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SILVERSTONE 1300C Gemini Platinum Module Instruction Manual

**Gemini Series
Gemini 1300C Platinum
Cybenetics Platinum 1300W+1300W 2U CRPS**

Contents

1300C Gemini Platinum Module

Redundant Power Supply

- 1300W + 1300W 24-hour continuous performance,reliably operating at 50°C with fully sustained power output.
- 2U CRPS form factor: 82mm (W) x 102mm (H) x 239mm (D)
- Cybenetics Platinum certification
- Active PFC (full range)
- All Japanese electrolytic capacitors
- Hot-swappable design
- Convenient pull-out handle bars
- Support PMBus 1.2

SPECIFICATION

SilverStone Gemini Series
Gemini 1300C Platinum SST-GM1300C-PF
1+1 2U CRPS Redundant Switching Power Supply Cybenetics Platinum efficiency certified.

General Description

1 Function briefly
This specification describes the performance characteristics of the 1300W AC-DC redundant power supply. The power supply is capable of operating as a single power supply or in 1+1 parallel hot-swappable operation, and achieves current sharing in a 1+1 redundant configuration.

Total output	Output				
	+12V	+5V	+3.3V	-12V	+5Vsb
1300W	80.5A 90-170Vac 105.3A 170-264Vac	25.0A	25.0A	0.5A	3.0A

※1. Maximum combined power on +3.3V and +5V shall not exceed 200W.

※2. Maximum combined power for all output shall not exceed 1300W.

Input Characteristic

2.1.1 AC input requirements

item	measure	Minimum	Nominal	Maximum	note
Input Voltage	Vac	90	115/230	264	
Nom Input Voltage	Vac	100	115/230	240	
Vin Frequency	Hz	47	50/60	63	
Nom Vin Frequency	Vdc	180		310	
Nominal DC inputvolta ge r ange	Vdc		240		
Maximum input current	A	/	/	14	@90Vac 100% load
Input surge current	A	/	/	45	230Vac/50Hz input full load cold start 25℃
Power factor		0.99			100% load,230Vac/50Hz &115Vac/60Hz

Output Characteristic
2.2.1 AC output requirements

Item	Unit	MIN	Nominal	MAX	Note	
output voltage	V	11.4	12.0	12.6	+12V	
	V	4.75	5.0	5.25	+5V	
	V	3.14	3.3	3.47	+3.3V	
	V	-10.8	-12.0	-13.2	-12V	
	V	4.75	5.0	5.25	+5Vsb	
Output current	A	1.5		80.5	90-170Vac	+12Voutput
	A	1.5		105.3	170-264Vac	
	A	0.5		25	+5V	
	A	0.8		25	+3.3V	
	A	0		0.5	-12V	
	A	0.1		3	+5Vsb	
Combine	W			200	+3.3V+5V	
Hold up time	ms	12			+12V&70% load	
	mV			120	+12V	
	mV			60	+5.00V	

Item	Unit	MIN	Nominal	MAX	Note	
ripple noise	mV			50	+3.3V	
	mV			120	-12V	
	mV			50	+5Vsb	
Dynamic response	V	10.8		13.2	+12V output The dynamic load range is not greater than 60% Minimum load 1A	0.25 A/us
	V	4.5		5.5	+5V output The dynamic load range is not greater than 30%	
	V	2.97		3.63	+3.3V output The dynamic load range is not greater than 30%	
	V	4.5		5.5	+5Vsb output The dynamic load range is not greater than 25%	
Switching machine overshoot	%			10	+12.00V output	
	%			10	+5.00V output	
	%			10	+3.3V output	
	%			10	-12.00V output	
	%			10	+5Vsb(Standby) output	
capacitive load	uF			11000	+12.00V output	
	uF			2200	+5.00V output	
	uF			2200	+3.3V output	
	uF			350	+5Vsb(Standby) output	

2.2.2 Output protection function

Item		Unit	MIN	Nominal	MAX	Note
Over Current Protection	+5V	A	33		45	When overcurrent occurs, the protective circuit operates and the power supply self-locks, with no output at this time; when the fault is resolved and the power supply is restarted, the power supply returns to its normal output state. The power supply self-locks and there is no output at this time; when these reasons are eliminated and the power supply is restarted, the power supply returns to the normal output state. (PSON# resets for at least 1 second; AC shuts down for at least 4 seconds)
	+3.3	A	33		45	
	+5Vs	A	5		16	
	-12V	A	1.5		2.5	
	+12V	A	Follow by module psu			

Short Circuit Protection		/	/	/	/	automatically protect and lock except +12V
Over Voltage Protection	+12V	V	13.5		15.5	Lock mode
	+5V	V	5.7		7	
	+3.3	V	3.7		4.5	
	-12V	V	-13.5		-15.5	
Over Temperature Protection	Yes	℃	60			Turn off the main circuit, self-recovery, hysteresis is not less than 5℃, +5Vsb when not turned off

Note: When the rated output power of the equipped module is less than the output power of the back basket, the OPP/OCP of the module shall prevail.

For +5V and +3.3V overvoltage protection tests, it is forbidden to use the reverse injection method of the DC input voltage to avoid burning the power supply.

2.2.3 Efficiency

Load	+5V	+3.3V	+5Vsb	+12V	-12V	EFF
20%	5A	5A	0.6A	17.86A	0.1A	>90%
50%	12.5A	12.5A	1.5A	44.65A	0.25A	>94%
100%	25A	25A	3A	89.3A	0.5A	>91%

2.3 Timing

Turn on	Description	Min	Max	Units
Tvout rise	Output voltage rise time for all main output.	3*	70*	msec
Tsb_on_delay	Delay from AC being applied to 5Vsb being within regulation.		1500	msec
Tac_on_delay	Delay from AC being applied to all output voltage being within regulation.		2500	msec
Tvout_holdup	Time all main output 12VI voltages stay within regulation after loss of AC.	13		msec
Tpwok_holdup	Delay from loss of AC to de-assertion of PWOK.	12		msec
Tpson_on_dela y	Delay from PSON active to output voltages within regulation limits.	5	400	msec
Tpson_pwok	Delay from PSON deactivate to PWOK being de-asserted.		50	msec
Tpwok_on	Delay from output voltage(12V) within regulation limits to PWOK asserted at turn on.	100	500	msec
Tpwok_off	Delay from PWOK de-asserted to output voltages dropping out of regulation limits.	1		msec
Tpwok_low	Duration of PWOK being in the de- asserted state during an off/on cycle using AC or the PSON signal.	100		msec
Tsb_vout	Delay from 5Vsb being in regulation to main output being in regulation at AC turn on.	50	1000	msec
T5Vsb_holdup	Time the 5Vsb output voltage stays within regulation after loss of AC.	70		msec

2.4 PWOK signal and PSON signal

2.4.1 The PWOK signal is a TTL signal. After powering on, when the DC output voltage of each channel reaches

the minimum detection voltage, after a delay of 100-500mS, the PWOK signal is high level; when a DC output is lower than the minimum detection level, the PWOK signal is low level.

	TTL
logic low level	0.8V input current 4mA mA
logic high level	Between 2.4V and 3.5V, sourcing 200µA

2.4.2 The PSON signal is a TTL signal, and the power switch is controlled through the PSON signal. When the PSON signal is low level, the power supply is turned on; when the PSON signal is high level, the power supply is turned off.

	Min.	Max.
VIL, input low level voltage	0.0V	0.4V
VIH, input high level voltage	2.4V	3.4V

2.5 Alert function

Condition		Buzzer
PSU module insert to the backplane when no power	When the power is off and the internal energy is released,	–
	Standby state (PS_OFF state)	–
	Fault state (PS_ON state), without main output	Alert
PSU module insert to the backplane when power on	When the power is off and the internal energy is released,	–
	Standby state (PS_OFF state)	–
	Fault state (PS_ON state), without main output	Alert
Module working in good condition		/

1. The status of the indicator light refers to the indicator light of the power module.

   It is for reference only. The actual power module specification shall prevail;

2. It is normal for the buzzer to sound briefly when turning on or switching PSON;

PMbus

3.1 PMBus definition

Communication speed: maximum 100KHz, Single module information can be read through output terminal P18 and the following address.

MCU PMBus address	EEPROM FRU address
0xB0	0xA0
0xB2	0xA2

3.2 Data interface

PIN	signal	Wire color
1	SCL	green
2	SDA	yellow
3	SMB	orange
4	GND	black
5	NC	none

3.3 SMB Alert work status

Condition	Overall machine level signal
Parallel or single module, in standby state (PS_OFF)	high level
Parallel or single module, in normal working state (PS_ON)	high level
When the single module or dual modules are in normal working condition (PS_ON), the AC input is cut off.	low level
Dual modules work normally in parallel (PS_ON), but the AC input of one module is disconnected.	low level
Single module or dual module AC normally only has SB (PS_ON), that is, in fault state	low level

3.4 SMB alert logic level

	MIN	MAX
Logic level low voltage,Isink=4mA	0	0.4V
Logic high low voltage,Isource=200µA	2.4V	3.5V

Environment

Item	Unit	MIN	NORMAL	MAX
Operating temperature	°C	0	25	50
Storage temperature	°C	-40		70
Storage humidity	%	5		95
Altitude	m	0		5000
Store altitude	m	0		15200
Heat dissipation method	The power supply comes with air-cooling and ventilation mode (exhaust from DC terminal side to AC input side)			

Electromagnetic compatibility

Item	requirement	Standard	Note
RE	Frequency 30MHz 1GHz Class A	EN 55032	230V@50Hz
		FCC part 15	120V@60Hz
CE	Frequency 150KHz 30MHz Class A	EN 55032	230V@50Hz
		FCC part 15	120V@60Hz
SURGE	AC input Differential mode ±1KV Common mode ±2KV	EN61000-4-5 EN 55024	
ESD	contact discharge ±6KV air discharge ±8KV	EN61000-4-2 EN 55024	

Safety

6.1 Dielectric strength
Apply a gradually increasing voltage from 0V to 1500V between the AC line and the chassis, and then hold it for 1 minute. The insulation should not break down; if the current caused by the addition of the test voltage increases rapidly in an uncontrolled manner, that is, the insulation cannot limit the current. , it is considered that insulation breakdown has occurred; corona discharge or a single instantaneous flashover is not considered to be insulation breakdown.
6.2 Ground resistance
value 0.1Ω(32A)
6.3 touch current
When the input is 264V, the contact current is ≤3.5mA.

Reliability

When the environment is 25 and 100% load, the mean time between failures (MTBF) of the power supply is greater than 100,000 hours.

Dimension

82mm (W) x 102mm (H) x 239mm (D)

POWER SUPPLY CONNECTOR OVERUSE DEFINITION

https://www.silverstonetek.com/downloads/Manual/power/POWER-SUPPLY-CONNECTOR-OVERUSE-DEFINITION.pdf
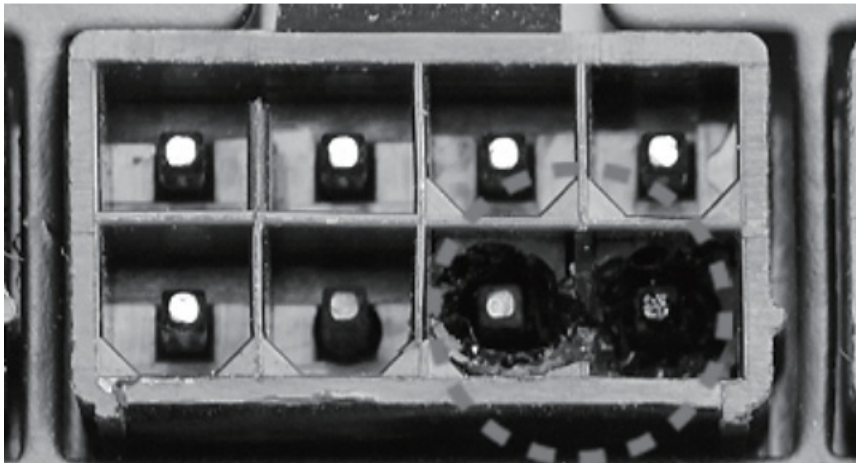
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Documents / Resources

	SILVERSTONE 1300C Gemini Platinum Module [pdf] Instruction Manual SST-GM1300C-PF, 1300C Gemini Platinum Module, Gemini Platinum Module, Platinum Module, Module

References

- **User Manual**