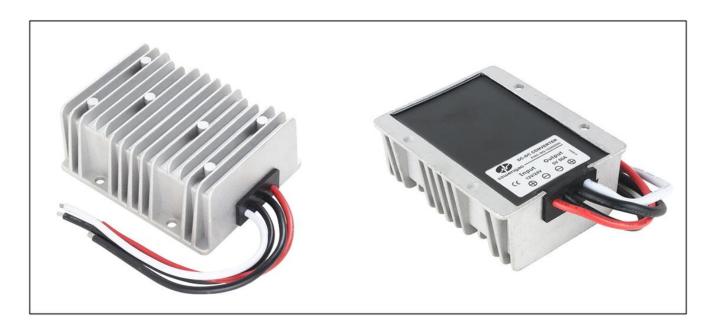




Input voltage	Output voltage	Output current	Output power	Efficiency	Size
10-36V DC	5V DC	50 Amps	250 Watts	88%	100*80*39mm



The WG-1224S0550Z is a Non-isolated DC-DC converter that uses a synchronous rectification technology, and features high efficiency and power density. It has the dimensions of $100 \text{mm} \times 80 \text{mm} \times 39 \text{mm}$ (3.94 in. x 3.15 in. x 1.54 in) and provides the rated output voltage of 5V and the maximum output current of 50A.

Features

- Design meeting RoHS/CE
- 100% full stable current output
- Input transient absorption protection
- Support -40 °C environment
- High efficiency: 88% (@ 12Vin, 25℃)
- 100% full load burn-in test
- Short circuit, Over load, Over temperature protections
- Waterproof level IP68
- 1 Year warranty

Applications

- Industrial
- Alternative Energy
- Golf Cart & Forklift
- Military
- Electromotor
- Telecommunications
- Boat & Yacht
- Medical
- LED Marketplaces and so on.

Model naming method

WG-1224S0550Z

WG: "szwengao" company name

1224: Input rated voltage

S: Single output type

05: Output voltage

50: Output current

Z : min type

Electrical Specifications

Conditions: TA = 25 °C (77°F), Airflow = 1 m/s (200LFM), Vin =12V, Vout =5V, unless otherwise specified.

Departing ambient	Parameter	Min.	Тур.	Max.	Units	Remarks	
Shell ambient Shorage temperature Shorage temper	Absolute maximum rati	ngs					
temperature Shell ambient temperature Storage temperature -55	Operating ambient	40		. 50	0.0		
The temperature	temperature	-40	_	+50	٥		
temperature	Shell ambient	40	10	90			
Operating humidity 5 - 95 % Non-condensing Atmospheric pressure 62 - 106 Kpa Altitude - - 40000 m Cooling way - - 40000 m Imput coltage 10 12/24 36 V - Max. input voltage - - 40 V Continuous Undervoltage shutdown 9.2 9.6 10.2 10.6 V Automatic recovery Undervoltage recovery 9.6 10.2 10.6 V Automatic recovery Max. input current - - 36 A Vin =89; lout =50 A No load current - - 36 A Vin =89; lout =50 A No load current - 20 35 mA Vin =122V Positive electrode cable 12 - AWG If the wire length is greater than 50cm, it is Regative electrode cable 12 -	temperature			80	٠		
Atmospheric pressure 62	Storage temperature	-55	-	100	°C		
Altitude	Operating humidity	5	-	95	%	Non-condensing	
Toput characteristics	Atmospheric pressure	62	-	106	Кра		
Input characteristics	Altitude	-	-	4000	m		
Input voltage	Cooling way	-	-	-		Natural cooling	
Max. input voltage - - 40 V Continuous Undervoltage shutdown 9.2 9.6 10 V Automatic recovery Max. input current - - 36 A Vin =8V; Iout =50 A No load current - 20 35 mA Vin =12V Positive electrode cable 12 - - AWG If the wire length is greater than 50cm, it is Negative electrode cable 12 - - AWG If the wire length is greater than 50cm, it is Negative electrode cable 12 - - AWG recommended to use a thicker wire diameter. Fuse - 50 - A Input positive has built-in fuse Output colspan="2">Output colspan="2">Output colspan="2">Output voltage 4.85 5.2 5.3 V Vin =12V; Iout =50 A Voltage regulation - ±1 - % Vin =12V; Iout =50 A Voltage regulation - ±1 - % Vin =12V; Iout =50 A Ove	Input characteristics						
Undervoltage shutdown	Input voltage	10	12/24	36	V	-	
Undervoltage recovery 9.6 10.2 10.6 V Automatic recovery	Max. input voltage	-	-	40	V	Continuous	
Max. input current - - 36 A Vin =8V; Iout =50 A No load current - 20 35 mA Vin =12V Positive electrode cable 12 - - AWG If the wire length is greater than 50cm, it is recommended to use a thicker wire diameter. Fuse - 50 - A Input positive has built-in fuse Output characteristics Efficiency - 88 - % Vin =12V; Iout =50 A Output voltage 4.85 5.2 5.3 V Vin =12V; Iout =50A Regulator accuracy - ±1 - % Voltage regulation - ±1 - % Voltage regulation - ±1 - % Voltage regulation - ±1 - % Load Regulation - ±1 - % Voltage regulation - ±1 - % Overvoltage protection NC V Voltage Voltage Voltage	Undervoltage shutdown	9.2	9.6	10	V	Automatic recovery	
No load current	Undervoltage recovery	9.6	10.2	10.6	V	Automatic recovery	
Positive electrode cable 12	Max. input current	-	-	36	А	Vin =8V; Iout =50 A	
Negative electrode cable 12	No load current	-	20	35	mA	Vin =12V	
Fuse - 50 - A Input positive has built-in fuse Output characteristics Efficiency - 88 - % Vin =12V; Iout =50 A Output voltage 4.85 5.2 5.3 V Vin =12V; Iout =50A Regulator accuracy - ±1 - % Voltage regulation - ±1 - % Load Regulation - ±1 - % Overvoltage protection NC V V Output current 0 - 50 A Overcurrent protection 65 70 80 A Vin =12V External capacitance - NA - μF Don't need Output ripple and noise - 50 100 mVp-p Vin =8-36V; Iout=50A Oscilloscope bandwidth: 20 MHz; Output voltage rise time - 250 300 mS Boot delay time - 500 650 mS	Positive electrode cable	12	-	-	AWG	If the wire length is greater than 50cm, it is	
Output characteristics Efficiency - 88 - % Vin =12V; Iout =50 A Output voltage 4.85 5.2 5.3 V Vin =12V; Iout =50A Regulator accuracy - ±1 - % Voltage regulation - ±1 - % Load Regulation - ±1 - % Overvoltage protection NC V Output current 0 - 50 A Overcurrent protection 65 70 80 A Vin =12V External capacitance - NA - μF Don't need Output ripple and noise - 50 100 mVp-p Vin =8-36V; Iout=50A Oscilloscope bandwidth: 20 MHz; Output voltage rise time - 250 300 mS Boot delay time - 500 650 mS Out voltage overshoot - 0.1 0.2 % Over tempe	Negative electrode cable	12	-	-	AWG	recommended to use a thicker wire diameter.	
Efficiency - 88 - % Vin = 12V; Iout = 50 A Output voltage 4.85 5.2 5.3 V Vin = 12V; Iout = 50 A Regulator accuracy - ±1 - % Voltage regulation - ±1 - % Load Regulation - ±1 - % Overvoltage protection NC V V Output current 0 - 50 A Overcurrent protection 65 70 80 A Vin = 12V External capacitance - NA - μF Don't need Output ripple and noise - 50 100 mVp-p Vin =8-36V; Iout=50A Output voltage rise time - 250 300 mS Boot delay time - 500 650 mS Out voltage overshoot - 0.1 0.2 % Over temperature protection - - - Without over-temperatu	Fuse	-	50	-	А	Input positive has built-in fuse	
Output voltage 4.85 5.2 5.3 V Vin =12V; Iout =50A Regulator accuracy - ±1 - % Voltage regulation - ±1 - % Load Regulation - ±1 - % Overvoltage protection NC V V Output current 0 - 50 A Overcurrent protection 65 70 80 A Vin =12V External capacitance - NA - μF Don't need Output ripple and noise - 50 100 mVp-p Vin =8-36V; Iout=50A Oscilloscope bandwidth: 20 MHz; Oscilloscope bandwidth: 20 MHz; Oscilloscope bandwidth: 20 MHz; Out voltage overshoot - 0.1 0.2 % Over temperature protection - - 100 °C Without over-temperature protectiong Short circuit protection - - - - - AWG If the wire length is greater than 50cm, it is	Output characteristics						
Regulator accuracy - ±1 - % Voltage regulation - ±1 - % Load Regulation - ±1 - % Overvoltage protection NC V V Output current 0 - 50 A Overcurrent protection 65 70 80 A Vin =12V External capacitance - NA - µF Don't need Output ripple and noise - 50 100 mVp-p Vin =8-36V; Iout=50A Oscilloscope bandwidth: 20 MHz; Oscilloscope bandwidth: 20 MHz; Oscilloscope bandwidth: 20 MHz; Out voltage rise time - 500 650 mS Out voltage overshoot - 0.1 0.2 % Over temperature protection - - 100 °C Without over-temperature protectiong Short circuit protection - - - - - Positive electrode cable 10 -	Efficiency	-	88	-	%	Vin =12V; Iout =50 A	
Voltage regulation - ±1 - % Load Regulation - ±1 - % Overvoltage protection NC V Output current 0 - 50 A Overcurrent protection 65 70 80 A Vin =12V External capacitance - NA - μF Don't need Output ripple and noise - 50 100 mVp-p Vin =8-36V; Iout=50A Output voltage rise time - 250 300 mS Boot delay time - 500 650 mS Out voltage overshoot - 0.1 0.2 % Over temperature protection 100 °C Without over-temperature protection Short circuit protection AWG If the wire length is greater than 50cm, it is	Output voltage	4.85	5.2	5.3	V	Vin =12V; Iout =50A	
Load Regulation - ±1 - % Overvoltage protection	Regulator accuracy	-	±1	-	%		
Overvoltage protection Output current Output current Output current Overcurrent protection 65 70 80 A Vin =12V External capacitance NA - µF Don't need Output ripple and noise Output ripple and noise Output voltage rise time - 250 300 mS Boot delay time - 500 650 mS Out voltage overshoot Over temperature protection Short circuit protection Positive electrode cable NC V V A Vin =12V Vin =8-36V; Iout=50A Oscilloscope bandwidth: 20 MHz; Vin =8-36V; Iout=50A Oscilloscope bandwidth: 20 MHz; Vin =8-36V; Iout=50A Oscilloscope bandwidth: 20 MHz; Without over-temperature protectiong	Voltage regulation	-	±1	-	%		
Output current O - 50 A Overcurrent protection 65 70 80 A Vin =12V External capacitance - NA - µF Don't need Output ripple and noise - 50 100 mVp-p Output voltage rise time - 250 300 mS Boot delay time - 500 650 mS Out voltage overshoot - 0.1 0.2 % Over temperature protection 100 °C Without over-temperature protection Short circuit protection AWG If the wire length is greater than 50cm, it is	Load Regulation	-	±1	-	%		
Overcurrent protection 65 70 80 A Vin = 12V External capacitance - NA - µF Don't need Output ripple and noise - 50 100 mVp-p Vin = 8-36V; Iout=50A Oscilloscope bandwidth: 20 MHz; Output voltage rise time - 250 300 mS Boot delay time - 500 650 mS Out voltage overshoot - 0.1 0.2 % Over temperature protection 100 °C Without over-temperature protectiong Short circuit protection AWG If the wire length is greater than 50cm, it is	Overvoltage protection		NC		V		
External capacitance - NA - μF Don't need Output ripple and noise - 50 100 mVp-p Vin =8-36V; Iout=50A Oscilloscope bandwidth: 20 MHz; Output voltage rise time - 250 300 mS Boot delay time - 500 650 mS Out voltage overshoot - 0.1 0.2 % Over temperature protection 100 °C Without over-temperature protectiong Short circuit protection AWG If the wire length is greater than 50cm, it is	Output current	0	-	50	Α		
Output ripple and noise - 50 100 mVp-p Vin =8-36V; Iout=50A Oscilloscope bandwidth: 20 MHz; Output voltage rise time - 250 300 mS Boot delay time - 500 650 mS Out voltage overshoot - 0.1 0.2 % Over temperature protection Short circuit protection AWG If the wire length is greater than 50cm, it is	Overcurrent protection	65	70	80	Α	Vin =12V	
Output ripple and noise - 50 100 mVp-p Oscilloscope bandwidth: 20 MHz; Output voltage rise time - 250 300 mS Boot delay time - 500 650 mS Out voltage overshoot - 0.1 0.2 % Over temperature protection 100 °C Without over-temperature protectiong Short circuit protection AWG If the wire length is greater than 50cm, it is	External capacitance	-	NA	-	μF	Don't need	
Output voltage rise time - 250 300 mS Boot delay time - 500 650 mS Out voltage overshoot - 0.1 0.2 % Over temperature protection 100 °C Without over-temperature protectiong Short circuit protection AWG If the wire length is greater than 50cm, it is	Output ripple and noice	-	50	100	mVp-p	Vin =8-36V; Iout=50A	
Boot delay time - 500 650 mS Out voltage overshoot - 0.1 0.2 % Over temperature protection 100 °C Without over-temperature protectiong Short circuit protection AWG If the wire length is greater than 50cm, it is	Output ripple and noise					Oscilloscope bandwidth: 20 MHz;	
Out voltage overshoot - 0.1 0.2 % Over temperature protection - 100 °C Without over-temperature protectiong Short circuit protection AWG If the wire length is greater than 50cm, it is	Output voltage rise time	-	250	300	mS		
Over temperature protection 100 °C Without over-temperature protectiong Short circuit protection AWG If the wire length is greater than 50cm, it is	Boot delay time	-	500	650	mS		
Positive electrode cable 100 C Without over-temperature protection AWG If the wire length is greater than 50cm, it is	Out voltage overshoot	-	0.1	0.2	%		
Short circuit protection Positive electrode cable 10 - AWG If the wire length is greater than 50cm, it is	Over temperature	_	_	100	°C	Without over-temperature protections	
Positive electrode cable 10 - AWG If the wire length is greater than 50cm, it is	protection			100		without over temperature protections	
	Short circuit protection	-	-	-			
Negative electrode cable 10 - AMC recommended to use a thicker wire diameter.	Positive electrode cable	10	-	-	AWG	If the wire length is greater than 50cm, it is	
ivegative electrode cable 10 AWG	Negative electrode cable	10	-	-	AWG	recommended to use a thicker wire diameter.	



Safety and EMC features					
	Input to Output -		V	Lookaga aumant < 2 Frank Amir	
Anti-electric Strength	Input to Shell	to Shell ≥500		Leakage current ≤ 3.5mA, 1min,	
	Output to Shell	≥500	V	no breakdown, no arcing	
	Input to Output		MΩ		
Insulation resistance	Input to Shell	≥10		Test voltage = 500V	
	Output to Shell				
Other characteristics					
Weight	≤ 550		g		
Package	White box				
MTBF	≥200,000		Н	Vin =12V; Iout =50A	
Switching frequency	220±10		KHz		

Characteristic Curves

Conditions: TA = 25°C (77°F), Vin = 12 V, Vout = 5 V , unless otherwise specified.

Figure 1, Efficiency

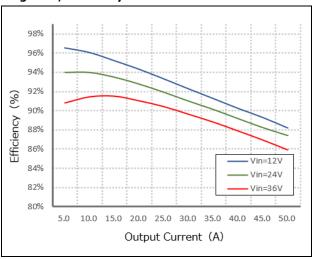


Figure 2, Power dissipation

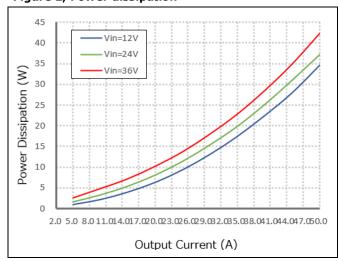
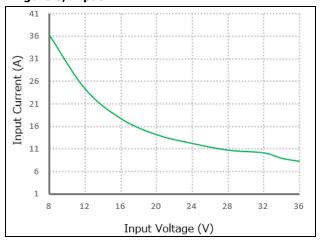


Figure 3, Input V-I





Typical Waveforms

Conditions: TA = 25° C (77° F), Vin = 12 V, unless otherwise specified.

Figure 4, 25% - 50% load dynamic

Figure 5, 50% - 75% load dynamic

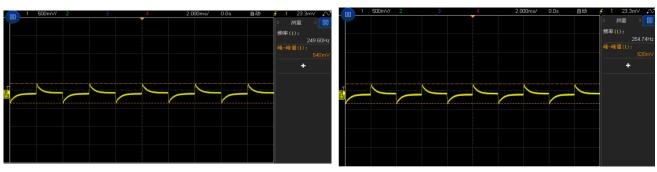
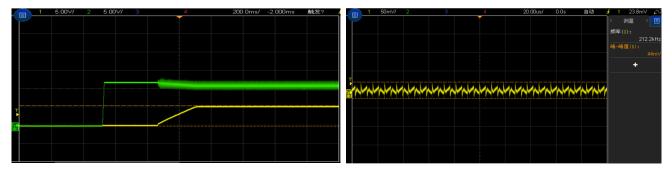


Figure 6, Output voltage established (Iout = 50A)

Figure 7, Output ripple & noise (Iout = 50A)



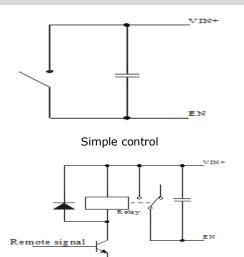
Model No.:WG-1224S0550Z

Feature Description

Remote On/Off (EN) (Optional)

Logic	Low level	High level	Left open
Enable	(0 - 10Vdc)	(10 - 36Vdc)	
Positive logic	Off	On	Off

Various circuits for driving the EN



Transistor control

Input Undervoltage Protection

The converter will shut down after the input voltage drops below the under-voltage protection threshold for shutdown. The converter will start to work again after the input voltage reaches the input under voltage protection threshold for startup. For the Hysteresis, see the Protection characteristics.

Output Overcurrent Protection

The converter equipped with current limiting circuitry can provide protection from an output overload or short circuit condition. If the output current exceeds the output overcurrent protection set point , the converter enters hiccup mode. When the fault condition is removed, the converter will automatically restart.

Overtemperature Protection

A temperature sensor on the converter senses the average temperature of the module. It protects the converter from being damaged at high temperatures. When the temperature exceeds the over temperature protection threshold, the output will shut down. It will allow the converter to turn on again when the temperature of the sensed location falls by the value of Over temperature Protection Hysteresis

Wiring Instructions

The input and output of this product is terminals. The user should ensure that the input and output wires and terminals are connected reliably, and pay attention to the wire diameter to meet the requirements of the power supply current. If the cable to be used is long, it needs Considering the voltage drop of the wire, if the voltage drop is too large, the voltage output at the load end may not meet the load demand. In this case, consider using a thicker wire diameter or reducing the length of the wire. Generally, if long wiring is required. Long line should be used on the side where the current is relatively small. For example, this product is a step-down product, so long lines should be used on the input side.



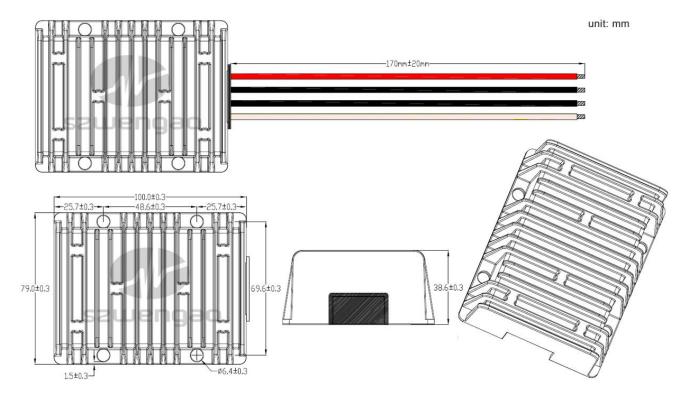
Thermal Consideration

Sufficient airflow should be provided to help ensure reliable operating of the WG-1224S0550Z.

Therefore, thermal components are mounted on the top surface of the WG-1224S0550Z to dissipate heat to the surrounding environment by conduction, convection and radiation. Proper airflow can be verified by measuring the temperature at the middle of the base plate.



Dimension



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