

Pin	Function		
	V2S	V2D	V2E
1	NO PIN	NO PIN	NO PIN
2	-VI	-VI	-VI
3	+VI	+VI	+VI
4	NO PIN	NO PIN	NO PIN
5	-Vo	-Vo	-Vo1
6	NO PIN	NO PIN	+Vo1
7	NO PIN	COM	NO PIN
8	NO PIN	NO PIN	-Vo2
9	+Vo	+Vo	+Vo2

Unit: mm  
 Pin diameter tolerance:  $\pm 0.10$   
 General tolerance:  $\pm 0.50$

## GH15-V2Xxx-S

### DC-DC Power Supply Module

#### Ultra wide input, isolated single/dual output

GH xx - V2 X xx - S

- Input voltage range code, S for 300-1500VDC
- Output voltage in volt
- S means single output, D means dual-output, E means isolated two outputs
- Internal reserved letter and number
- Rated output power in watt
- Product series name, normally including two or three letters

### Product Characteristics

- Ultra wide input voltage range, 300-1500VDC
- High reliability, industrial grade
- Input and output isolation, 4000VDC
- Applications: photovoltaic power station, energy storage system, other high voltage input industrial equipment
- Input protection: UVP, reversed polarity protection
- Output protection: OCP, SCP
- No minimum load requirement

### Model Selection Table

Model	Dimensions (L*W*H)	Rated power	Rated output voltage/current		Typical efficiency (Vin = 600VDC)
			Vo1/Io1	Vo2/Io2	
GH15-V2S05-S	70.0*48.0*23.5mm	15W	5V/3000mA	-	65%
GH15-V2S12-S			12V/1250mA	-	71%
GH15-V2S15-S			15V/1000mA	-	72%
GH15-V2S24-S			24V/625mA	-	78%
GH15-V2S32-S			32V/470mA	-	73%

GH15-V2D12-S			+12V/625mA	-12V/625mA	78%
GH15-V2D15-S			+15V/500mA	-15V/500mA	80%
GH15-V2E0512-S			5V/2000mA	12V/420mA	76%
GH15-V2E0515-S			5V/2000mA	15V/330mA	77%
GH15-V2E0524-S			5V/2000mA	24V/210mA	78%

### Input Characteristics

Item	Test Condition / Description	MIN	TYP	MAX
Input voltage range	DC input	300VDC	1000VDC	1500VDC
Input current	Vin = 300VDC	-	-	90mA
Surge current	Vin = 300VDC	-	30A	-
	Vin = 1000VDC	-	100A	-
Input UVP	Input under voltage trigger point	-	250VDC	-
	Input under voltage released point	-	265VDC	-
Input reversed polarity protection	If input polarity is reversed, the PSM should not be damaged.	Available		
External input fuse	1A/1500VDC external input fuse	Required		

### Output Characteristics

Item	Test Condition / Description	MIN	TYP	MAX	
Voltage accuracy	Single output model	-	±1%	±2%	
	Dual output Balanced load*1	Rail 1: -Vo to COM or Vo1	-	±1%	±2%
		Rail 2: COM to +Vo or Vo2	-	±5%	±8%
Line regulation	Single output model, 100%Io	-	±0.5%	±1%	
	Balanced load 100%Io	Rail 1: -Vo to COM or Vo1	-	±0.5%	±1%
		Rail 2: COM to +Vo or Vo2	-	±2.5%	±5%
Load regulation	Single output model, 10%-100%Io	-	±0.5%	±1%	
	Balanced load 10%-100%Io	Rail 1: -Vo to COM or Vo1	-	±0.5%	±1%
		Rail 2: COM to +Vo or Vo2	-	±2.5%	±5%
Ripple and noise*2	Single output model	-	75mV	150mV	
	Dual output Balanced load	Rail 1: -Vo to COM or Vo1	-	75mV	150mV
		Rail 2: COM to +Vo or Vo2	-	150mV	300mV
OCP	Output over current protection	≥110%Io, self recovery			
SCP*3	Output short circuit protection	self recovery			

Minimum load		0	-	-
Start-up delay time	Vin = 300VDC	-	12s	-
	Vin = 1000VDC	-	4s	-
Hold-up time	Vin = 1000VDC, 100%Io	-	10ms	-
Hot plug		Prohibited		
Paralleled working		Prohibited		

Remark \*1: Balanced load means that the output load of Rail 1 and Rail 2 changes in the same proportion.

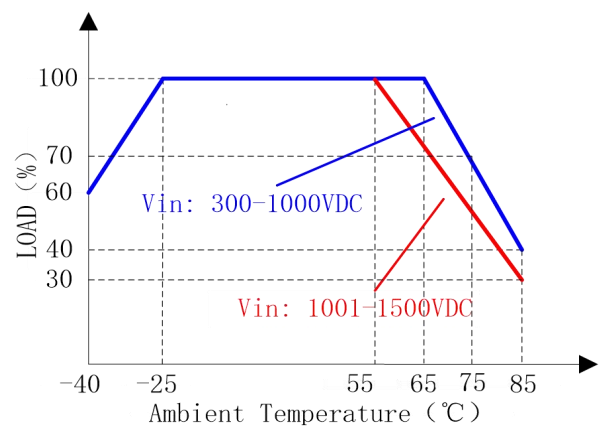
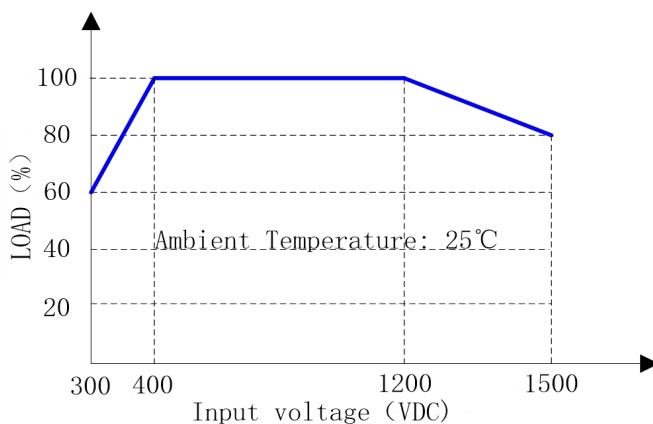
Remark \*2: Oscilloscope probe should be connected with the paralleled combination of a 10uF high frequency low resistance electrolytic capacitor and a 0.1uF ceramic capacitor. Band width is set to 20MHz, and peak to peak value is measured.

Remark \*3: If input voltage is higher than 1200VDC, short circuit time shall be less than 3 seconds, otherwise PSM may be damaged.

## General Characteristics

Item	Test Condition / Description	MIN	TYP	MAX
Working temperature		-40°C	-	+85°C
Storage temperature		-40°C	-	+105°C
Storage humidity		-	-	95%RH
Switching frequency		-	85kHz	-
Isolation voltage	Input to output, 60s, ≤5mA	4000VDC	-	-
MTBF	MIL-HDBK-217F@25°C	215000h	-	-
Weight		-	120g	-
Cooling method		Natural air cooling		

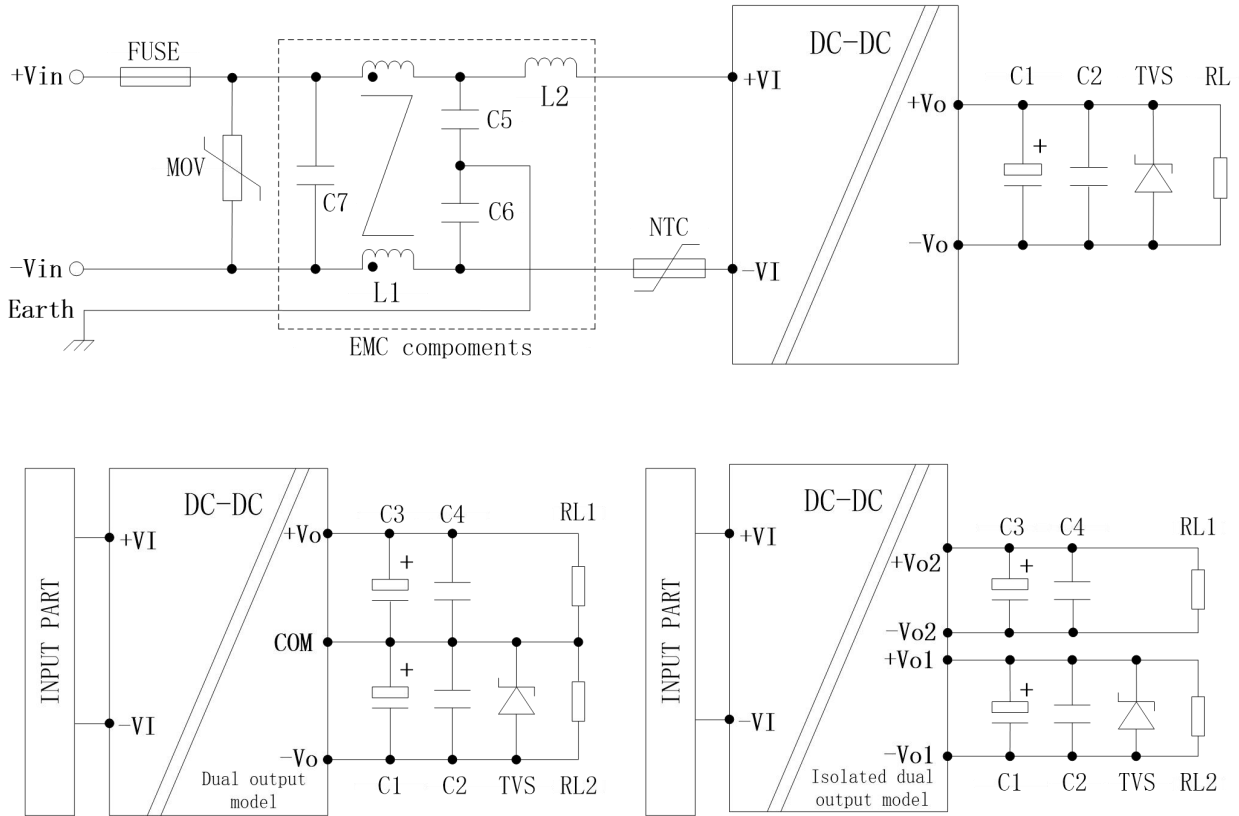
## Derating Curves



Comment: Both temperature derating and input voltage derating should be considered.

## Application Notes

### 1. Application circuit recommendation



### 2. Input part recommendation

Component	Function and description	Recommendation
FUSE	Cut off fault circuit	Required, 1A/1500VDC, time lag type is preferred
MOV	Absorb surge energy	Varistor, two 112KD14 in series
NTC	Limit the surge current	Negative temperature coefficient thermistor, 5D-9
C7	EMC component	Four 0.33uF safety X1 capacitors in series
L1	EMC component	Common mode inductor, >10mH
L2	EMC component	Differential mode inductor, 330μH
C5, C6	EMC component	Three 1nF safety Y1 capacitors in series

### 3. Output part recommendation

Output voltage	C1	C2	C3	C4	TVS	RL/RL1/RL2
5V	220 $\mu$ F/10V	1 $\mu$ F/50V	220 $\mu$ F/16V	1 $\mu$ F/50V	SMBJ7.0A	User load
12V	220 $\mu$ F/25V	1 $\mu$ F/50V	100 $\mu$ F/35V	1 $\mu$ F/50V	SMBJ20A	User load
15V	220 $\mu$ F/25V	1 $\mu$ F/50V	100 $\mu$ F/35V	1 $\mu$ F/50V	SMBJ20A	User load
24V	100 $\mu$ F/35V	1 $\mu$ F/50V	100 $\mu$ F/50V	1 $\mu$ F/50V	SMBJ30A	User load
32V	100 $\mu$ F/50V	1 $\mu$ F/50V	100 $\mu$ F/50V	1 $\mu$ F/50V	SMBJ40A	User load

#### Remarks:

- a. C1 and C3: Output filter capacitor, high frequency low resistance electrolytic capacitor is recommended.
- b. C2 and C4: Ceramic capacitor, to suppress high frequency noise.
- c. TVS: Transient suppression diode, to protect post-stage circuit (user load).

#### Notes:

- If not specified, the test condition is ambient temperature 25 $^{\circ}$ C, humidity < 75%, input voltage 1000VDC and output rated load.
- All parameters listed in the data sheet are tested according to the company's enterprise standards.
- Guangzhou Guantu Electronic Technology Co., Ltd. has the right of final interpretation of the copyright and product.
- This version is 2022.01 A4. The specification may be changed without notice.
- GTL POWER can provide product customization service, please contact us or visit <http://www.gtl-power.com> and provide more detail technical requirements.