



# Railway Power Series

## CHASSIS MOUNT

### xHB300W-110S SERIES

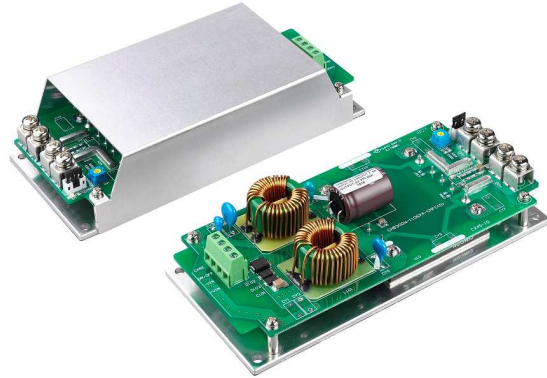
### 198-300 WATT 4:1 INPUT

### DC-DC CONVERTERS



## FEATURES

- \* 198-300W Isolated Output
- \* Efficiency to 90.5%
- \* Low No Load Power Consumption
- \* Fixed Switching Frequency
- \* 4:1 Input Range
- \* Regulated Outputs
- \* Over Temperature Protection
- \* Over Voltage/Current Protection
- \* Remote On/Off
- \* Continuous Short Circuit Protection
- \* Shock & Vibration Meet EN50155 (EN61373)
- \* Safety Meets UL60950-1, EN60950-1, and IEC60950-1
- \* UL60950-1 2<sup>nd</sup> (Basic Insulation) Approval for DC Modules(Except 3.3Vout)
- \* Meets EN50155:2007 for EMC, Environmental and Characteristic
- \* Build-In EMI Filter
- \* Fire & Smoke Meet EN45545-2
- \* Baseplate Cooled



| MODEL NUMBER                                   | INPUT VOLTAGE | OUTPUT VOLTAGE | OUTPUT CURRENT |       | INPUT CURRENT |           | % EFF. | CAPACITOR LOAD MAX. |
|--|---------------|----------------|----------------|-------|---------------|-----------|--------|---------------------|
|  |               |                | MIN.           | MAX.  | NO LOAD       | FULL LOAD |        |                     |
| xHB300W-110S3V3□-CMFC<br>xHB300W-110S3V3□-CMFD | 43-160 VDC    | 3.3 VDC        | 0 mA           | 60.0A | 15 mA         | 2117 mA   | 85     | 60000uF             |
| xHB300W-110S05□-CMFC<br>xHB300W-110S05□-CMFD   | 43-160 VDC    | 5 VDC          | 0 mA           | 60.0A | 15 mA         | 3153 mA   | 86.5   | 60000uF             |
| xHB300W-110S12□-CMFC<br>xHB300W-110S12□-CMFD   | 43-160 VDC    | 12 VDC         | 0 mA           | 25.0A | 15 mA         | 3047 mA   | 89.5   | 25000uF             |
| xHB300W-110S24□-CMFC<br>xHB300W-110S24□-CMFD   | 43-160 VDC    | 24 VDC         | 0 mA           | 12.5A | 15 mA         | 3064 mA   | 89     | 12500uF             |
| xHB300W-110S28□-CMFC<br>xHB300W-110S28□-CMFD   | 43-160 VDC    | 28 VDC         | 0 mA           | 10.7A | 15 mA         | 3060 mA   | 89     | 10700uF             |
| xHB300W-110S48□-CMFC<br>xHB300W-110S48□-CMFD   | 43-160 VDC    | 48 VDC         | 0 mA           | 6.25A | 15 mA         | 3013 mA   | 90.5   | 4700uF              |

#### NOTE:

1. Nominal Input Voltage 110VDC
2. □ = N or None
3. VR1 is used for Output Voltage Adjustment.
4. Refer to application note for thermal resistance and derating informations.
5. TVS is included for input surge voltage protection.
6. Recommend an external fuse for input reverse polarity protection (shunt diode is include inside).

# SPECIFICATIONS

All Specifications Typical At Nominal Line, Full Load, and 25°C Unless Otherwise Noted

## INPUT SPECIFICATIONS:

|                                  |                   |             |
|----------------------------------|-------------------|-------------|
| Input Voltage Range              | 110V              | 43-160V     |
| Input Surge Voltage (100ms max.) |                   | 200Vdc max. |
| Under voltage lockout            | 110Vin Power up   | 42V         |
|                                  | 110Vin Power down | 39.5V       |

Positive Logic Remote On/Off (see note 4&5)

## OUTPUT SPECIFICATIONS:

|   |                             |
|---|-----------------------------|
| Voltage Accuracy                              | ±1.0% max.                  |
| Transient Response: 25% Step Load Change      | <250us                      |
| Trim Adj. Range (By VR1)                      | ±10%                        |
| Ripple & Noise, 20MHz BW (note3)              |                             |
| 3.3V&5V                                       | 60mV RMS, 120mV pk-pk max.  |
| 12V   | 80mV RMS, 150mV pk-pk max.  |
| 24V&28V                                       | 100mV RMS, 200mV pk-pk max. |
| 48V   | 150mV RMS, 300mV pk-pk max. |
| Temperature Coefficient                       | ±0.02%/°C max.              |
| Short Circuit Protection                      | Continuous                  |
| Line Regulation (note1)                       | ±0.2% max.                  |
| Load Regulation (note2)                       | 3.3V&5V ±0.5% max.          |
|   | Others ±0.2% max.           |
| Over Voltage Protection trip Range, % Vo Nom. | 115-140%                    |
| Current Limit                                 | 110%-160% Nominal Output    |
| Start up Time                                 | 50mS typ.                   |
| Hold up Time                                  | See Application Note        |

## NOTE:

- Measured from high line to low line.
- Measured from full load to zero load.
- Output ripple and noise measured with 1uF ceramic capacitor across output.
- Logic Compatibility ..... open collector ref to -input  
Module on ..... >3.5Vdc to 160Vdc or open circuit  
Module off ..... 0 to < 1.2Vdc
- Suffix "N" to the model number with negative logic remote on/off.  
Module on ..... 0 to < 1.2Vdc  
Module off ..... >3.5Vdc to 160Vdc or open circuit
- Input connectors PIN1~4 use DINKLE EK500V-04P series or equivalent, suitable electric wire: 24~10AWG( IEC 0.5~2.5mm<sup>2</sup>).
- Connector CN205 wafer with TAIWAN KING PIN TERMINAL P110I series and mate with JST housing PH series or equivalent.
- Output connectors PIN5~8 use M5 terminal screw.

## GENERAL SPECIFICATIONS:

|  |   |
|--|---|
| Efficiency                                     | See Table   |
| Isolation Voltage                              | Input/Output, Input/Case 3000VDC min.<br>Output/Case 500VAC min.  |
| Isolation Resistance                           | 10 <sup>8</sup> ohm min.  |
| Isolation Capacitance                          | 3.3V 10000pF typ.<br>Others 8000pF typ.   |
| Switching Frequency                            | 3.3V 250KHz typ.<br>Others 300KHz typ.  |
| Operating Case Temperature                     | -40°C to 100°C  |
| Storage Temperature                            | -40°C to +105°C   |
| Thermal Shutdown, Case Temperature (DC Module) | 110°C typ.  |
| Humidity                                       | 95% RH max. Non Condensing  |
| MTBF   | MIL-HDBK-217F, GB, 25°C, Full Load 460Khrs typ.   |
| Safety   | Meets UL60950-1   |
| EMC  | Meets EN50155 ( EN50121-3-2:2008 )<br>- With External Output Filters Meets EN50155 ( EN50121-3-2:2015 ) |
| Shock / Vibration                              | EN50155 ( EN61373 )   |
| Environmental                                  | EN50155 ( 60068-2-1, 2, 30 )  |
| Case Material                                  | - CMFC Aluminium Base<br>- CMFD Aluminium Base & Aluminium Cover  |
| Dimensions                                     | - CMFC 165 x 76,2 x 38,5mm<br>- CMFD 165 x 78,6 x 40,0mm  |
| Weight   | - CMFC 380g<br>- CFMD 435g  |

## Case Dimensions:

All Dimensions In Inches (mm)

Tolerance: Inches: X.XX = ±0.02 , X.XXX = ±0.010 Millimeters: X.X = ±0.5 , X.XX =±0.25

