

**Features:**

- ◆ High Density, High Efficiency > 90%
- ◆ Mini. Size, Low Profile 5.9"x3.1"x1.6" (150x80x40mm)
- ◆ Low Leakage Current < 750uA @ 230Vac
- ◆ Safety Compliant With UL62368-1
- ◆ OCP , OVP , OTP Protection
- ◆ Total Max. Power 350W@100V-240V/50°C Fan-less(note1)
- ◆ Total Max. Power 450W max. With a 20CFM Airflow

**Application:**

- POE , POS , LCD TV
- Industrial Equipment
- Gaming Machine

**Safety Certified:**



**INPUT SPECIFICATIONS**

INPUT VOLTAGE	Universal Input : 90 ~ 264Vac
INPUT FREQUENCY	47 ~ 63Hz
INPUT CURRENT	6.3A/115Vac , 3.0A/230Vac
INRUSH CURRENT (Typ.)	100A/230Vac half cycle cold start
POWER FACTOR (Typ.)	PF > 0.95 / full load
EFFICIENCY (Typ.)	90%
LEAKAGE CURRENT	Leakage current < 750uA/230Vac

**OUTPUT SPECIFICATIONS**

VOLTAGE	+48V
RATED LOAD(Convection)	0 ~ 7.29A
Max. LOAD(W/20CFM Airflow or Fan)	9.37A
RIPPLE & NOISE (note 2)	480mV
REGULATION	±3%
Max. POWER (fan less/force air)	350W/450W

**PROTECTION SPECIFICATIONS**

OCP: ( Over Load Protection)	110 ~ 150%
OVP: ( Over Voltage Protection)	110 ~ 130%
OTP: ( Over Temp. Protection)	Hiccup Mode

**GENERAL SPECIFICATIONS**

HOLD UP TIME (Typ.)	≥ 16mS @ 200W, ≥ 12mS @ 300W, ≥ 8mS @ 400W
REMOTE CONTROL	N/A
DC OK SIGNAL	LED
COOLING	Convection/350W, 20CFM for 450W

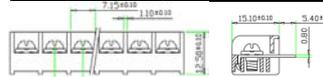
**SAFETY & ENVIRONMENTAL SPECIFICATIONS**

SAFETY APPROVALS REQUIRED :	Meet UL , cUL , CE , FCC , CB
SAFETY STANDARDS	IEC/UL/CUL 62368-1
EMC EMISSION (note 3)	EN55032(CISPR22) & FCC Class B.
OPERATING AMBIENT TEMP.	-40 ~ 85°C (note 4)

**Input Connector (CN1) :**

HOWDER HD Terminal Block: HD-832-02P or Equ.  
Screw : M3.0

Pin	Signal	
1	N	AC input (natural)
2	L	AC input (line)



**Output Connector (CN2) -8PIN:**

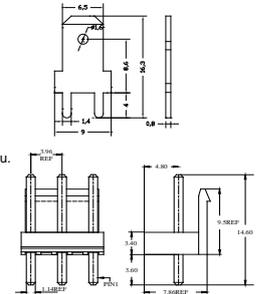
JST B\*P-VH Series or TKP PVHI-XX Series or Equ.  
Mates with JST VHR-\*N Series or TKP HVH-XX Series or Equ.

Pin	Signal	Pin	Signal
1	V1	5	GND
2	V1	6	GND
3	V1	7	GND
4	V1	8	GND

V1=48V

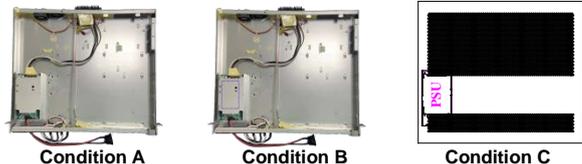
**Input Connector(CN3) : (Optional)**

Safety ground pin→Quick Disconnect TAB, 6.35(0.250)X0.81(0.032) (Molex(19705-4301)or Equ). The safety ground connection is provided by the Quick Disconnect TAB near CN1.

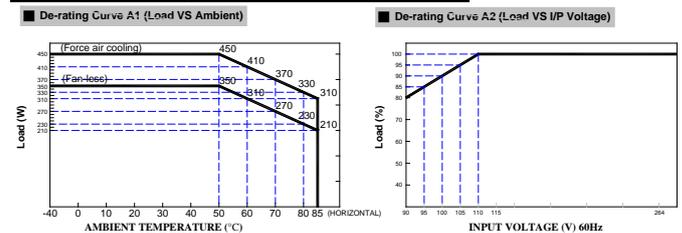


**De-rating Curve--- (Fan less)**

- Condition A:** The bottom side of power unit direct fix to system frame.
- Condition B:** Add supper soft thermal pad (K≥1.3) between system cover and top side of power unit.
- Condition C:** The reference ven-hole on top side of the system box.



**350W (Fan less) DE-RATING O/P WATTS**

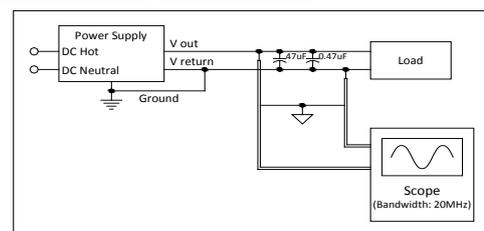


Note: Thermal test, SET-UP Condition → A+B+C

Note 1: The maximum fan less ambient thermal test condition, please refer to the following conditions.

- The part of LF1 must be ≤ 120°C and the parts of RL1(thermal relay) must be ≤ 115°C (the location of LF1 and RL1, please reference Typical Mechanical Drawing).

**Ripple& Noise Voltage Test Circuit**



Note 2: The ripple noise voltage of the output shall be measured at end of the output pins connector of the length 100 mm output wire cable. Ripple and noise are measured at the connectors with a 0.47uF ceramic capacitor and a 47uF electrolytic capacitor to simulate system loading. (Please reference Ripple& Noise Voltage Test Circuit).

Note 3: Suggested external input filter in order to meet class B in EN55032(CISPR22) and FCC Class B.

a. Between system AC Inlet and power Vac-connect CN1 addition a 2~4 turns EMI common choke, that spec. is (L+N+FG) 3 wire together 2~4 turns insert with K5B RC 25x12x15-M clamp EMI core or equ.  
b. System with external EMI Filter on Vac input: Filter Type (15GEEG3E-R or equ)---Manufactory (Delta)

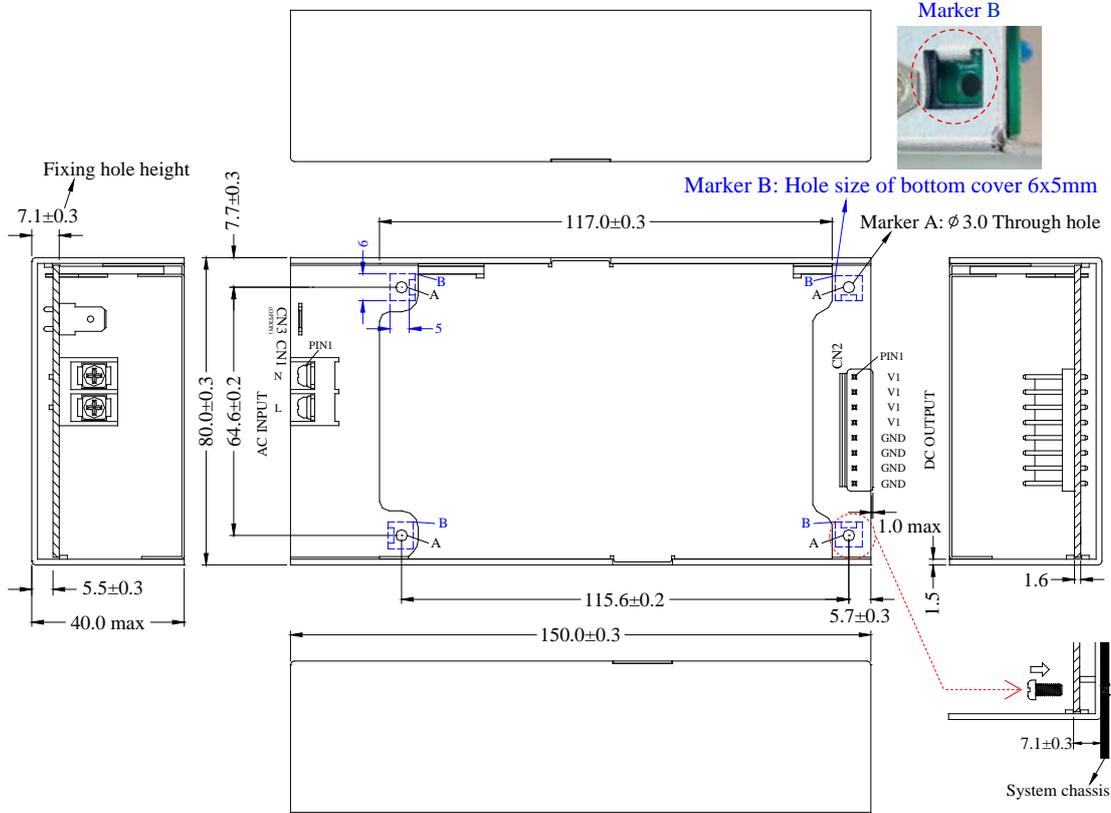
Note 4: -40°C start up condition, o/p ≤ 200W.

**Mechanism of Fixing hole code : M\*\* → M50, M52**

**Typical Mechanical Drawing :**

**WP225F11-450-48ADJ(+48V)NFAK01M50 (Connector code→AK)**

Fix hole: marker A are  $\phi 3.0$  through holes, marker B are hole size of bottom cover 6x5mm, Case dimension ( L\*W\*H ): 150\*80\*40 mm



**WP225F11-450-48ADJ(+48V)NFAK01M52 (Connector code→AK)**

Fix hole: marker A are M3 fixing NUT, Case dimension ( L\*W\*H ): 150\*80\*40 mm

