) x 38(H) mm; Weight: 1700g



Connection Details	
CN1: AC Input Connector	
Pin	Function
1	Live
2	Neutral
3	Earth
9.5mm pitch screw terminal block	
CN2: Auxiliaries Connector	
Pin	Function
1	+VS
2	Comm.
3	-INH
4	N/C
5	-VS
6	POK
7	+INH
8	-VS
Mating connector: JST PHD-08VS or equiv.	
CN3: Fan Power Connector	
Pin	Function
1	Comm.
2	+12V
Mating connector: JST XHP-2 or equiv.	
CN4: DC Output Connector	
Pin	Function
1-4	-Vo
5-8	+Vo
9.5mm pitch screw terminal block	

Function Description of CN2 & CN3 (PP350 & PP500)

CN2 Connections		
1	VS+	Remote Sense VO(+)
2	S GND	Signal Common
3	INH-	Remote ON/OFF Signal (-)
4	N.C.	N.C.
5	VS-	Remote Sense VO(-)
6	POK	Power OK Signal Control
7	INH+	Remote ON/OFF Signal (+)
8	VS-	Remote Sense VO (-)

CN3 Connections		
1	S GND	Return
2	+12V	Fan Voltage 0.8A max.

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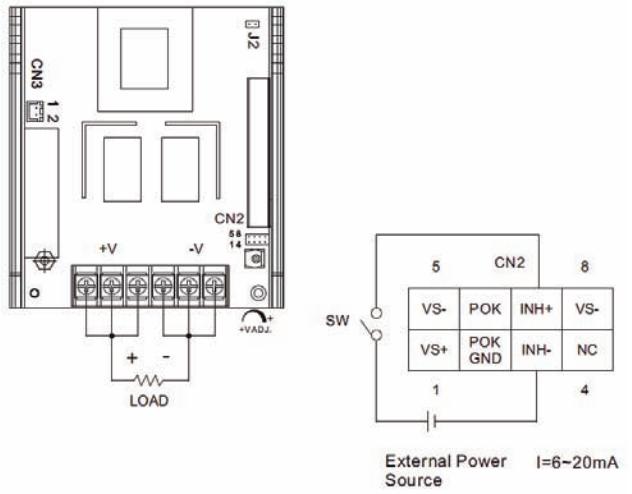
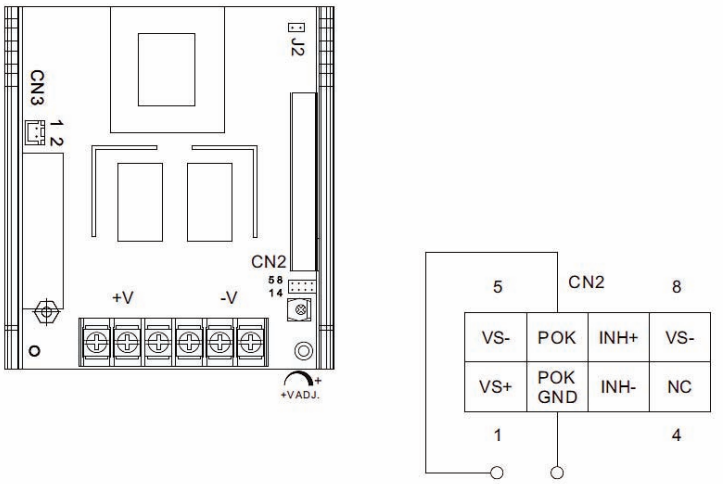
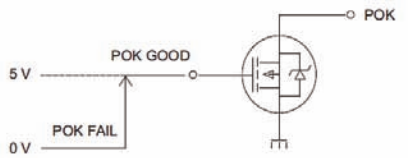
PP350 & PP500: Remote Control - PSU can be turned ON/OFF using the remote control function



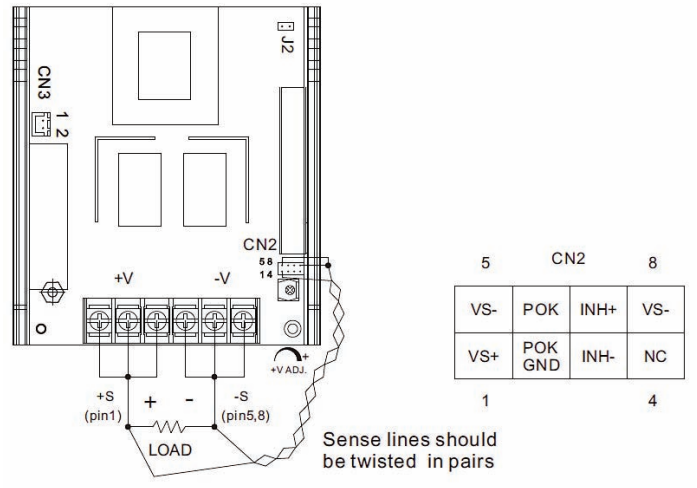
J2 Pin & CN2 Connections		
J2	INH+(pin 7)/INH-(pin 3)	Output Status
Open	SW ON (>2.5V)	ENABLE
Open	SW OFF (<0.8V)	DISABLE
Closed	SW ON (>2.5V)	DISABLE
Closed	SW OFF (<0.8V)	ENABLE

PP350 & PP500: P-OK Control - POK signal uses open drain MOSFET control, Max. 30Vds, 0.1A



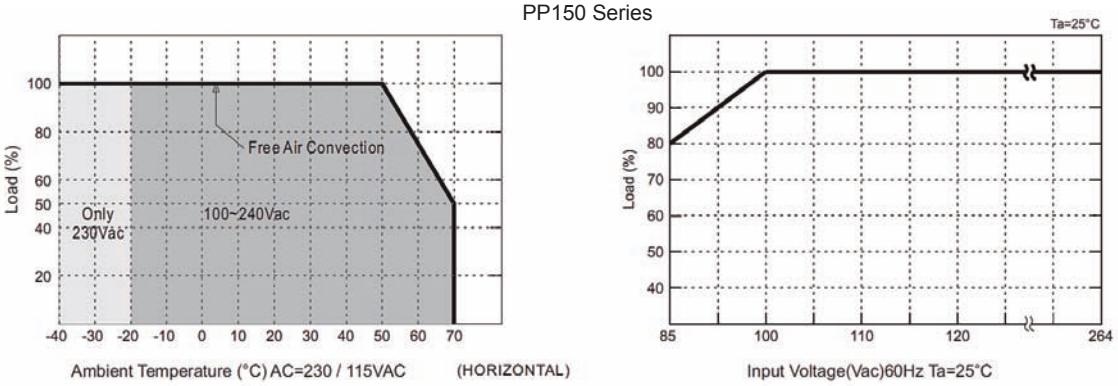


PP350 & PP500: Remote Sense - compensates voltage drops in the load wiring up to 0.5V

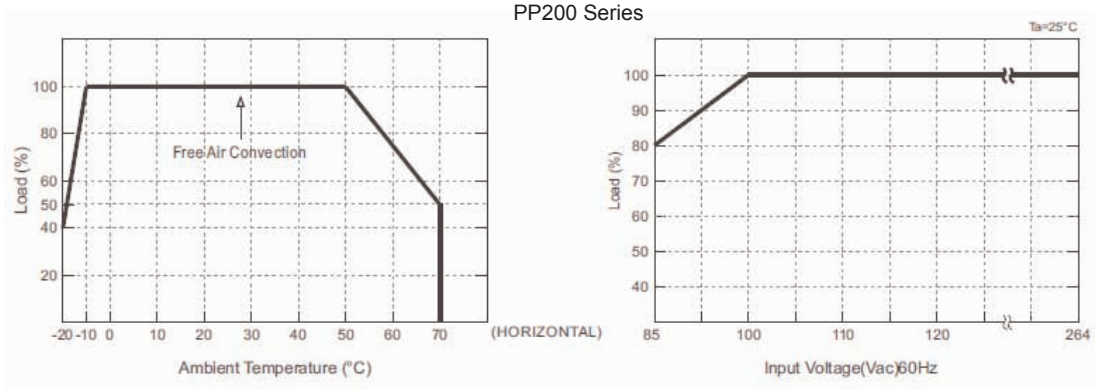


Derating Curves

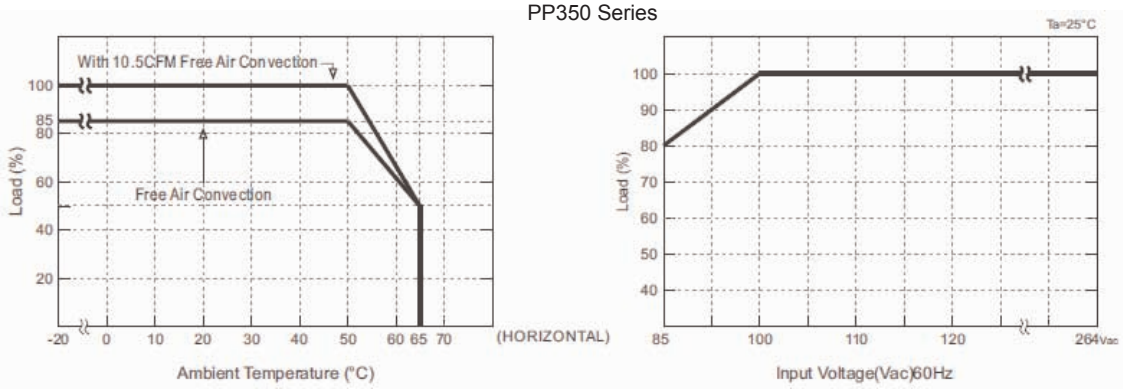
PP150 Series



PP200 Series



PP350 Series



PP500 Series