



Industrial Power Supply

Datasheet

GSW-350 high peak power series

GSW-350-X

- ◇ Product Category: 350W Industrial Power Supply
- ◇ Version No.: R1.0
- ◇ Issued Date: August 22nd, 2024

CHUANGLIAN

Product Features

- Input Voltage:
90-132VAC/180-264VAC (Selectable by switch)
248-373VDC (Selectable by switch)
- Forced air cooling by built-in DC fan
- Operating altitude up to 5000 meters
- Over voltage category III
- 200% peak power for 5 seconds
- Multiple Protection: SCP, OVP, OCP, OTP
- Output voltage adjustment by potentiometer
- Operating Temperature: -40°C~+70°C (Refer to "Derating Curve")
- 3 Years warranty



Product Description

GSW-350-X series is a 350 watts air-cooled metal enclosed industrial power supply. Adopting wide AC&DC input voltage, the entire series provides an output voltage line of 12V, 24V, 36V, 48V and 55V. This power supply has excellent peak power load capacity, it can be adapted to different load application and meet various industrial application requirements. Besides, the EMC and safety regulations comply with the IEC/EN/UL62368 standards. High conversion efficiency, compact housing design, good heat dissipation, and all-round protection guarantee the high reliability and stability of this power supply.

AC/DC high peak power SMPS

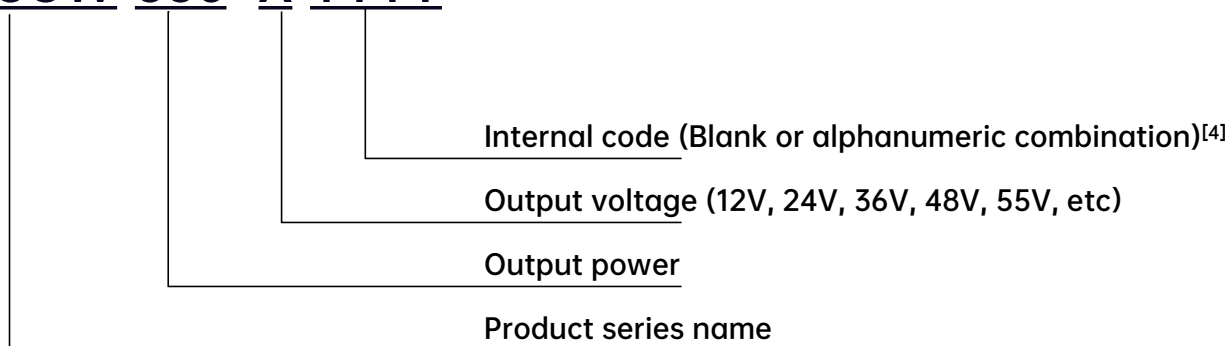
GSW-350 series

Applications

Industrial control system, Mechanical and electrical equipment,
Electronic instruments and equipment, Industrial automation machinery,
Semiconductor device (IT equipment is excluded), Smart home etc.

Model Encoding

GSW-350 -X-YYYY



Model List:

Model	Output power (W)	Output voltage (V _{dc})	Adjustable output voltage ^[3] (V _{dc})	Output current (A)	Ripple and noise (mV) ^[2]	Efficiency @230V _{ac} (Typ.) ^[1]	Maximum capacitive load(μF)
GSW-350-12-yyyy	350.4	12	10.2-13.8	0-29.2	150	85%	8000
GSW-350-24-yyyy	350.4	24	21.6-28.8	0-14.6	200	87%	4000
GSW-350-36-yyyy*	351	36	32.4-39.6	0-9.75	200	88.5%	4000
GSW-350-48-yyyy	351	48	43.2-52.8	0-7.32	200	88.5%	1000
GSW-350-55-yyyy*	351	55	51.3-56.7	0-6.5	250	88%	700

Note: [1] All Parameters not specially mentioned are measured at rated input voltage, full load and 25°C ambient temperature.

[2] Ripple & noise are measured at 20MHz of oscilloscope bandwidth(oscilloscope probe cap and ground clamp are removed)by using a 20±2cm twisted pair-wire terminated with a 47μF electrolytic capacitor and a 0.1μF high frequency capacitor that are connected in parallel at the output end.

[3] Under any steady operating condition, the total output power shall not exceed the rated output power. When the output voltage is raised, the total output power cannot exceed the rated output power. When the output voltage is turned down, the output current cannot exceed the rated output current.

[4] When the first two digits of the product internal identification code are "2N", it means that this model is 200% peak power model code.

※ For the product models under development, please contact our sales team or distributor for more information.

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◎ Input Specification:

Parameter	Min.	Typ.	Max.	Notes
Input AC Voltage	90 V _{ac}		132 V _{ac}	Selectable by switch
	180 V _{ac}		264V _{ac}	
Rated Input AC Voltage	100 V _{ac}		120 V _{ac}	
	200 V _{ac}		240 V _{ac}	
Input DC Voltage	240 V _{dc}		373 V _{dc}	
Input Frequency	47 Hz		63 Hz	
Maximum Input Current			8 A	115Vac, full load
			4 A	230Vac, full load
Ground Leakage Current			2.0 mA	240Vac/50Hz
Contact leakage current			0.5 mA	
Surge Current		60 A		115Vac, cold start
		60 A		230Vac, cold start

◎ Output Specifications:

Parameter	Min.	Typ.	Max.	Notes
Output Voltage Tolerance	-1.5%		+1.5%	GSW-350-12-yyyy
	-1%		+1%	GSW-350-24-yyyy GSW-350-36-yyyy GSW-350-48-yyyy GSW-350-55-yyyy
Line Regulation	-0.5%		+0.5%	All models
Load Regulation	-1%		+1%	GSW-350-12-yyyy
	-0.5%		+0.5%	GSW-350-24-yyyy GSW-350-36-yyyy GSW-350-48-yyyy GSW-350-55-yyyy
Setup Time			2500ms	115Vac, full load
			3000ms	230Vac, full load
Rise Time			50ms	115Vac/230Vac, full load
Hold up Time	16ms			115Vac/230Vac, full load

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◎ Efficiency:

Parameter	Min.	Typ.	Max.	Notes
Efficiency@115 V_{ac}				
GSW-350-12-yyyy	83%	84%		Ambient temp. 25±5°C, full load
GSW-350-15-yyyy	84%	85%		
GSW-350-24-yyyy	85%	86%		
GSW-350-27-yyyy	86.5%	87.5%		
GSW-350-36-yyyy	86.5%	87.5%		
GSW-350-48-yyyy	86.5%	87.5%		
GSW-350-55-yyyy	86%	87%		
Efficiency@230 V_{ac}				
GSW-350-12-yyyy	84%	85%		Ambient temp. 25±5°C, full load
GSW-350-15-yyyy	85%	86%		
GSW-350-24-yyyy	86%	87%		
GSW-350-27-yyyy	87.5%	88.5%		
GSW-350-36-yyyy	87.5%	88.5%		
GSW-350-48-yyyy	87.5%	88.5%		
GSW-350-55-yyyy	87%	88%		

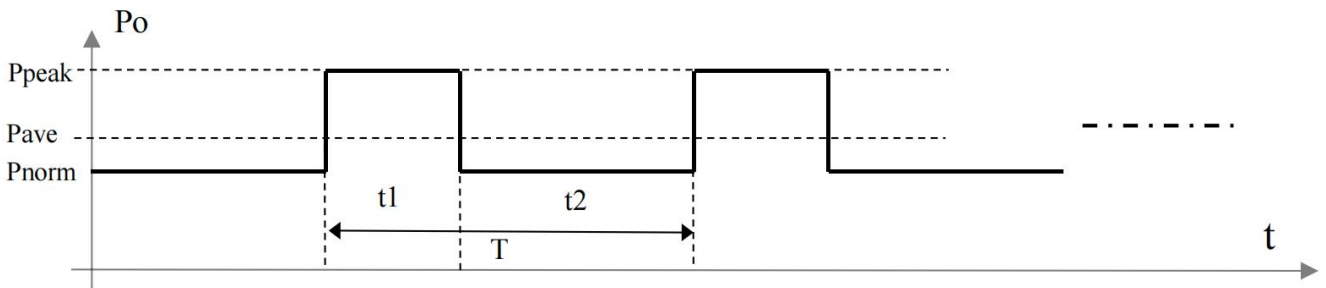
◎ Function overview:

Function	Description
Cooling Mode	RTH3 ≥ 50°C Fan on, RTH3 ≤ 40°C Fan off (RTH3: Internal temperature detection element)
Output Voltage Adjustment	The output voltage can be changed by adjusting the potentiometer, the adjustment range is about -10% to +15%, see "Output voltage range", different models will be different.

◎ Peak Power Application:

The product can withstand up to 2 times of the peak power, according to different applications, the form of the product with the peak load is different.

No matter what kind of load, ensure that the average power does not exceed the rated power of the product, and the peak power duty ratio should be less than 20% when the load is periodically carried. Refer to the following definitions:

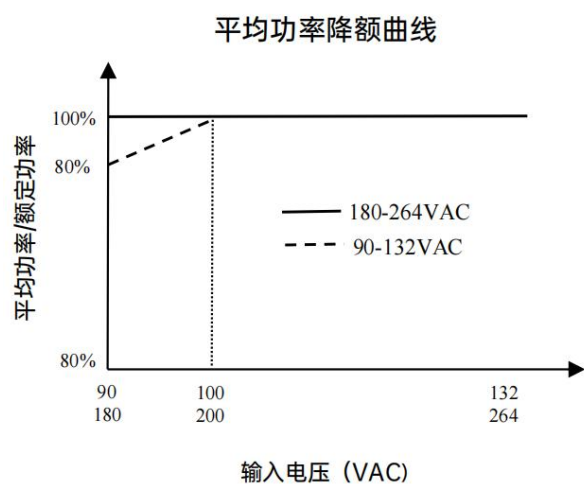
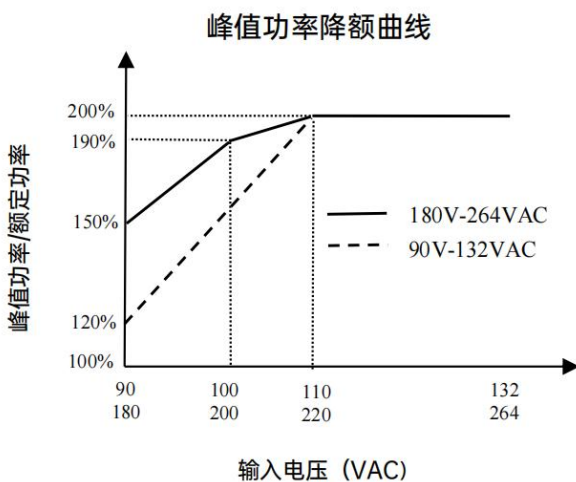


Defintion: $P_{real} = \frac{P_{peak} * t_1 + P_{norm} * t_2}{T} \leq P_{ave}$, PS: $t_1 \leq 5s$, $t_2 \geq 20s$.

P_{peak} : Peak Output Power (W), refer to the peak power derating curve in the following figure.

P_{ave} : Actual average power (W), refer to the average power derating curve in the following figure.

P_{norm} : steady state output power (W).



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◎ Protection:

Parameter	Min.	Typ.	Max.	Notes
Over Load	105%			Rated output power > 105%, for more than 5s, turn off the output voltage, restart and restore.
	130%		200%	The rated output power > 200%, constant current limit exceeds 5s, turn off the output voltage, restart to restore.
Over Voltage	110%		140%	Double loop constant voltage output, recovers automatically after fault condition is removed.
Over Temperature (Ambient Temp.)			75°C	Hiccup mode, recovers automatically after fault condition is removed.
Short Circuit	Hiccup mode when output side has short circuit fault, recovers automatically after fault condition is removed.			

◎ Safety & EMC:

Safety Category	Country/Territory	Item	Standards
UL/CUL	USA/Canada	Safety Standard	UL 62368-1
			CAN/CSA C22.2 No. 62368-1:19
CE	Europe		EN 62368-1
CB	CB Countries		IEC 62368-1
CQC	China		GB 4943.1
Remark: Design conforms to EN61558-1,EN62477-1 (overvoltage class III)			

EMI Category	Country/Territory	Item	Standards/Criteria	
FCC	USA/Canada	Conducted Emission	FCC part 15(ANSI C63.4)	Class A
		Radiated Emission	FCC part 15(ANSI C63.4)	Class A
CE	Europe	Conducted Emission	EN 55032	Class A
		Radiated Emission	EN 55032	Class A
		Voltage Flicker	EN 61000-3-3	
CCC	China	Conducted Emission	GB/T 9254.1	Class A
		Radiated Emission	GB/T 9254.1	Class A

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EMS Category	Country/Territory	Item	Standards/Criteria		
CE	Europe	Electro-static Discharge	EN 61000-4-2	Air 8 kV / Contact 4 kV	Criteria A
		Radiated Susceptibility	EN 61000-4-3	80MHz-1GHz 10V/m	Criteria B
		Electrical Fast Transient	EN 61000-4-4	±4KV	Criteria A
		Surge Immunity	EN 61000-4-5	CM±4KV/DM ±2KV	Criteria A
		Conducted Emission Immunity	EN 61000-4-6	10Vr.m.s	Criteria B
		Power Frequency Magnetic Field Immunity	EN 61000-4-8	30A/m, continuous	Criteria A
		Voltage Dips, Drops and Interruptions Immunity	EN 61000-4-11	Drop 100%, 0.5 cycle	
Drop 100%,250 cycles				Criteria B	
Drop 100%,25 cycles				Criteria B	
Interrupt 100%, 250 cycles				Criteria B	

Note:

1. The power supply is considered as a component which will be installed into a final equipment. All the EMC tests are to be executed by mounting the unit on a metal plate with size 400mm*400mm*3mm. The final equipment must be re-confirmed that it still meets EMC directives.

2. This power supply does not meet the harmonic current requirements specified in EN61000-3-2.

Please do not use this power supply under the following conditions:

- a) The terminal equipment is used in the European countries.
- b) The terminal equipment is connected to a public main power supply with a rated voltage of 220Vac or higher.
- c) The power supply:
 - Installed in terminal equipment with an average or continuous input power greater than 75W.
 - Is a part of lighting system.

Exception:

The power supply used in the following terminal equipment does not need to meet EN61000-3-2.

- a) Professional equipment with total rated input power greater than 1000W.
- b) Symmetrical controlled heating elements with a power rating of 200W or less.

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◎ General Specifications:

Parameter		Min.	Typ.	Max.	Notes
Dielectric Strength [5]	Input-Output	4000 V _{ac}			Last for 60s, leakage current < 10mA
	Input-PE	2000 V _{ac}			
	Output-PE	1500 V _{ac}			
Insulation Resistance	Input-Output	100MΩ			Test Voltage: 500V _{dc}
	Input-PE	100MΩ			
	Output-PE	100MΩ			
Working Temp.		-40°C		+70°C	Refer to "Derating Curve"
Working Humidity		20%RH		95%RH	Non-condensing
Storage Temp.		-40°C		+85°C	
Storage Humidity		10%RH		95%RH	Non-condensing
Temp. Coefficient		-0.03%/°C		0.03%/°C	0~50°C
Mean Time Between Failure (MTBF)		200000 hours			25°C, MIL-HDBK-217F
Dimension		215*114.6*30mm			L*W*H
Net Weight			700g		
Packing		20PCS/16Kg/Carton, Carton Dimension: 375(L)*235(W)*260(H)mm			

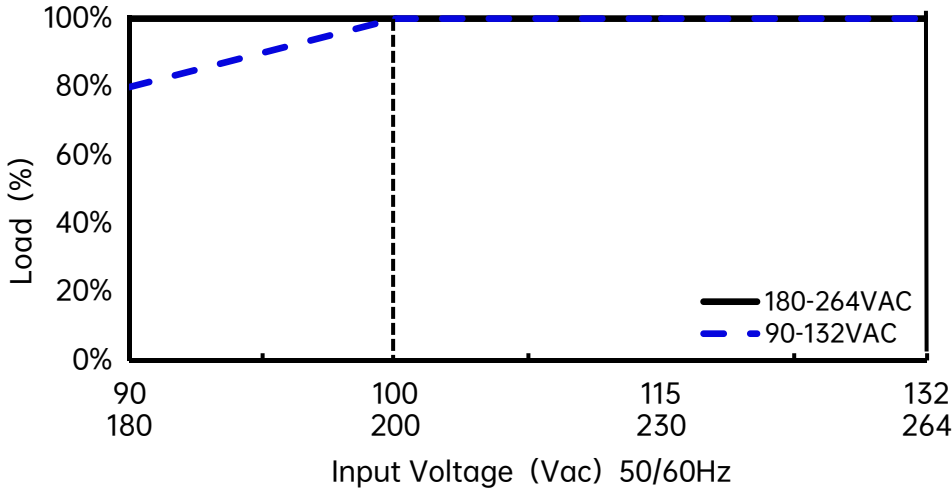
Note: [5] The minimum withstand voltage is 4000Vac, if a higher test standard is needed, please contact our sales representative or FAE.

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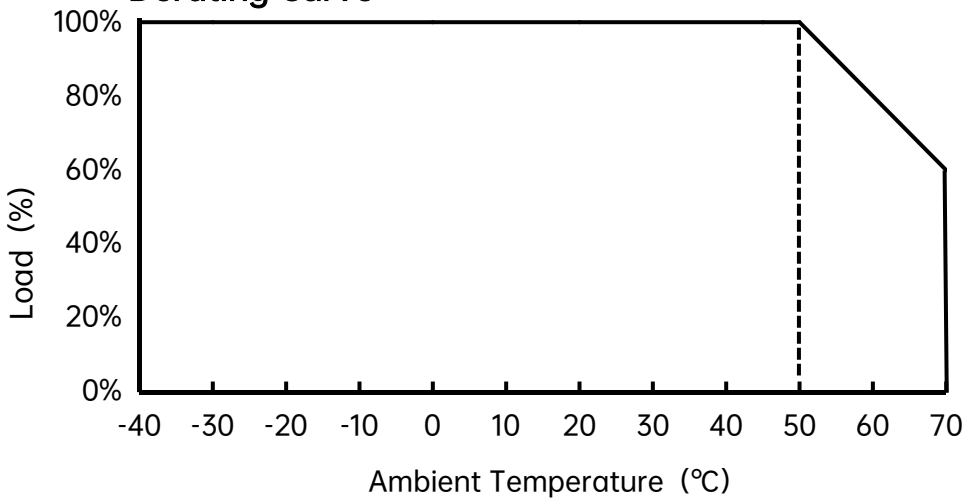
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◎ Performance Curve:

Static Characteristics



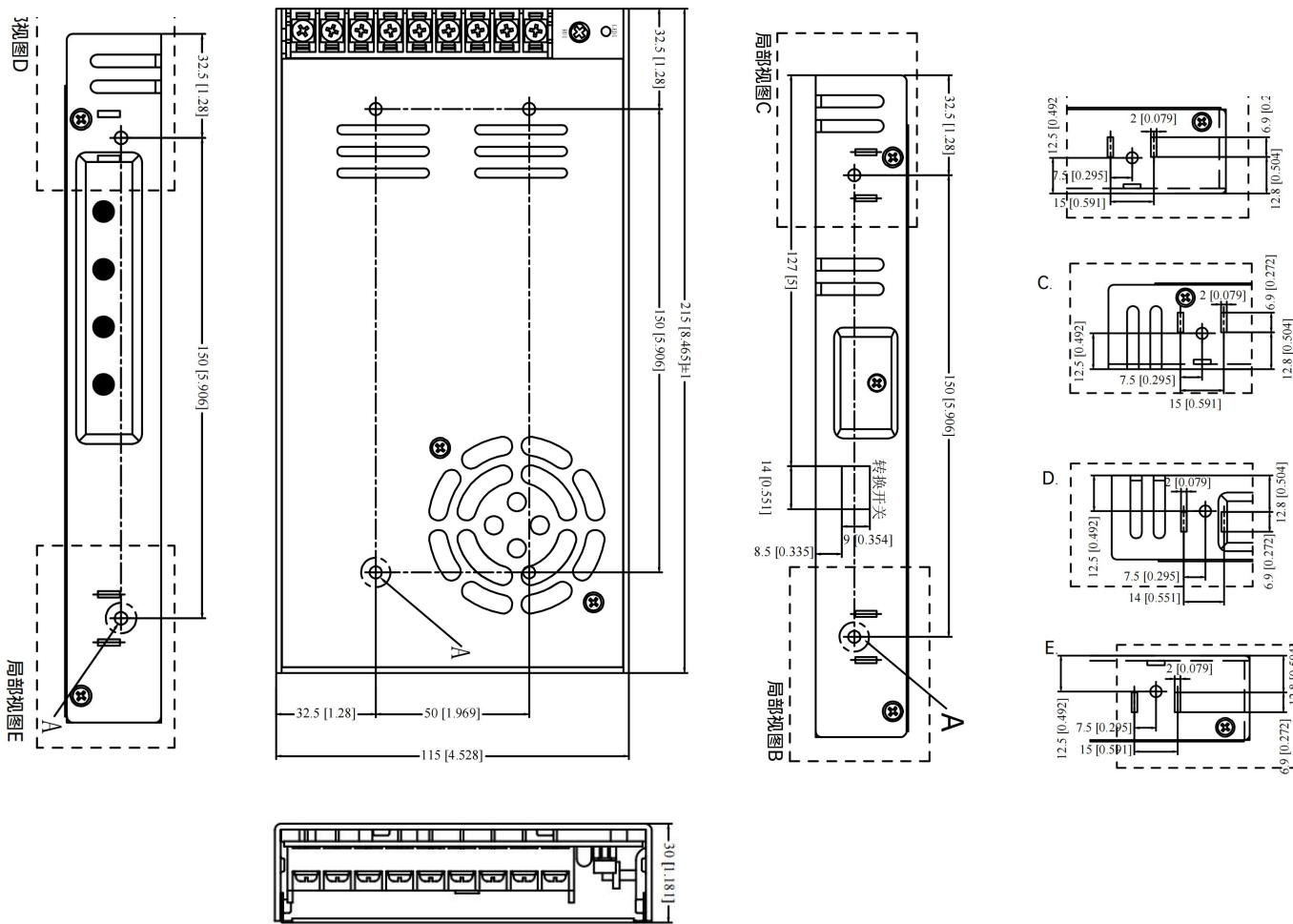
Derating Curve



Note:

1. If more detailed test data during application is needed, please contact our technical team to obtain application notes of related products.
2. This product is suitable for use in natural air convection environment, if used in a closed environment, please consult our technical support personnel.

◎ Mechanical Specification:



Input and Output Terminals Description(Default)

Pin	Function	Screw spec. & Torque(max)
L	AC LINE	Screw: M4*7 Torque: 12Kgf.cn(1.2N.m)
N	AC NETURAL	
⊕	EARTH	
V-	DC output -	Screw: M4*7 Torque: 12Kgf.cn(1.2N.m)
V-	DC output -	
V-	DC output -	
V+	DC output +	
V+	DC output +	
V+	DC output +	

8-M4 mounting hole

Screw: M4
Torque(max): 8Kgf.cn(0.8N.m)
Penetration Depth L (max): 4mm

Note:
Unit: mm[inch],
General tolerances: ±0.5[±0.020]