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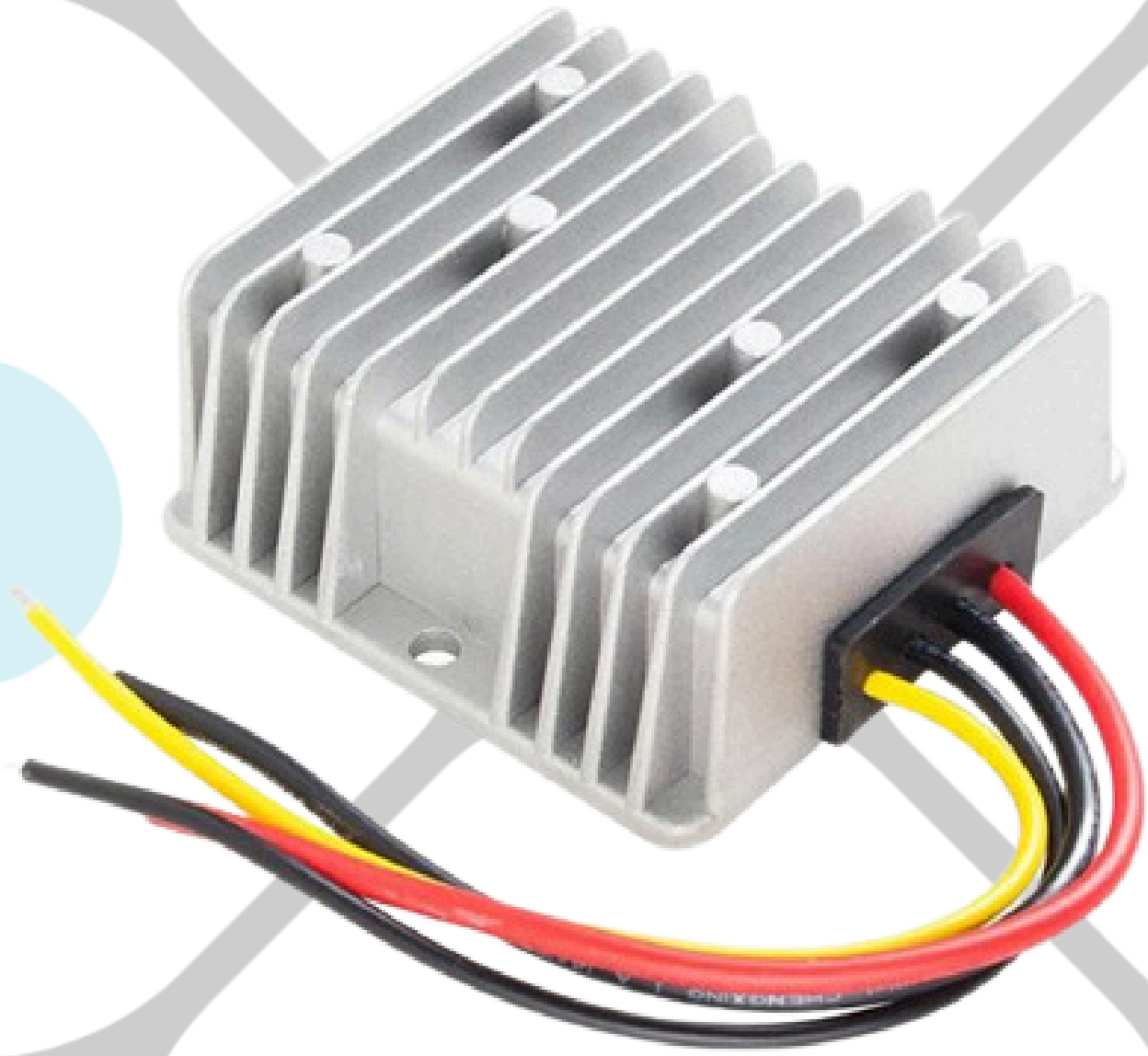
ENLIVENING ROBOTICS

DC DC Converter

RW-1020-12-24-5V-100W

Input Voltage	Output voltage	Output current	Output Power	Efficiency	Dimenssion
8-36V	5V	20A	100W	90.6%	74*74*32mm



The RW-1020-12-24-5V-100W 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 74mm x 74mm x 32mm (2.91 in. x 2.91 in.x 1.26 in) and provides the rated output voltage of 5V and the maximum output current of 20A.

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Features

- Design meeting RoHS / CE
- High efficiency: 90.6%(@ 24Vin, 25℃)
- Import capacitors, high reliability
- Support -40 ℃ environment
- 100% full load burn-in test
- 3 month warranty
- Waterproof level IP68
- Short circuit, Over load, Over temperature protections
- Remote ON/OFF control(optional)
- Output transient absorption protection

Applications

- Industrial
- Alternative Energy
- Golf Cart
- Forklift
- Electromotor
- Telecommunications
- Boat & Yacht
- Medical
- LED Marketplaces

and so on

Model naming method

RW-1020-12-24-5V-100W

RW-1020: SKU NAME
12-24: Input voltage range
5V: Output voltage
100W: POWER

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Datasheet

Parameter	Min	Typ	Max	Units	Remakrs
Absolute maximum ratings					
Operating ambient temperature	-40	-	+50	°C	
Shell ambient temperature	-40	-	80	°C	
Storage temperature	-55	-	100	°C	
Operating humidity	5	-	95	%	Non-condensing
Atmospheric pressure	62	-	106	kpa	
Altitude	-	-	4000	m	
Cooling way	-	-	-		Natural cooling
Input characteristics					
Input voltage	8	24	36	V	-
Max. input voltage	-	-	36	V	Continuous
Undervoltage shutdown	7.2	7.3	7.4	V	Automatic recovery
Undervoltage recovery	7.9	8.0	8.1	V	Automatic recovery
Max. input current	-	-	16	A	Vin =7.4V; Iout =20A
No load current	-	19	23	mA	Vin =24V
Positive electrode cable	14	-	-	AWG	If the wire length is greater than 50cm, it is recommended to use a thicker wire diameter.
Negative electrode cable	14	-	-	AWG	

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Enable PIN cable	/	-	-	AWG	If the product has this feature
Fuse	-	20	-	A	Input positive has built-in fuse
Output characteristics					
Efficiency	-	90.6	-	%	Vin =24V; Iout =20A
Output voltage	4.9	5.0	5.3	V	Vin =24V; Iout =20A
Regulator accuracy	-	±1	-	%	
Voltage regulation	-	±1	-	%	
Load Regulation	-	±1	-	%	
Overvoltage protection	-	--	-	V	@25°C, TVS clampprotection
Output current	0	-	20	A	
Overcurrent protection	25.4	25.6	25.8	A	Vin=24V
External capacitance	0	3000	4000	μF	
Output ripple and noise	-	48	60	mVp-p	Vin =8-36V; Iout=20A, Oscilloscope bandwidth: 20 MHz
Output voltage risetime	-	55	70	mS	
Boot delay time	-	67	80	mS	
Out voltage overshoot	-	1	2	%	Vin =24V, 50%-75%Load step
Over temperatur protection	-	-	100	°C	Shell temperature, @ 100°C Restoreworking

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RW-1020-12-24-5V-100W

Short circuit protection	-	-	-		Long-term (4 hours)short circuit is not damaged, Hiccupmode
Positive electrode cable	14	-	-	AWG	If the wire length is greater than 50cm, it is recommended to use a thicker wire diameter.
Negative electrode cable	14	-	-	AWG	
Safety and EMC features					
Anti-electric Strength	Input to Output	-	V		Leakage current ≤ 3.5mA, 1min, no breakdown, no arcing
	Input to Shell	≥500	V		
	Output to Shell	≥500	V		
Insulation resistance	Input to Output	≥50	MΩ		Test voltage = 500V
	Input to Shell				
	Output to Shell				
Other characteristics					
Weight	≤ 300	g			
Package	white box				
MTBF	≥200,000	H			Vin= 24V; Iout= 20A
Switching frequency	100±10	KHz			

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DC DC Converter

RW-1020-12-24-5V-100W

Characteristic Curves

Conditions: TA = 25°C (77°F),Vin = 24V, Vout = 5V, unless otherwise specified.

Figure 1, Efficiency

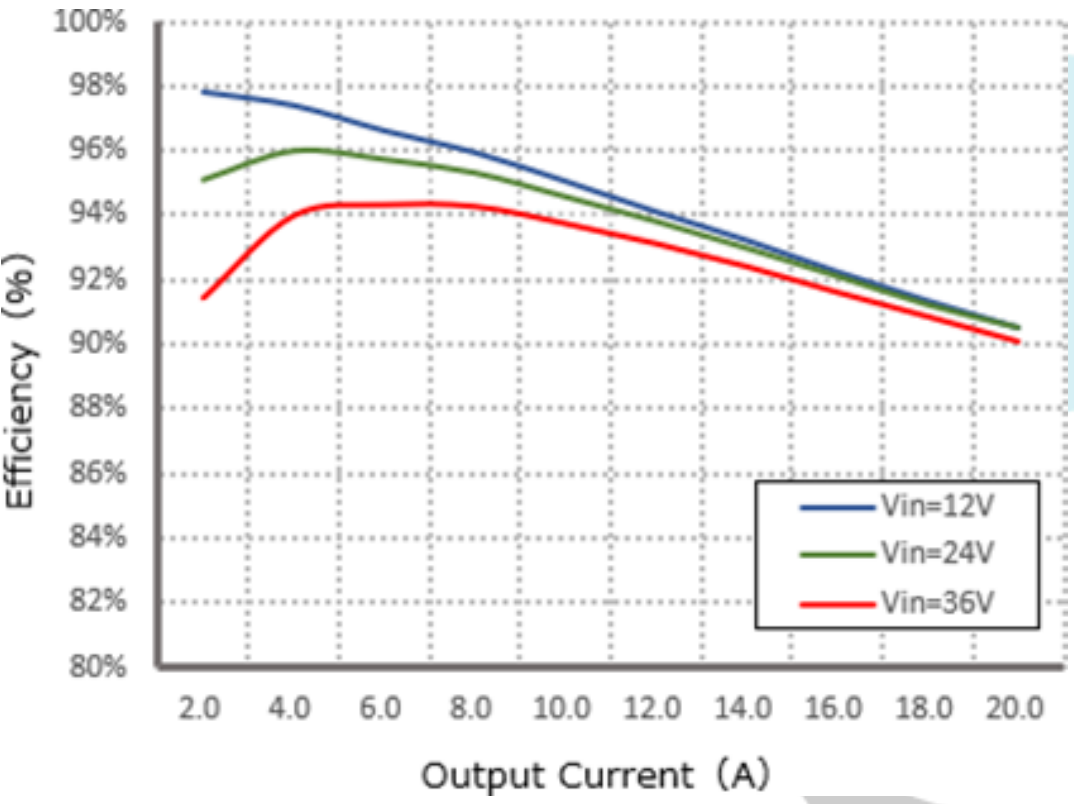


Figure 2, Power dissipation

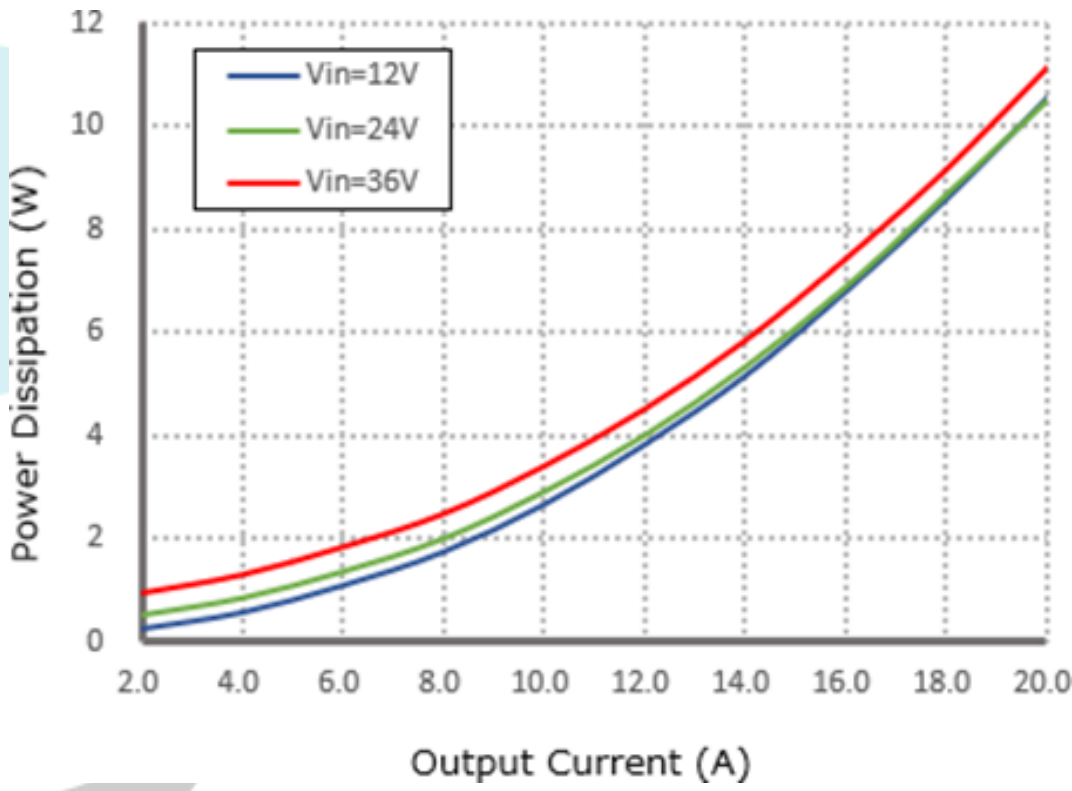
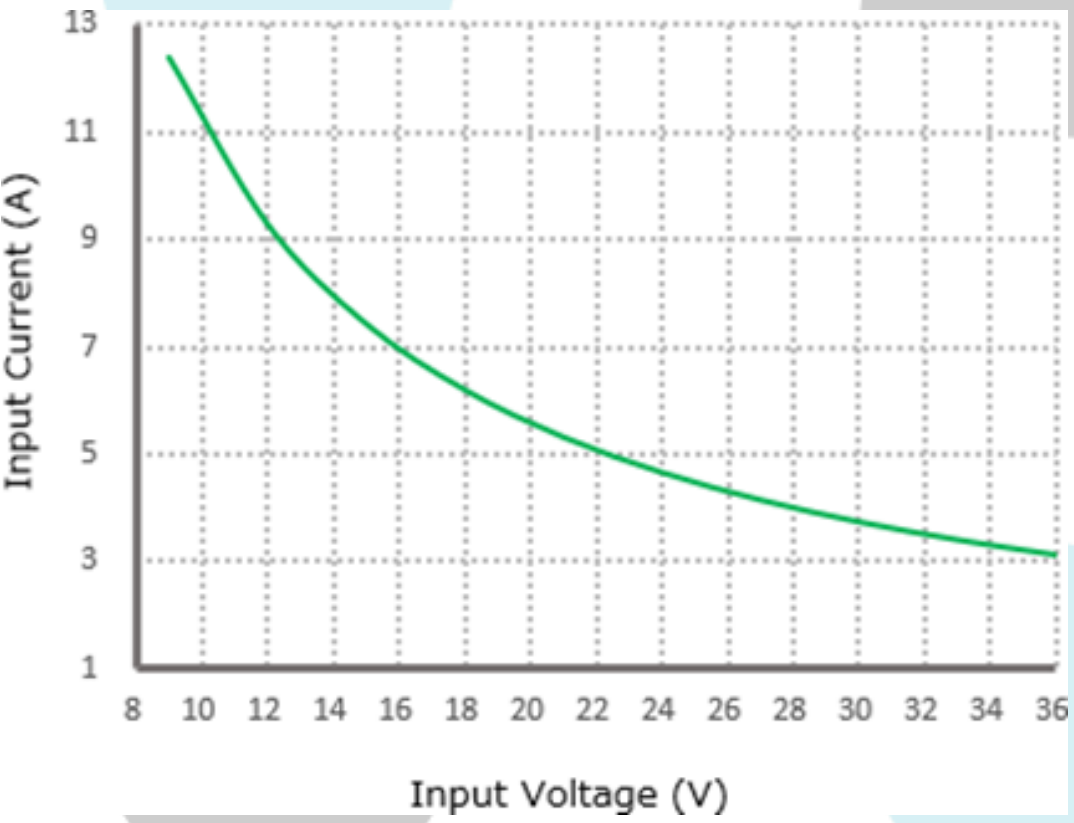


Figure 3, Input V-I, Iout=20A



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Typical Waveforms

Conditions: TA = 25°C (77°F), Vin = 24V, unlessotherwise specified.

Figure 4, 25% - 50%load dynamic

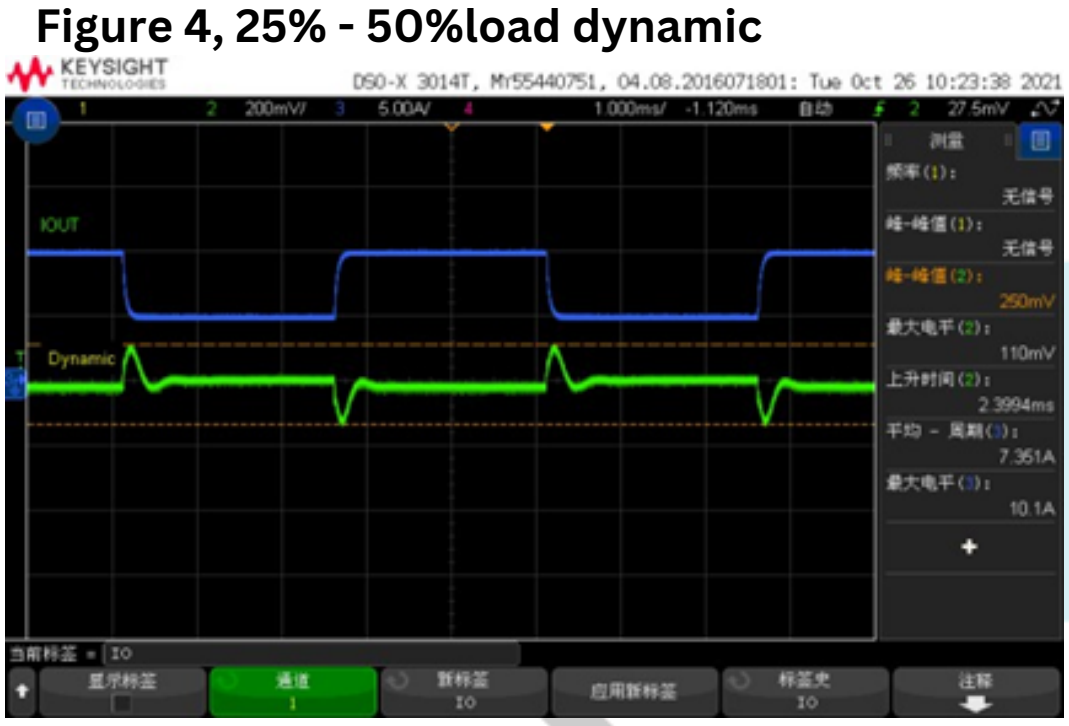


Figure 5, 50% - 75%load dynamic

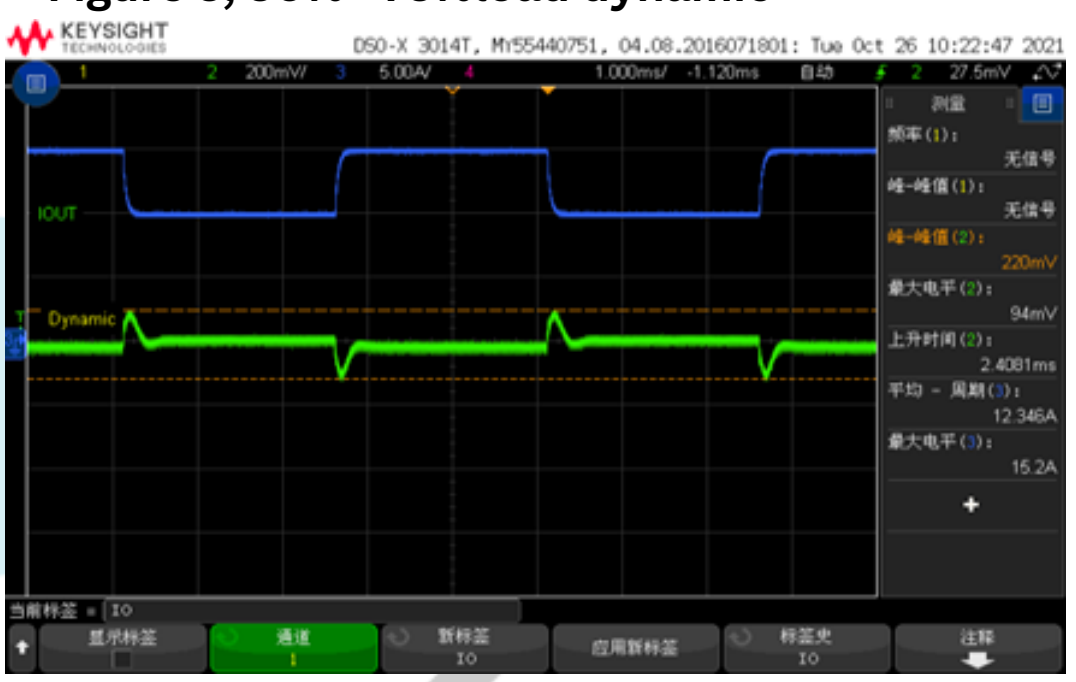


Figure 6, Output voltageestablished (Iout = 20A)

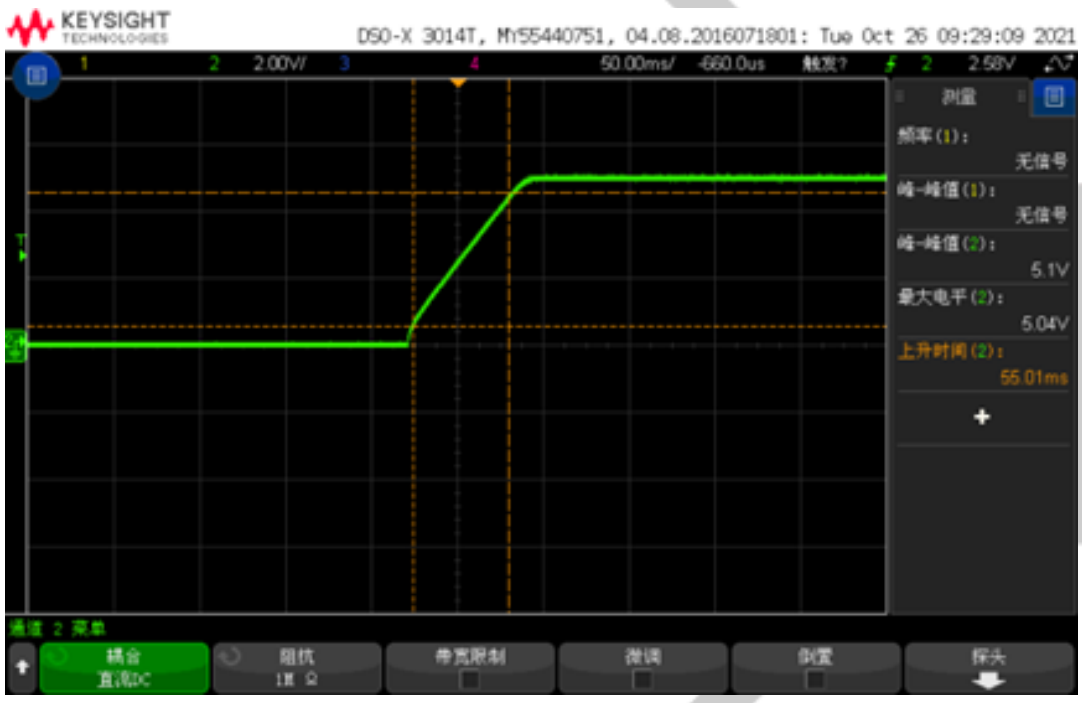


Figure 7, Output ripple& noise (Iout =20A)

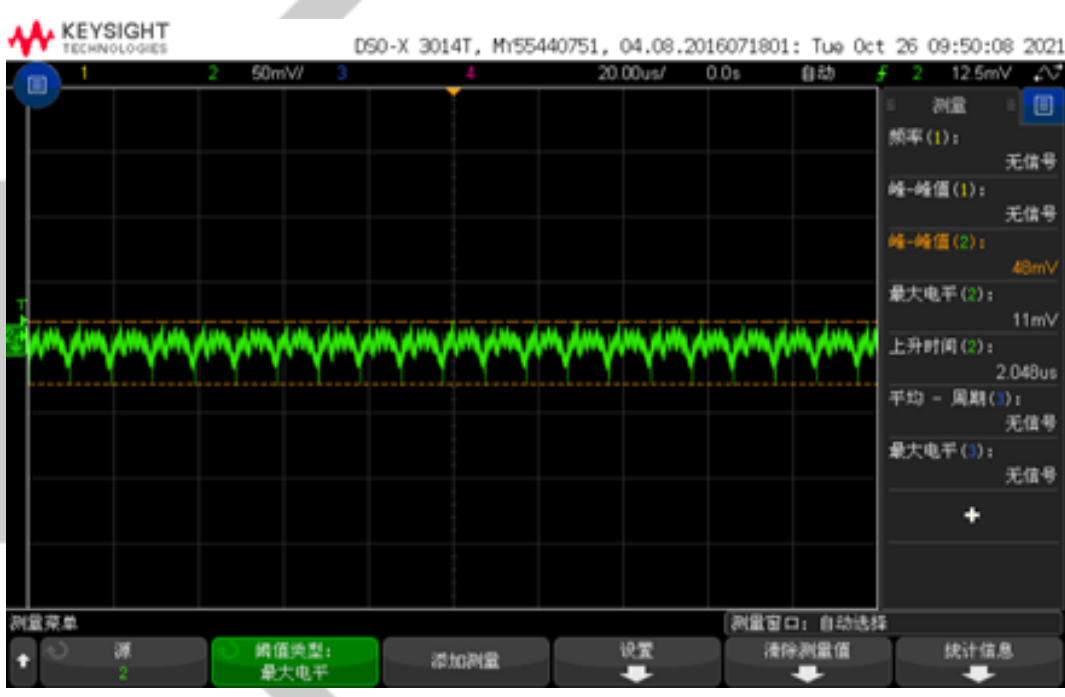
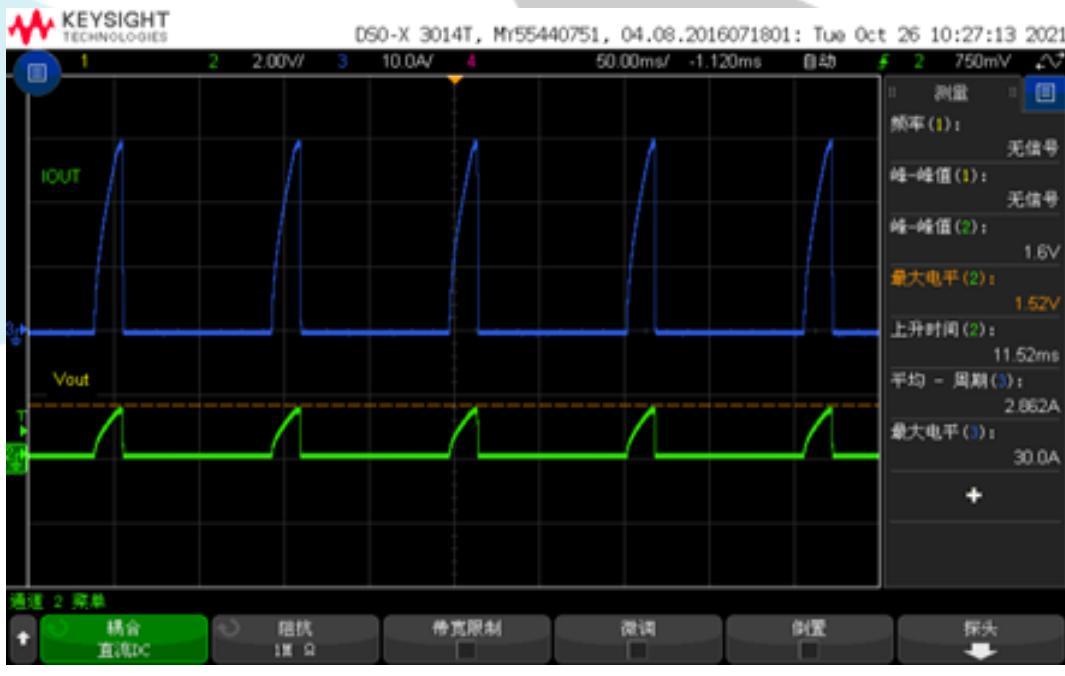


Figure 8, Boot delay time

Figure 9, Short-circuit & Output voltage



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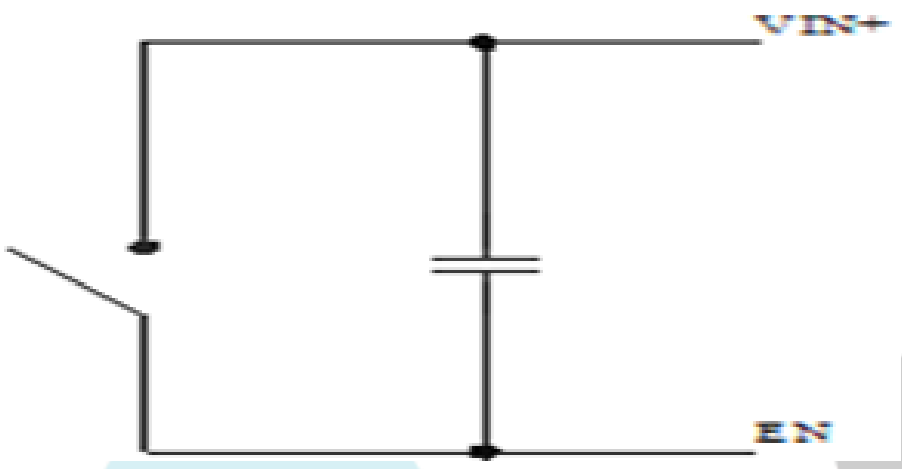
RW-1020-12-24-5V-100W

Feature Description

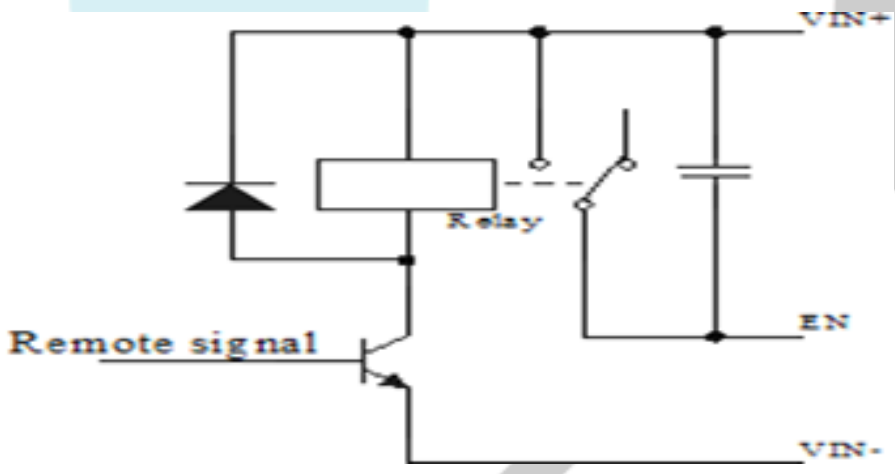
Remote On/Off (EN) (Optional)

Logic Enable	Low lavel (0-8Vdc)	High lavel (8-40dc)	Left open
positive lolgic	Off	~~On~~	Off

Various circuits for driving the EN



Simple control



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 provideprotection from an output overloador 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

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 diameterto 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 usinga thicker wire diameter or reducing the length of the wire. Generally, if long wiring is required. Long line should be used on the side wherethe current is relatively small.For example, this product is a step-down product, so long lines shouldbe used on the input side

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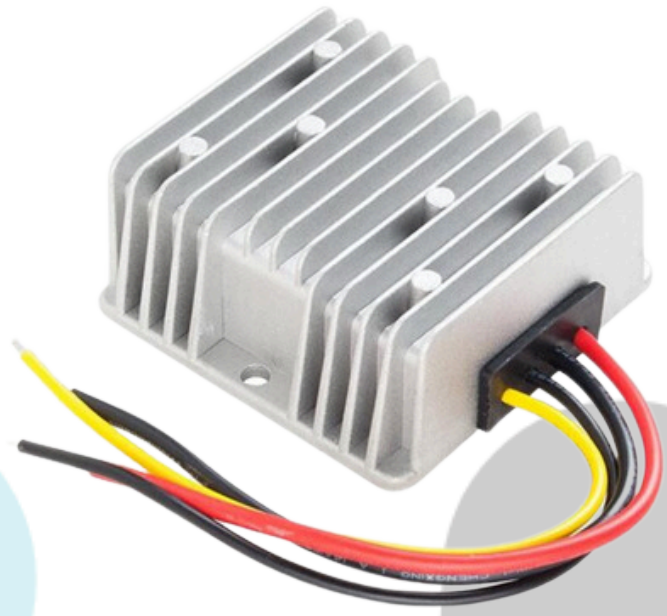
DC DC Converter

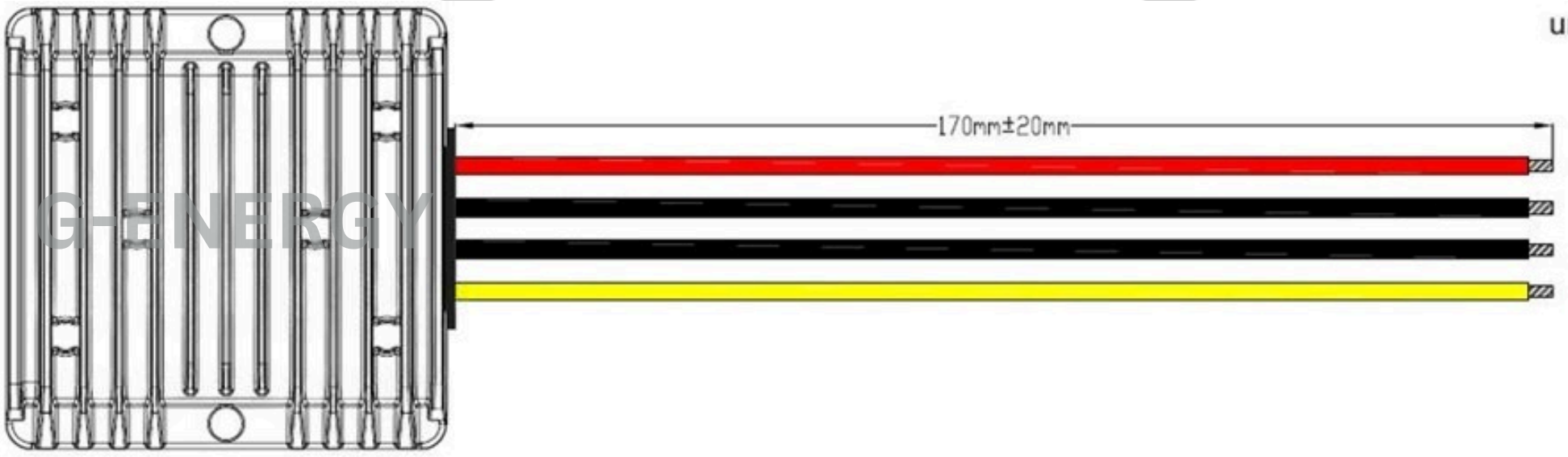
RW-1001-8-40-12V-72W

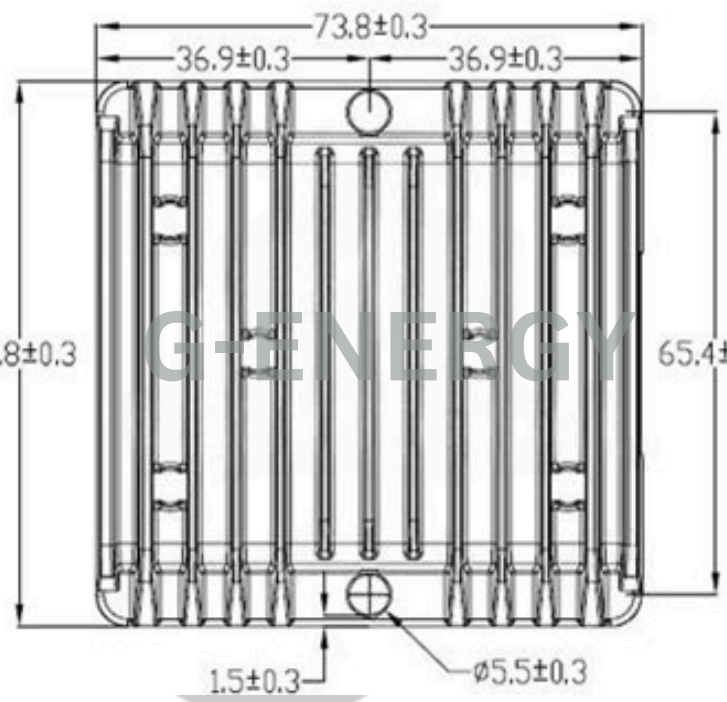
Thermal Consideration

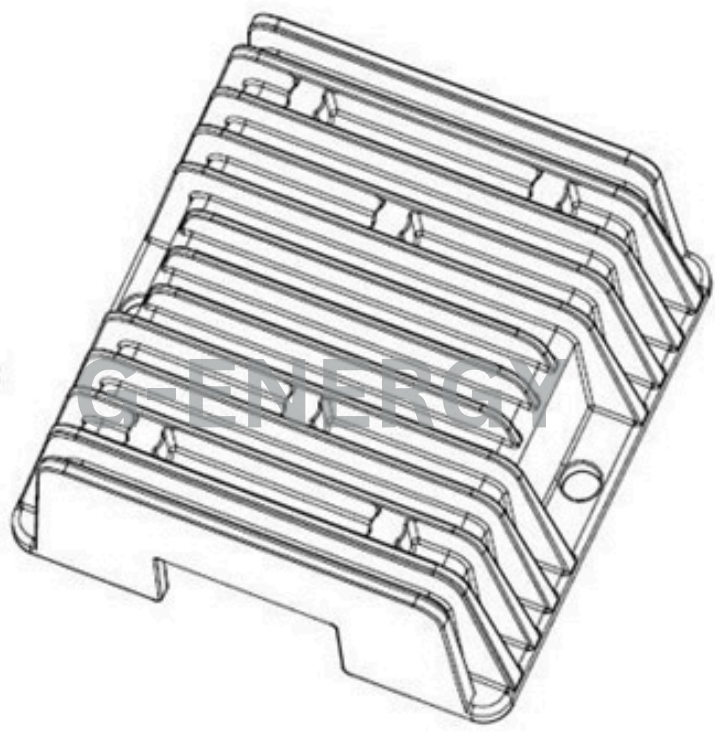
Sufficient airflowshould be providedto help ensure reliable operating of the RW-1020-12-24-5V-100W Therefore, thermal components are mounted on the top surface of the RW-1020-12-24-5V-100W to dissipate heat to the surrounding environment by conduction, convection, and radiation. Proper airflow can be verified by measuring the temperature at the middle of the base plate.



unit: mm







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