

## Open Frame Type Switching Power Supply

### 280Watts Medical and ITE Single Output

#### FEATURES

- ITE 60950-1, 62368-1 & Medical 60601-1 approvals.
- High Power density, 280W in 5" x 3" footprint.
- Medical applications Protection: Means of Patient Protection ( MOPP).
- Altitude during operation: ITE up to 5000m ,Medical Below 3000m.
- Main output and Standby output Power ON LED indicators.
- 3 years warranty.



#### ELECTRICAL SPECIFICATIONS

- Input range : 90 - 264VAC (Refer to derating curve).
- Frequency : 47 - 63Hz.
- Power Factor : > 0.95 @115VAC; > 0.90 @230VAC @full load.
- Inrush current : <30A peak @115VAC; <60A peak @230VAC cold start @25°C.
- Input current (rms) : 3.5A @115VAC; 2A @230VAC max.
- Efficiency : > 91% typical @full load, 230VAC.
- leakage current < 100uA @264VAC.
- Maximum output power : 280Watts forced air, 210Watts convection cooling.
- Hold-up time : > 10ms typical @full load, 115VAC.
- Short circuit protection : Auto-recovery.
- Over load protection : 105% to 150% maximum rating, Auto-recovery.
- Over voltage protection : Latching type. AC Recycle.
- 5Vsb meet ErP 0.5W @ No load.
- Remote control ( Inhibit ) function.

#### RoHS compliant

Dimension : L127 ×W76.2 ×H30mm ( 5" x 3" x 1.18")

Weight : 0.350 kgs. ( 0.775 lbs. )

#### SAFETY STANDARDS

UL60601-1 3.1<sup>rd</sup> Edition  
UL/c-UL UL60950-1  
UL/c-UL UL62368-1  
EN60601-1 3.1<sup>rd</sup> Edition  
TUV EN60950-1  
TUV EN62368-1  
IEC EN60601-1 3.1<sup>rd</sup> Edition  
CB IEC 60950-1  
CB IEC 62368-1

#### EMC STANDARDS

IEC60601-1-2 Ed4:2014  
EN60601-1-2 Ed4:2015  
EN55024  
EN55011 Class B  
EN55032 Class B  
FCC Part 15 Class B  
FCC Part 18 Class B  
CE

#### ENVIRONMENTAL

- Operating temperature : -20°C to +70°C (Refer to derating curve).
- Storage temperature: -20°C to +85°C.
- Humidity: Non-condensing 0% to 90%.
- MTBF : > 250,000 hours @full load and 25°C ambient temperature per Telcordia(Bellcore).

#### DC OUTPUT & FEATURES

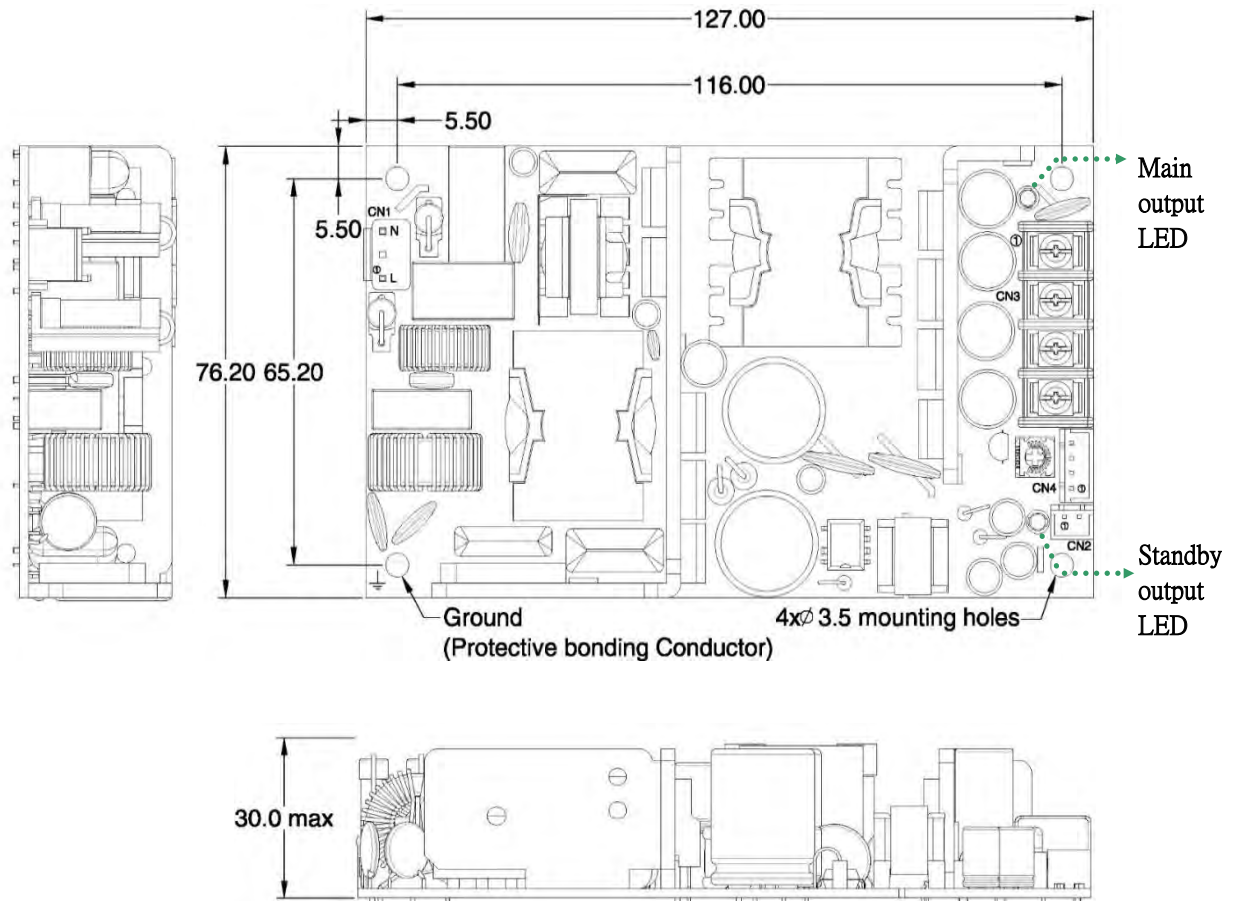
| Model No.<br>( Note 1.) | Output<br>Voltage<br>(V1) | Maximum Load (V1) |                      | Output<br>Regulation<br>(V1) | Ripple<br>Noise<br>(V1) | Standby<br>supply<br>(V2) | FAN output<br>(V3) | Convection<br>total power | 18CFM<br>Forced air<br>total power |
|-------------------------|---------------------------|-------------------|----------------------|------------------------------|-------------------------|---------------------------|--------------------|---------------------------|------------------------------------|
|                         |                           | Convection        | 18 CFM Forced<br>Air |                              |                         |                           |                    |                           |                                    |
| VP280B-1Y120 Z          | +12V                      | 17.5A             | 23.33A               | ±3%                          | 150mV                   | 5V/0.5A                   | 12V/0.3A           | 210W                      | 280W                               |
| VP280B-1Y240 Z          | +24V                      | 8.75A             | 11.66A               | ±3%                          | 240mV                   | 5V/0.5A                   | 12V/0.3A           | 210W                      | 280W                               |
| VP280B-1Y280 Z          | +28V                      | 7.5A              | 10A                  | ±2%                          | 280mV                   | 5V/0.5A                   | 12V/0.3A           | 210W                      | 280W                               |
| VP280B-1Y360 Z          | +36V                      | 5.83A             | 7.77A                | ±2%                          | 300mV                   | 5V/0.5A                   | 12V/0.3A           | 210W                      | 280W                               |
| VP280B-1Y480 Z          | +48V                      | 4.375A            | 5.83A                | ±2%                          | 300mV                   | 5V/0.5A                   | 12V/0.3A           | 210W                      | 280W                               |
| VP280B-1Y540 Z          | +54V                      | 3.88A             | 5.18A                | ±2%                          | 400mV                   | 5V/0.5A                   | 12V/0.3A           | 210W                      | 280W                               |

#### Note:

1. Output connector options: Z=T ( Terminal block type, pitch 8.25mm) or Z=M ( Mini-fit type, pitch 4.2mm) or Z=C ( Connector type, pitch=3.96mm ).
2. All models are equipped with 5Vsb & 12V fan outputs.
3. All models have total power 210W Max. convection or 280W Max. forced air cooling.
4. Ripple and noise are measured at oscilloscope 20MHz bandwidth by a 47uF electrolytic capacitor and a 0.1uF ceramic capacitor in parallel at output connector.

**Open Frame Type Switching Power Supply**

**MECHANICAL SPECIFICATION**

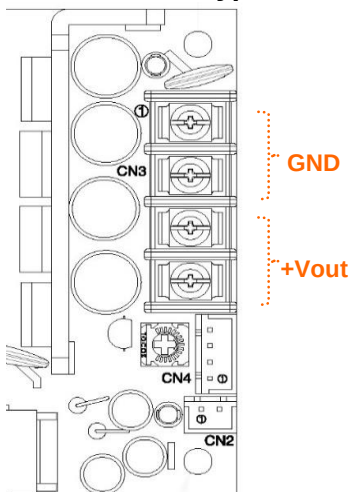


Dimension : L127 xW76.2 xH30mm ( 5" x 3" x 1.18")

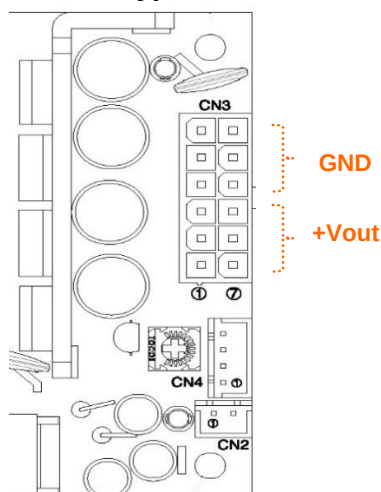
NOTE:TOLERANCE: +/-0.5mm(0.02")

**MAIN OUTPUT OPTIONAL TYPE ( CN3 )**

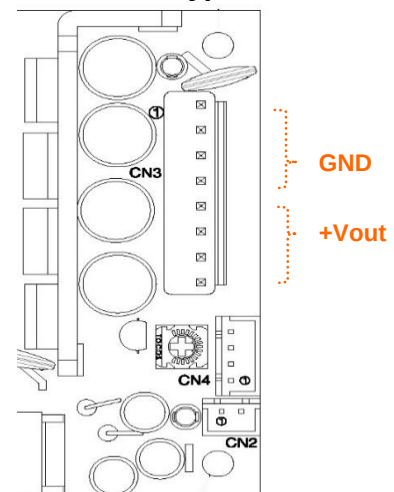
**Terminal Block Type**



**Mini Fit Type**



**Connector Type**



## Open Frame Type Switching Power Supply

### MECHANICAL SPECIFICATION

#### MATCHING CONNECTORS

##### CN1: Input Connector

JST B2P3-VH pitch: 3.96mm or equivalent,  
mates with JST VAR-2 or equivalent

| Pin # | Signal     |
|-------|------------|
| 1     | AC Line    |
| 2     | AC Neutral |

##### CN2: FAN Output Connector

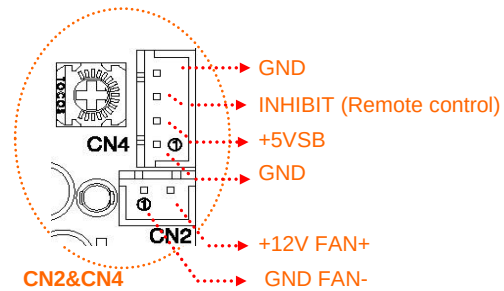
JST B2B-XH-A pitch: 2.5mm or equivalent,  
mates with JST XHP-2 or equivalent

| Pin # | Signal    |
|-------|-----------|
| 1     | GND FAN-  |
| 2     | +12V FAN+ |

##### CN4: Remote control & Standby supply

JST B4B-XH-A pitch: 2.5mm or equivalent,  
mates with JST XHP-4 or equivalent

| Pin # | Signal                   |
|-------|--------------------------|
| 1     | GND                      |
| 2     | +5VSB                    |
| 3     | INHIBIT (Remote control) |
| 4     | GND                      |



INHIBIT→ Logic level HIGH (5V) or Floating : Enable, Logic level LOW : Disable

##### CN3: Main Output Connector

###### Terminal Block Type

4-Pole Terminal block pitch: 8.25mm ,  
rate 20A/300V or equivalent

| Pin # | Signal |
|-------|--------|
| 1     | GND    |
| 2     | GND    |
| 3     | +Vout  |
| 4     | +Vout  |

###### Connector Type

JST B8P-VH-B pitch: 3.96mm or equivalent,  
mates with JST VHR-8N or equivalent

| Pin # | Signal | Pin # | Signal |
|-------|--------|-------|--------|
| 1     | GND    | 5     | +Vout  |
| 2     | GND    | 6     | +Vout  |
| 3     | GND    | 7     | +Vout  |
| 4     | GND    | 8     | +Vout  |

##### Mini Fit type

12 PIN Min Fit Pitch:4.2mm .

Molex P/N 39-28-1123 or equivalent.

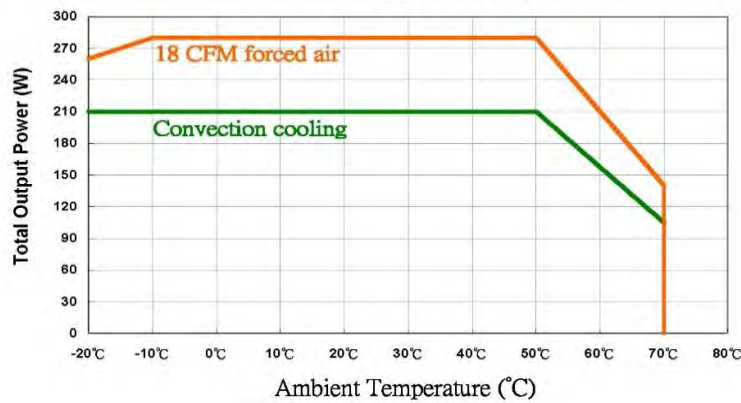
| Pin # | Signal | Pin # | Signal |
|-------|--------|-------|--------|
| 1     | +Vout  | 7     | +Vout  |
| 2     | +Vout  | 8     | +Vout  |
| 3     | +Vout  | 9     | +Vout  |
| 4     | GND    | 10    | GND    |
| 5     | GND    | 11    | GND    |
| 6     | GND    | 12    | GND    |

**Open Frame Type Switching Power Supply**

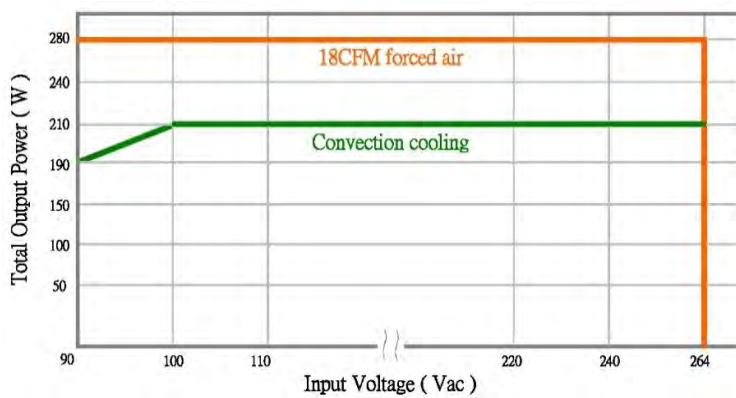
**ENVIRONMENTAL**

**DERATING CURVE**

Power Derating Curve

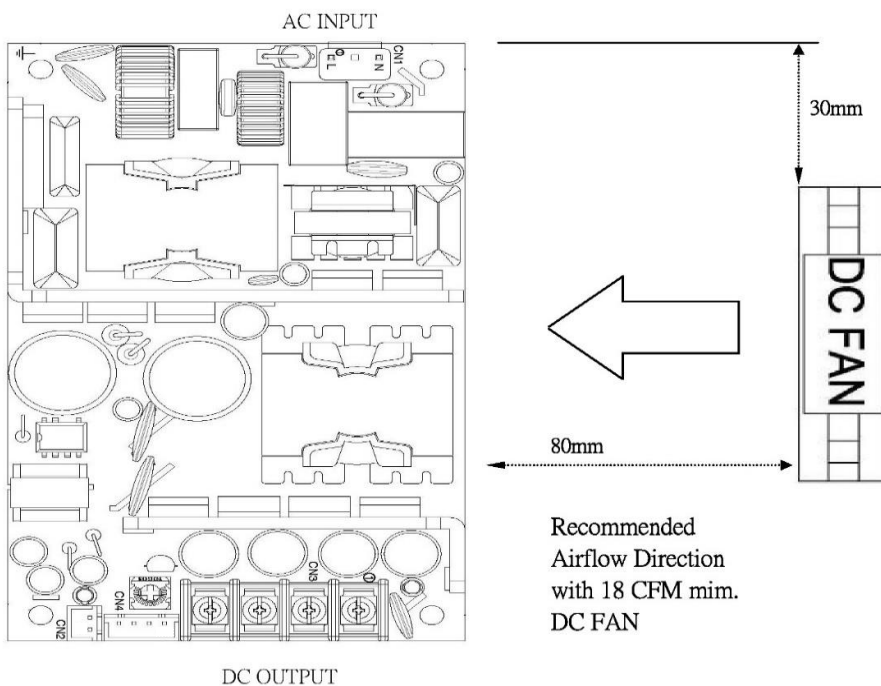


convection cooling and  
18CFM forced air cooling  
Derate linearly 2.5% per °C from 51 to 70°C



Convection cooling total output 210W  
Derate linearly 1% per Vac from 100 to 90Vac

**DC FAN Recommended Direction**



## Open Frame Type Switching Power Supply

### 280Watts Medical and ITE U Bracket Single Output

#### FEATURES

- ITE 60950-1, 62368-1 & Medical 60601-1 approvals.
- High Power density, 280W in 5" x 3.28" footprint.
- Medical applications Protection: Means of Patient Protection ( MOPP).
- Altitude during operation: ITE up to 5000m ,Medical Below 3000m.
- Main output and Standby output Power ON LED indicators.
- 3 years warranty.



#### ELECTRICAL SPECIFICATIONS

- Input range : 90 - 264VAC (Refer to derating curve).
- Frequency : 47 - 63Hz.
- Power Factor : > 0.95 @115VAC; > 0.90 @230VAC @full load.
- Inrush current : <30A peak @115VAC; <60A peak @230VAC cold start @25°C.
- Input current (rms) : 3.5A @115VAC; 2A @230VAC max.
- Efficiency : > 91% typical @full load, 230VAC.
- leakage current < 100uA @264VAC.
- Maximum output power : 280Watts forced air, 200Watts convection cooling.
- Hold-up time : > 10ms typical @full load, 115VAC.
- Short circuit protection : Auto-recovery.
- Over load protection : 105% to 150% maximum rating, Auto-recovery.
- Over voltage protection : Latching type. AC Recycle.
- 5Vsb meet ErP 0.5W @ No load.
- Remote control ( Inhibit ) function.

#### RoHS compliant

Dimension : L127 ×W83.2 ×H38mm ( 5" x 3.28" x 1.5")

Weight : 0.475 kgs. ( 1.05lbs. )

#### SAFETY STANDARDS

UL60601-1 3.1<sup>rd</sup> Edition  
UL/c-UL UL60950-1  
UL/c-UL UL62368-1  
EN60601-1 3.1<sup>rd</sup> Edition  
TUV EN60950-1  
TUV EN62368-1  
IEC EN60601-1 3.1<sup>rd</sup> Edition  
CB IEC 60950-1  
CB IEC 62368-1

#### EMC STANDARDS

IEC60601-1-2 Ed4:2014  
EN60601-1-2 Ed4:2015  
EN55024  
EN55011 Class B  
EN55032 Class B  
FCC Part 15 Class B  
FCC Part 18 Class B  
CE

#### ENVIRONMENTAL

- Operating temperature : -20°C to +70°C (Refer to derating curve).
- Storage temperature: -20°C to +85°C.
- Humidity: Non-condensing 0% to 90%.
- MTBF : > 250,000 hours @full load and 25°C ambient temperature per Telcordia(Bellcore).

#### DC OUTPUT & FEATURES

| Model No.<br>( Note 1.) | Output Voltage<br>(V1) | Maximum Load (V1) |                   | Output Regulation<br>(V1) | Ripple Noise<br>(V1) | Standby supply<br>(V2) | FAN output<br>(V3) | Convection total power | 18CFM Forced air total power |
|-------------------------|------------------------|-------------------|-------------------|---------------------------|----------------------|------------------------|--------------------|------------------------|------------------------------|
|                         |                        | Convection        | 18 CFM Forced Air |                           |                      |                        |                    |                        |                              |
| VP280B-1Y120UZ          | +12V                   | 16.66A            | 23.33A            | ±3%                       | 150mV                | 5V/0.5A                | 12V/0.3A           | 200W                   | 280W                         |
| VP280B-1Y240UZ          | +24V                   | 8.33A             | 11.66A            | ±3%                       | 240mV                | 5V/0.5A                | 12V/0.3A           | 200W                   | 280W                         |
| VP280B-1Y280UZ          | +28V                   | 7.14A             | 10A               | ±2%                       | 280mV                | 5V/0.5A                | 12V/0.3A           | 200W                   | 280W                         |
| VP280B-1Y360UZ          | +36V                   | 5.55A             | 7.77A             | ±2%                       | 300mV                | 5V/0.5A                | 12V/0.3A           | 200W                   | 280W                         |
| VP280B-1Y480UZ          | +48V                   | 4.16A             | 5.83A             | ±2%                       | 300mV                | 5V/0.5A                | 12V/0.3A           | 200W                   | 280W                         |
| VP280B-1Y540UZ          | +54V                   | 3.7A              | 5.18A             | ±2%                       | 400mV                | 5V/0.5A                | 12V/0.3A           | 200W                   | 280W                         |

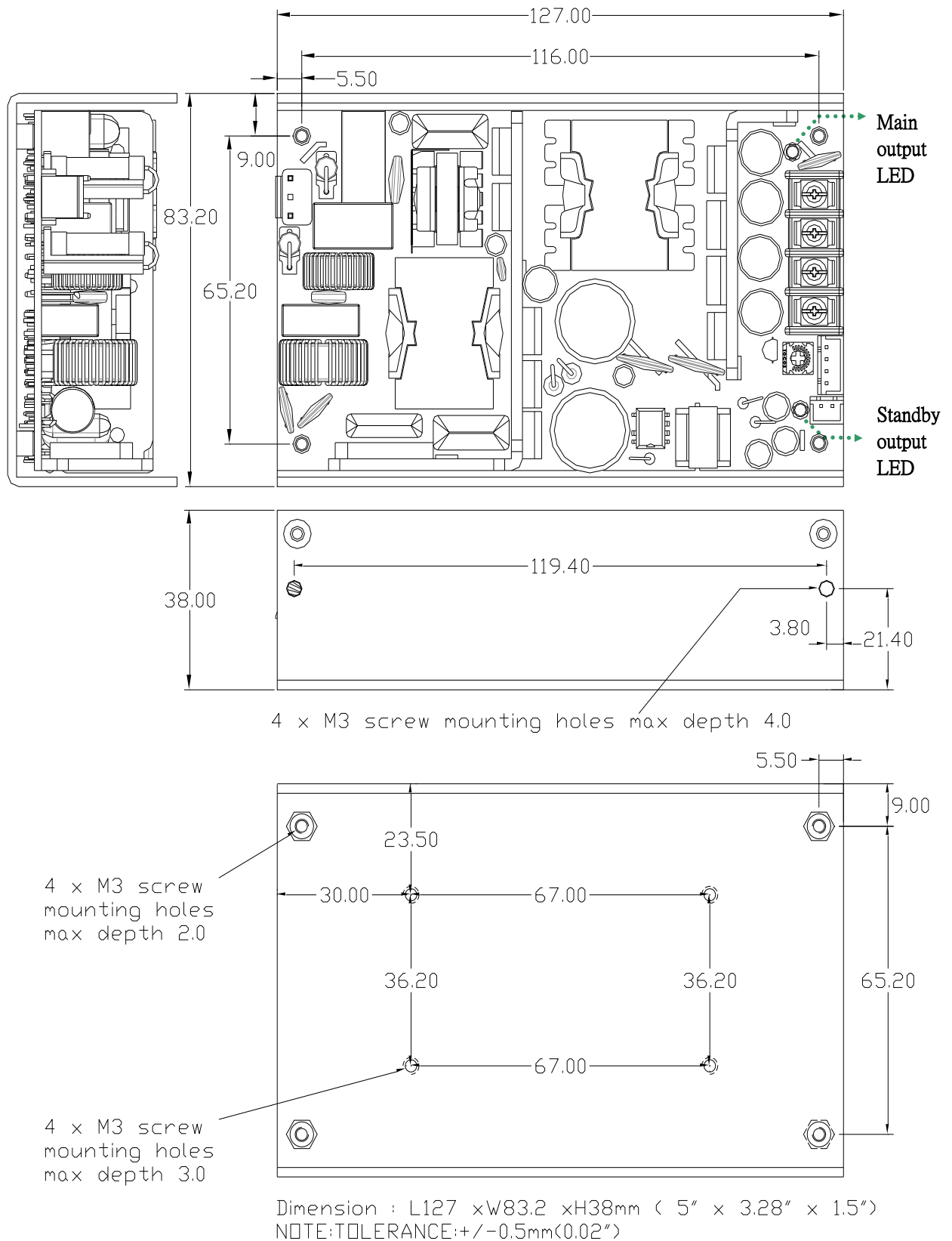
#### Note:

1. Output connector options: Z=T ( Terminal block type, pitch 8.25mm) or Z=M ( Mini-fit type, pitch 4.2mm) or Z=C ( Connector type, pitch=3.96mm ).
2. All models are equipped with 5Vsb & 12V fan outputs.
3. All models have total power 200W Max. convection or 280W Max. forced air cooling.
4. Ripple and noise are measured at oscilloscope 20MHz bandwidth by a 47uF electrolytic capacitor and a 0.1uF ceramic capacitor in parallel at output connector.



**Open Frame Type Switching Power Supply**

**MECHANICAL SPECIFICATION**



## Open Frame Type Switching Power Supply

### MECHANICAL SPECIFICATION

#### MATCHING CONNECTORS

##### CN1: Input Connector

JST B2P3-VH pitch: 3.96mm or equivalent,  
mates with JST VAR-2 or equivalent

| Pin # | Signal     |
|-------|------------|
| 1     | AC Line    |
| 2     | AC Neutral |

##### CN2: FAN Output Connector

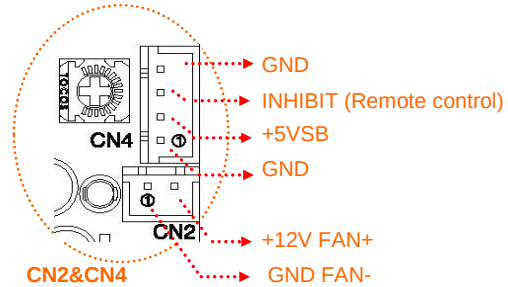
JST B2B-XH-A pitch: 2.5mm or equivalent,  
mates with JST XHP-2 or equivalent

| Pin # | Signal    |
|-------|-----------|
| 1     | GND FAN-  |
| 2     | +12V FAN+ |

##### CN4: Remote control & Standby supply

JST B4B-XH-A pitch: 2.5mm or equivalent,  
mates with JST XHP-4 or equivalent

| Pin # | Signal                   |
|-------|--------------------------|
| 1     | GND                      |
| 2     | +5VSB                    |
| 3     | INHIBIT (Remote control) |
| 4     | GND                      |



INHIBIT → Logic level HIGH (5V) or Floating : Enable, Logic level LOW : Disable

##### CN3: Main Output Connector

###### Terminal Block Type

4-Pole Terminal block pitch: 8.25mm ,  
rate 20A/300V or equivalent

| Pin # | Signal | Pin # | Signal |
|-------|--------|-------|--------|
| 1~2   | GND    | 3~4   | +Vout  |

###### Connector Type

JST B8P-VH-B pitch: 3.96mm or equivalent,  
mates with JST VHR-8N or equivalent

| Pin # | Signal | Pin # | Signal |
|-------|--------|-------|--------|
| 1~4   | GND    | 5~8   | +Vout  |

##### Mini Fit type

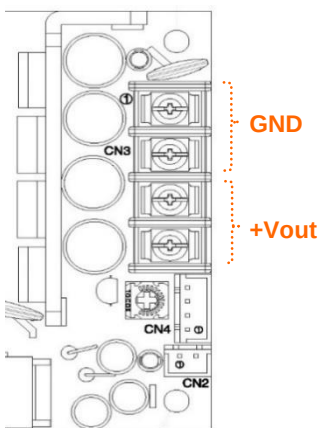
12 PIN Min Fit Pitch: 4.2mm .

Molex P/N 39-28-1123 or equivalent.

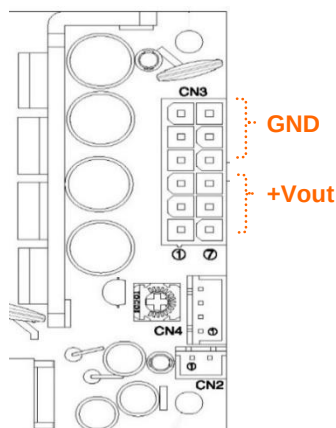
| Pin # | Signal | Pin # | Signal |
|-------|--------|-------|--------|
| 1~3   | +Vout  | 7~10  | +Vout  |
| 4~6   | GND    | 10~12 | GND    |

#### MAIN OUTPUT OPTIONAL TYPE ( CN3 )

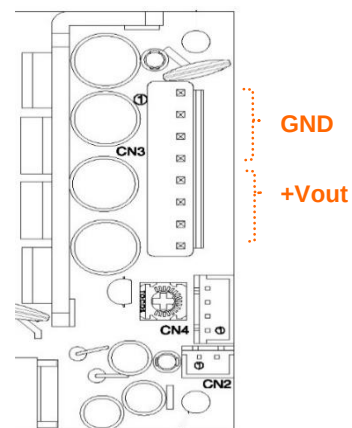
##### Terminal Block Type



##### Mini Fit Type



##### Connector Type

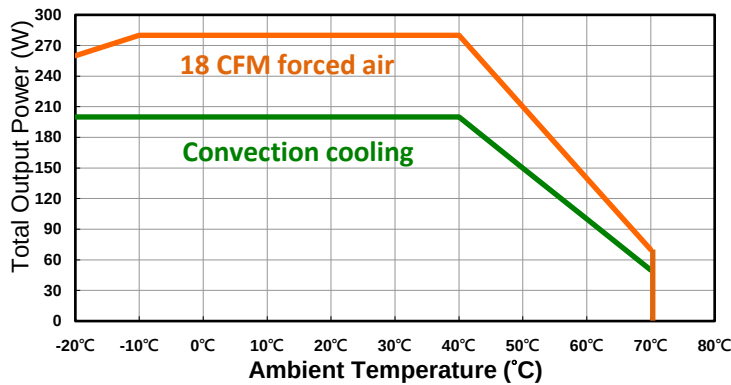


**Open Frame Type Switching Power Supply**

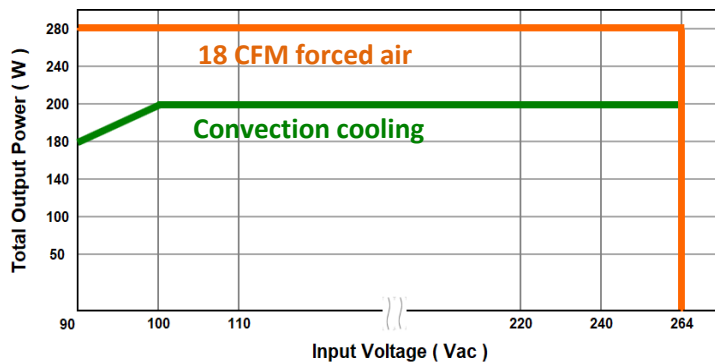
**ENVIRONMENTAL**

**DERATING CURVE**

**Power Derating Curve**

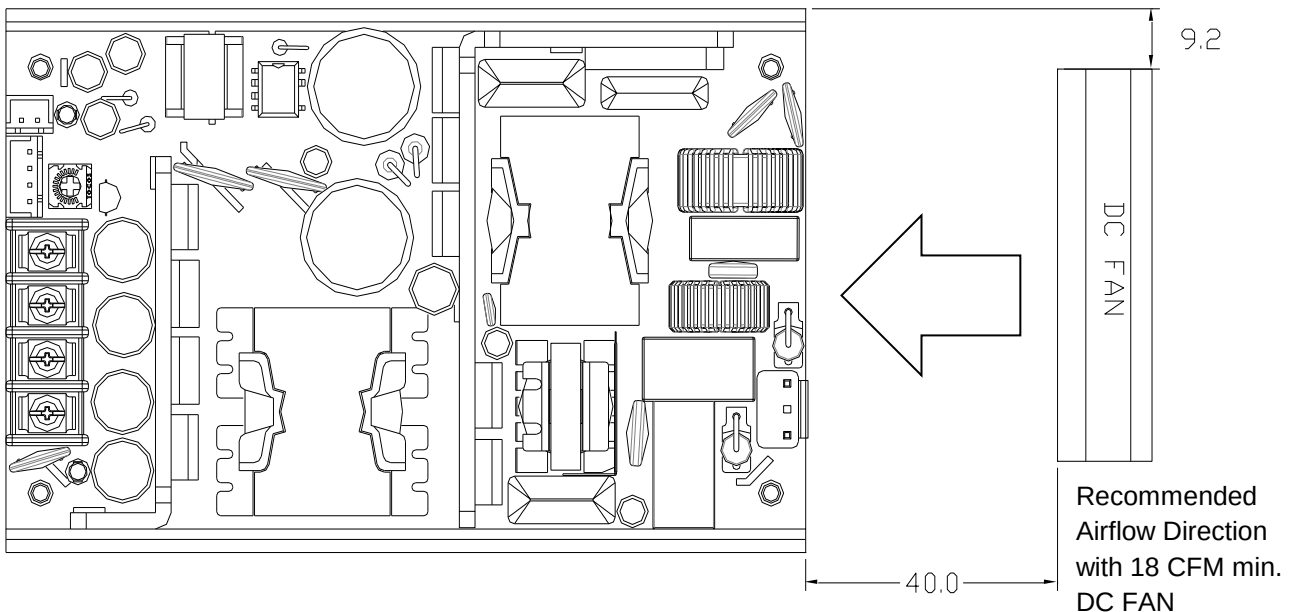


convection cooling and  
18CFM forced air cooling  
Derate linearly 2.5% per °C from 41 to 70°C



Convection cooling total output 200W  
Derate linearly 1% per Vac from 100 to 90Vac

**DC FAN Recommended Direction**



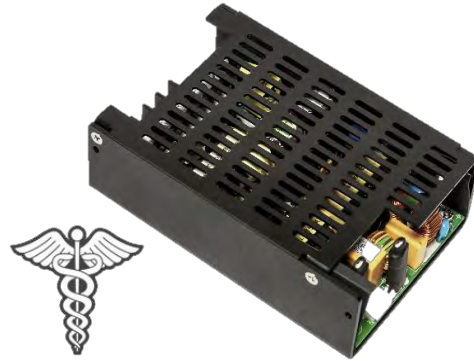


## Open Frame Type Switching Power Supply

### 280Watts Medical and ITE Enclosed Single Output

#### FEATURES

- ITE 60950-1, 62368-1 & Medical 60601-1 approvals.
- High Power density, 280W in 5" x 3.28" footprint.
- Medical applications Protection: Means of Patient Protection ( MOPP).
- Altitude during operation: ITE up to 5000m ,Medical Below 3000m.
- Main output and Standby output Power ON LED indicators.
- 3 years warranty.



#### ELECTRICAL SPECIFICATIONS

- Input range : 90 - 264VAC (Refer to derating curve).
- Frequency : 47 - 63Hz.
- Power Factor : > 0.95 @115VAC; > 0.90 @230VAC @full load.
- Inrush current : <30A peak @115VAC; <60A peak @230VAC cold start @25°C.
- Input current (rms) : 3.5A @115VAC; 2A @230VAC max.
- Efficiency : > 91% typical @full load, 230VAC.
- leakage current < 100uA @264VAC.
- Maximum output power : 280Watts forced air, 200Watts convection cooling.
- Hold-up time : > 10ms typical @full load, 115VAC.
- Short circuit protection : Auto-recovery.
- Over load protection : 105% to 150% maximum rating, Auto-recovery.
- Over voltage protection : Latching type. AC Recycle.
- 5Vsb meet ErP 0.5W @ No load.
- Remote control ( Inhibit ) function.

#### RoHS compliant

Dimension : L127 ×W83.2 ×H39.5mm( 5" x 3.28" x 1.56")

Weight : 0.50 kgs. ( 1.11lbs. )

#### SAFETY STANDARDS

UL60601-1 3.1<sup>rd</sup> Edition  
UL/c-UL UL60950-1  
UL/c-UL UL62368-1  
EN60601-1 3.1<sup>rd</sup> Edition  
TUV EN60950-1  
TUV EN62368-1  
IEC EN60601-1 3.1<sup>rd</sup> Edition  
CB IEC 60950-1  
CB IEC 62368-1

#### EMC STANDARDS

IEC60601-1-2 Ed4:2014  
EN60601-1-2 Ed4:2015  
EN55024  
EN55011 Class B  
EN55032 Class B  
FCC Part 15 Class B  
FCC Part 18 Class B  
CE

#### ENVIRONMENTAL

- Operating temperature : -20°C to +70°C (Refer to derating curve).
- Storage temperature: -20°C to +85°C.
- Humidity: Non-condensing 0% to 90%.
- MTBF : > 250,000 hours @full load and 25°C ambient temperature per Telcordia(Bellcore).

#### DC OUTPUT & FEATURES

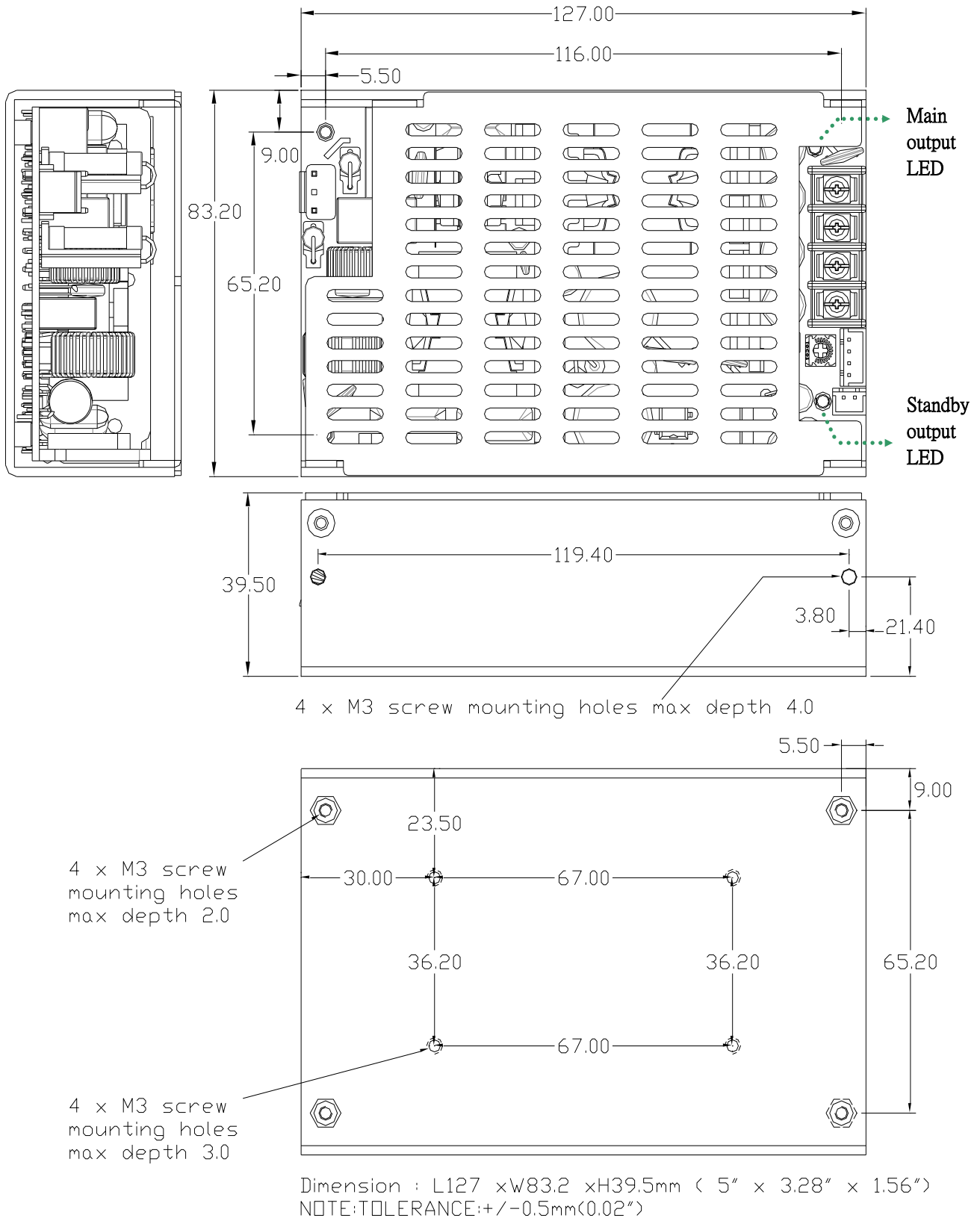
| Model No.<br>( Note 1.) | Output Voltage<br>(V1) | Maximum Load (V1) |                   | Output Regulation<br>(V1) | Ripple Noise<br>(V1) | Standby supply<br>(V2) | FAN output<br>(V3) | Convection total power | 18CFM Forced air total power |
|-------------------------|------------------------|-------------------|-------------------|---------------------------|----------------------|------------------------|--------------------|------------------------|------------------------------|
|                         |                        | Convection        | 18 CFM Forced Air |                           |                      |                        |                    |                        |                              |
| VP280B-1Y120EZ          | +12V                   | 16.66A            | 23.33A            | ±3%                       | 150mV                | 5V/0.5A                | 12V/0.3A           | 200W                   | 280W                         |
| VP280B-1Y240EZ          | +24V                   | 8.33A             | 11.66A            | ±3%                       | 240mV                | 5V/0.5A                | 12V/0.3A           | 200W                   | 280W                         |
| VP280B-1Y280EZ          | +28V                   | 7.14A             | 10A               | ±2%                       | 280mV                | 5V/0.5A                | 12V/0.3A           | 200W                   | 280W                         |
| VP280B-1Y360EZ          | +36V                   | 5.55A             | 7.77A             | ±2%                       | 300mV                | 5V/0.5A                | 12V/0.3A           | 200W                   | 280W                         |
| VP280B-1Y480EZ          | +48V                   | 4.16A             | 5.83A             | ±2%                       | 300mV                | 5V/0.5A                | 12V/0.3A           | 200W                   | 280W                         |
| VP280B-1Y540EZ          | +54V                   | 3.7A              | 5.18A             | ±2%                       | 400mV                | 5V/0.5A                | 12V/0.3A           | 200W                   | 280W                         |

#### Note:

1. Output connector options: Z=T ( Terminal block type, pitch 8.25mm) or Z=M ( Mini-fit type, pitch 4.2mm) or Z=C ( Connector type, pitch=3.96mm ).
2. All models are equipped with 5Vsb & 12V fan outputs.
3. All models have total power 200W Max. convection or 280W Max. forced air cooling.
4. Ripple and noise are measured at oscilloscope 20MHz bandwidth by a 47uF electrolytic capacitor and a 0.1uF ceramic capacitor in parallel at output connector.

**Open Frame Type Switching Power Supply**

**MECHANICAL SPECIFICATION**



## Open Frame Type Switching Power Supply

### MECHANICAL SPECIFICATION

#### MATCHING CONNECTORS

##### CN1: Input Connector

JST B2P3-VH pitch: 3.96mm or equivalent,  
mates with JST VAR-2 or equivalent

| Pin # | Signal     |
|-------|------------|
| 1     | AC Line    |
| 2     | AC Neutral |

##### CN2: FAN Output Connector

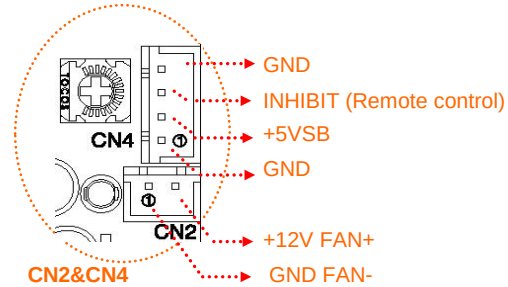
JST B2B-XH-A pitch: 2.5mm or equivalent,  
mates with JST XHP-2 or equivalent

| Pin # | Signal    |
|-------|-----------|
| 1     | GND FAN-  |
| 2     | +12V FAN+ |

##### CN4: Remote control & Standby supply

JST B4B-XH-A pitch: 2.5mm or equivalent,  
mates with JST XHP-4 or equivalent

| Pin # | Signal                   |
|-------|--------------------------|
| 1     | GND                      |
| 2     | +5VSB                    |
| 3     | INHIBIT (Remote control) |
| 4     | GND                      |



INHIBIT → Logic level HIGH (5v) or Floating : Enable, Logic level LOW : Disable

##### CN3: Main Output Connector

###### Terminal Block Type

4-Pole Terminal block pitch: 8.25mm ,  
rate 20A/300V or equivalent

| Pin # | Signal | Pin # | Signal |
|-------|--------|-------|--------|
| 1~2   | GND    | 3~4   | +Vout  |

###### Connector Type

JST B8P-VH-B pitch: 3.96mm or equivalent,  
mates with JST VHR-8N or equivalent

| Pin # | Signal | Pin # | Signal |
|-------|--------|-------|--------|
| 1~4   | GND    | 5~8   | +Vout  |

##### Mini Fit type

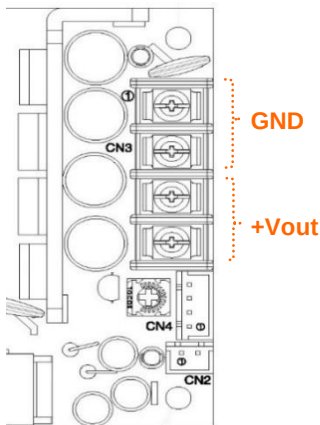
12 PIN Min Fit Pitch: 4.2mm .

Molex P/N 39-28-1123 or equivalent.

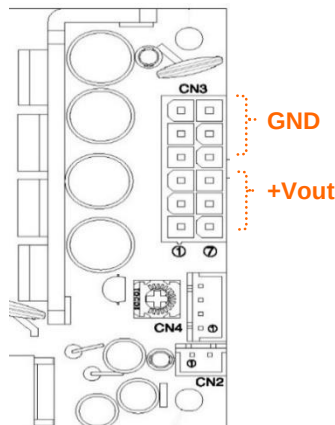
| Pin # | Signal | Pin # | Signal |
|-------|--------|-------|--------|
| 1~3   | +Vout  | 7~10  | +Vout  |
| 4~6   | GND    | 10~12 | GND    |

#### MAIN OUTPUT OPTIONAL TYPE ( CN3 )

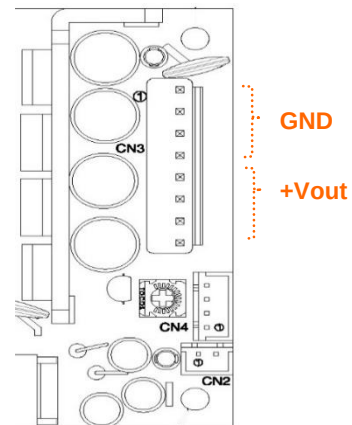
##### Terminal Block Type



##### Mini Fit Type



##### Connector Type

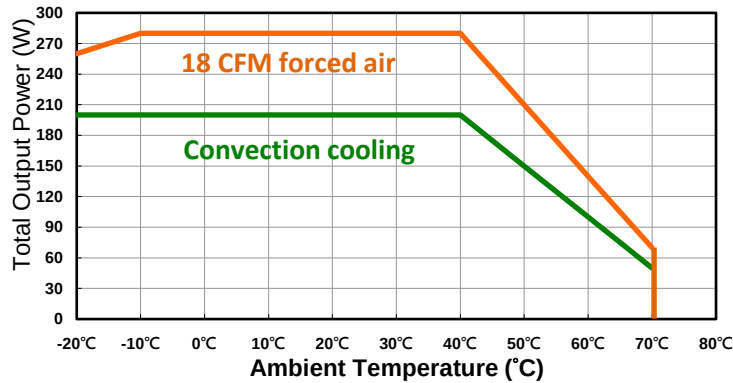


**Open Frame Type Switching Power Supply**

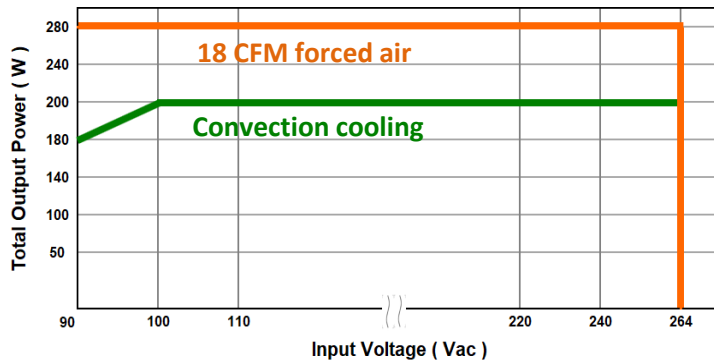
**ENVIRONMENTAL**

**DERATING CURVE**

**Power Derating Curve**



convection cooling and  
18CFM forced air cooling  
Derate linearly 2.5% per °C from 41 to 70°C



Convection cooling total output 200W  
Derate linearly 1% per Vac from 100 to 90Vac

**DC FAN Recommended Direction**

