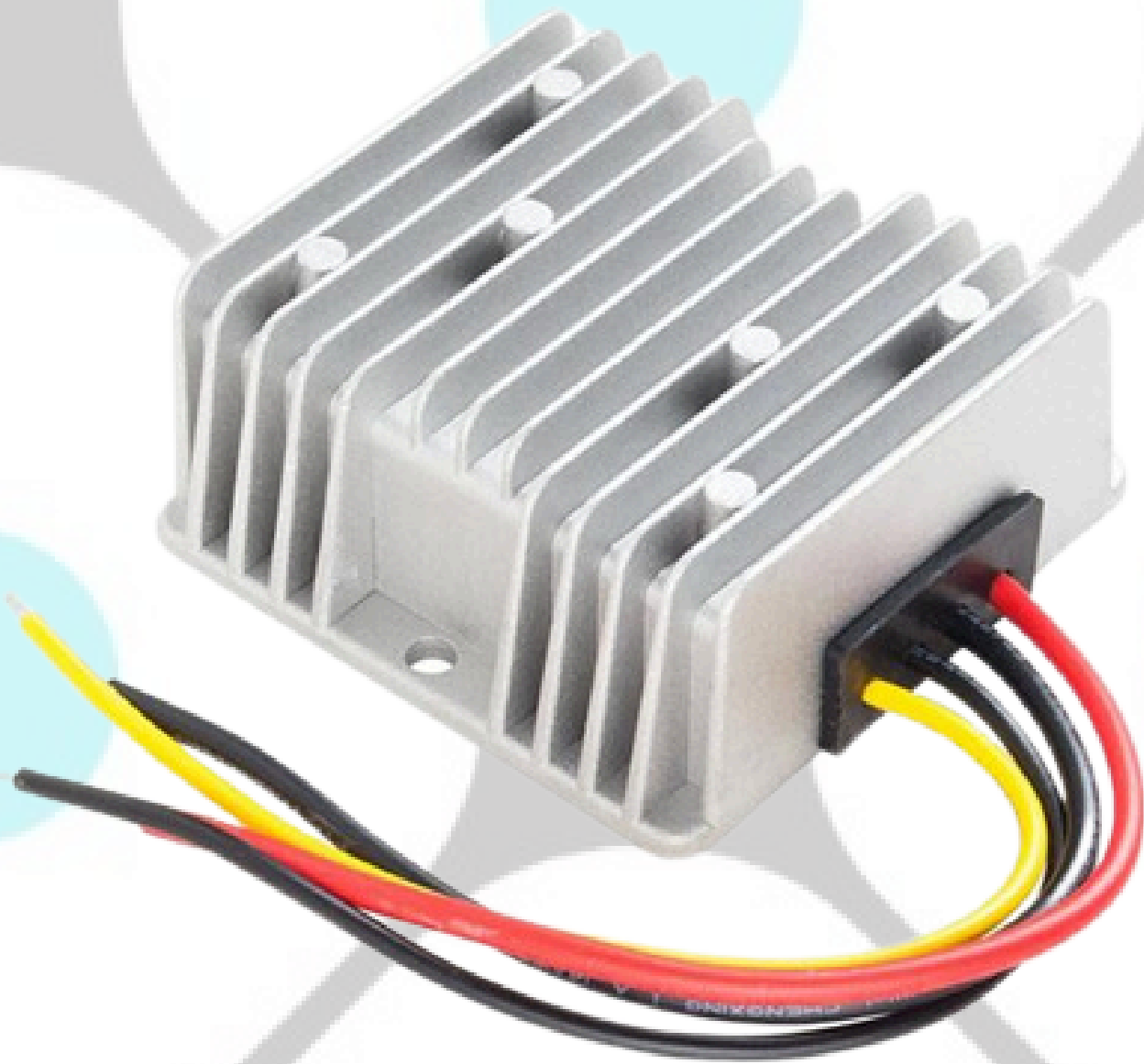


Input Voltage	Output voltage	Output current	Output Power	Efficiency	Dimension
10-18V	19V	5A	95W	94.5%	74*74*32mm



The RW-1421-12-19-95W 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 19V and the maximum output current of 5A.

## Features

- Design meeting RoHS / CE
- High efficiency: 94.5%(@12Vin,25°C)
- Mount in almost any location, high reliability
- Non-isolated between input and output
- Support -40 °C environment
- 100% full load burn-in test
- Over load, Low voltage protections
- Die-cast aluminum shell, epoxy potting
- Waterproof level IP68
- 3 month warranty

## Applications

- Industrial
- Alternative Energy
- Golf Cart
- Forklift
- Electromotor
- Telecommunications
- Boat & Yacht
- Dual battery system
- LED Marketplaces  
and so on

## Model naming method

**RW-1421-12-19-95W**

RW-1421 : SKU NAME  
12 : Input voltage range  
19 : Output voltage  
95W : POWER

### Datasheet

Parameter	Min	Typ	Max	Units	Remakrs
<b>Absolute maximum ratings</b>					
Operating ambient temperature	-40	-	+55	°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
<b>Input characteristics</b>					
Input voltage	10	12	18	V	
Max. input voltage	-	-	18	V	Continuous
Undervoltage shutdown	8.0	8.4	9.0	V	Automatic recovery
Undervoltage recovery	9.0	9.5	10.0	V	Automatic recovery
Max. input current	-	-	11.1	A	Vin =9.3V; Iout =5A
No load current	-	94	120	mA	Vin =12V
Positive electrode cable	16	-	-	AWG	If the wire length is greater than 50cm, it is recommended to use a thicker wire diameter.
Negative electrode cable	16	-	-	AWG	

Enable PIN cable	-	NA	-	AWG	If the unit with this function
Fuse	-	20	-	A	Input positive has built-in fuse
<b>Output characteristics</b>					
Efficiency	-	94.5	-	%	Vin =12V; Iout =5A
Output voltage	18.85	19.0	19.45	V	Vin =12V; Iout =5A
Regulator accuracy	-	±5	-	%	
Voltage regulation	-	±3	-	%	
Load Regulation	-	±3	-	%	
Overvoltage protection	-	NA	-	V	
Output current	0	-	5	A	
Overcurrent protection	7.0	8.5	9.5	A	Vin=12V
External capacitance	-	NA	-	μF	Don't need
Output ripple and noise	-	400	500	mVp-p	Vin =10-18V; Iout=5A, Oscilloscope bandwidth: 20 MHz
Output voltage risetime	-	9	20	mS	
Boot delay time	-	11	20	mS	
Out voltage overshoot	-	-	5	%	Vin =12V, 50%-75% Load step
Over temperatur protection	-	NA	-	°C	Shell test

Short circuit protection	-	NA	-		<b>Output can't shorted for boost converters</b>
Positive electrode cable	18	-	-	AWG	If the wire length is greater than 50cm, it is recommended to use a thicker wire diameter
Negative electrode cable	18	-	-	AWG	
<b>Safety and EMC features</b>					
Anti-electric Strength	Input to Output	-	V	Leakage current $\leq$ 3.5mA, 1min, no breakdown, no arcing	
	Input to Shell	$\geq 500$	V		
	Output to Shell	$\geq 500$	V		
Insulation resistance	Input to Output	$\geq 10$	M $\Omega$	Test voltage = 500V	
	Input to Shell				
	Output to Shell				
<b>Other characteristics</b>					
Weight	$\leq 300$	g			
Package	white box				
MTBF	$\geq 200,000$	H	Vin= 12V; Iout= 5A		
Switching frequency	150 $\pm$ 10	KHz			

### Characteristic Curves

Conditions:  $T_A = 25^\circ\text{C}$  (77°F),  $V_{in} = 24\text{V}$ ,  $V_{out} = 12\text{V}$ , unless otherwise specified.

Figure 1, Efficiency

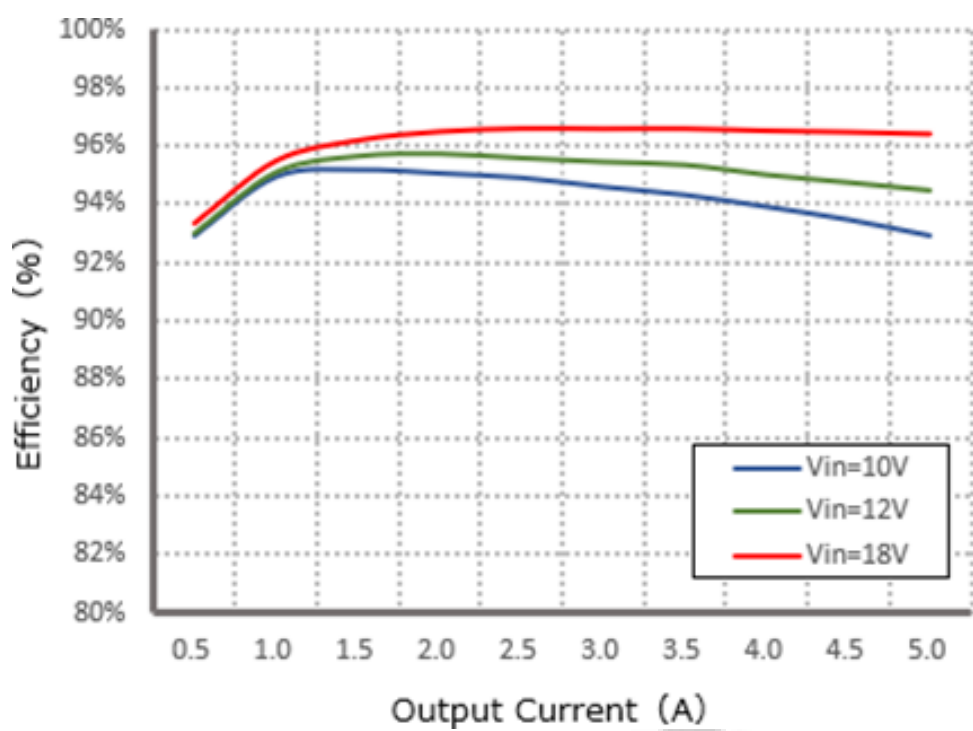


Figure 2, Power dissipation

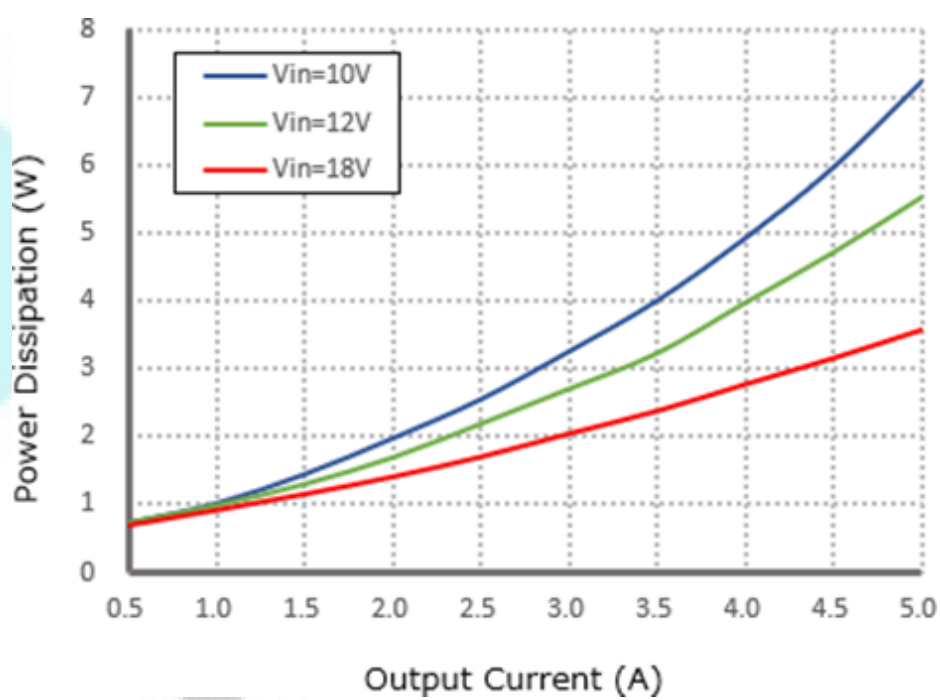
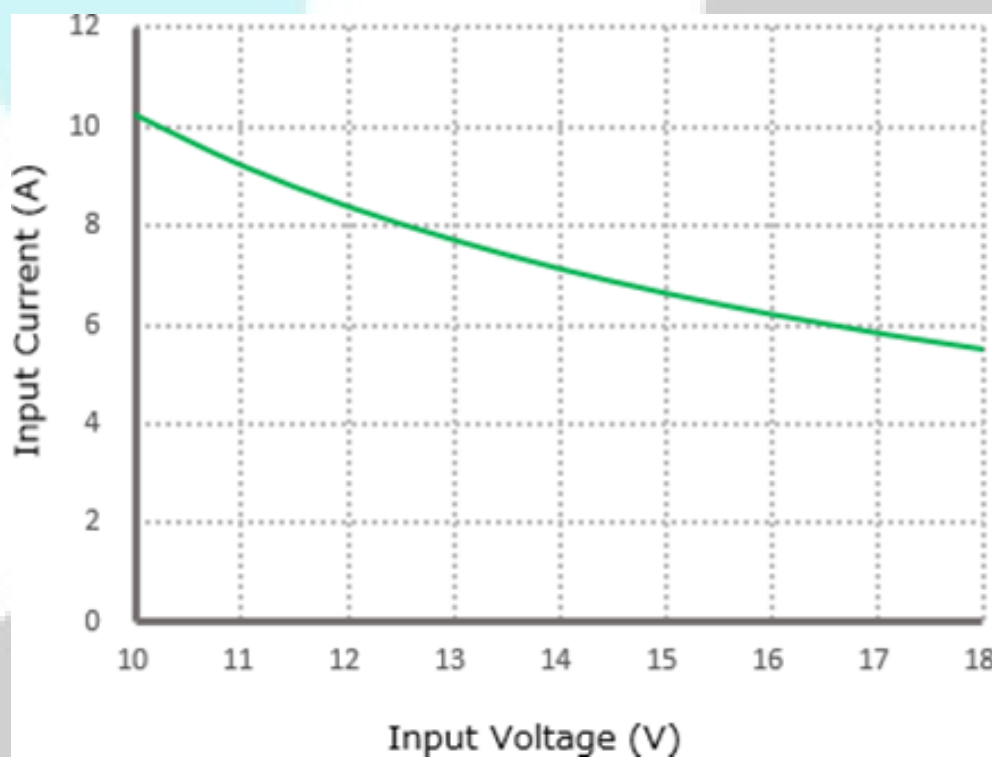


Figure 3, Input V-I, Iout=5A



### Typical Waveforms

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

Figure 4, 25% - 50% load dynamic

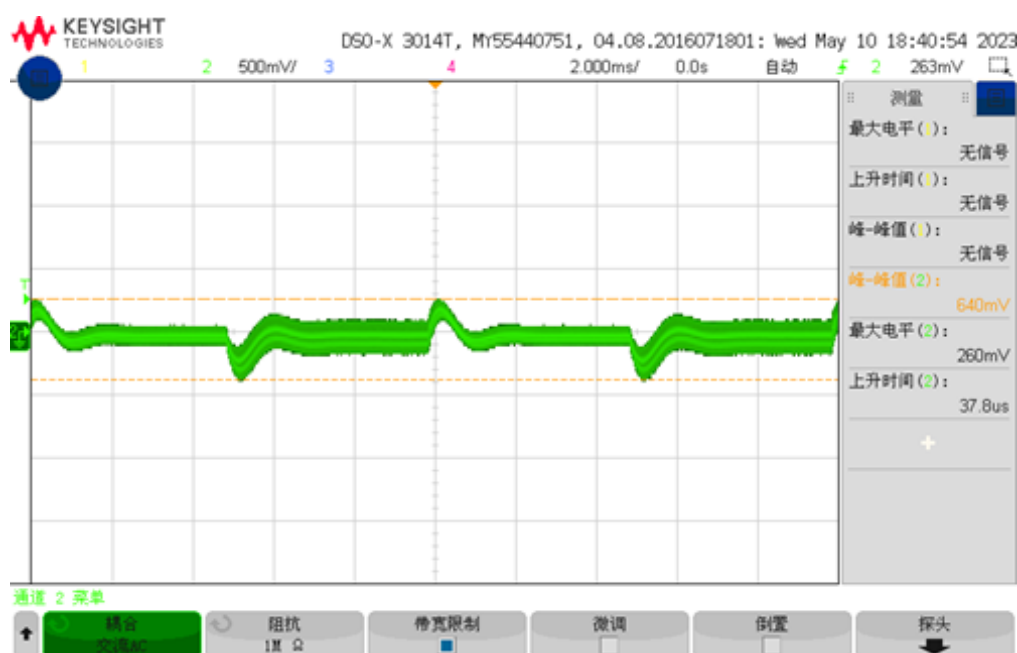


Figure 5, 50% - 75% load dynamic

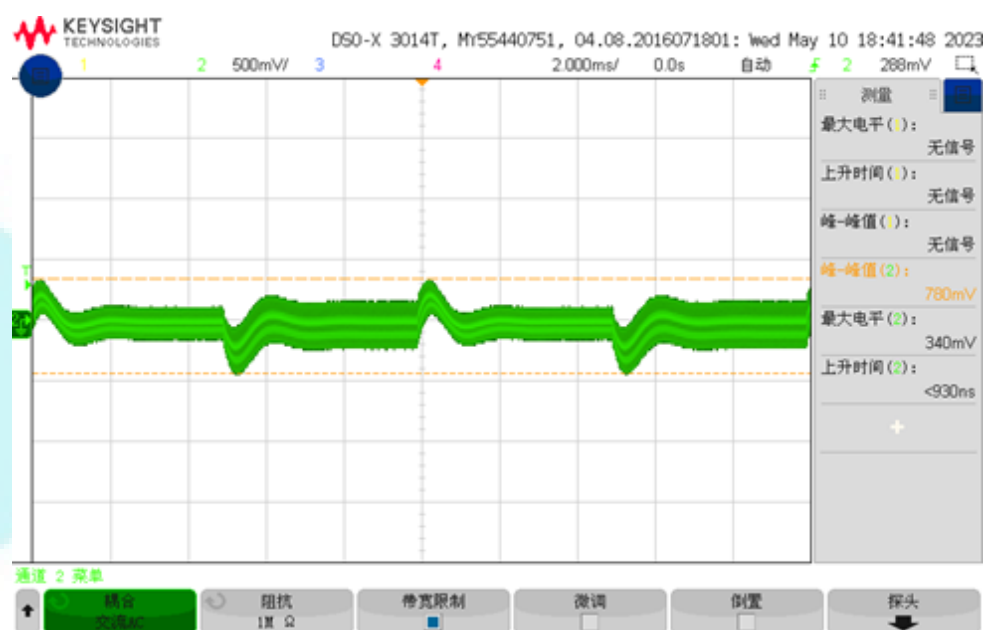


Figure 6, Output voltage established (Iout = 5A)

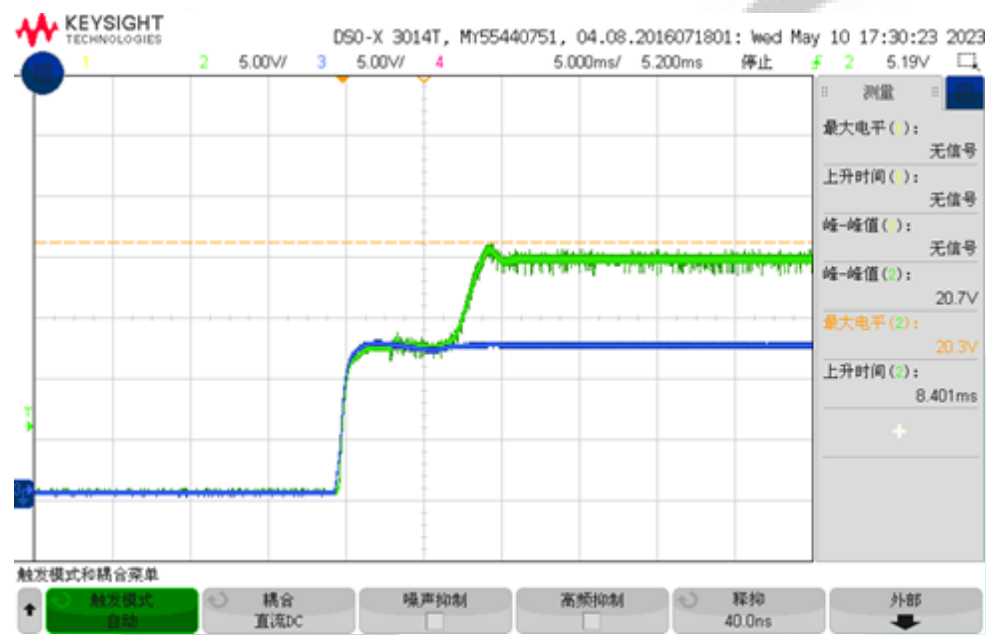
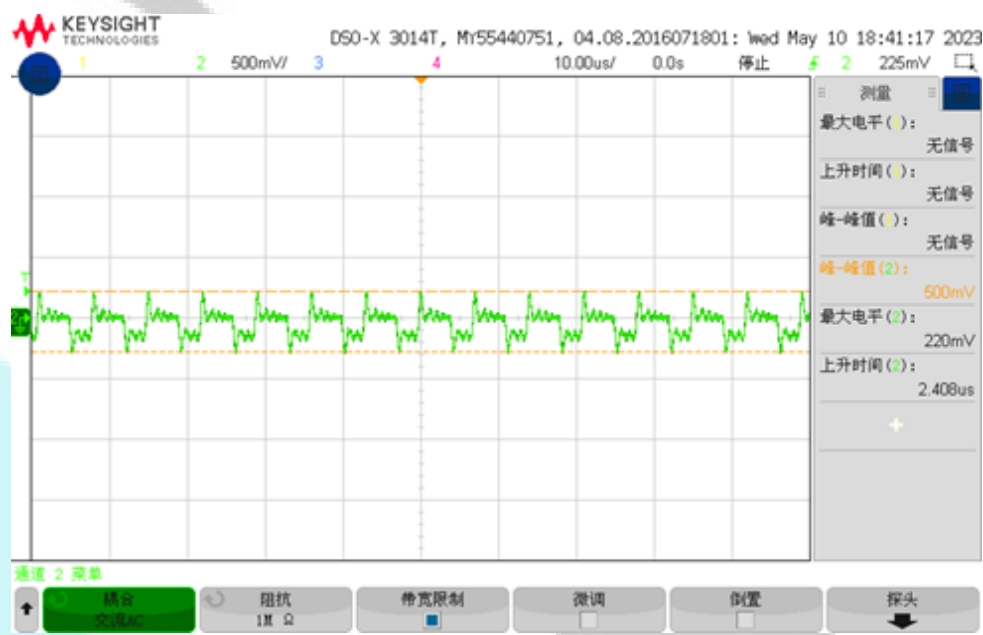


Figure 7, Output ripple & noise (Iout = 5A)



### Feature Description

#### Remote On/Off (EN) (Optional)

Logic Enable	Low level (0-10Vdc)	High level (10-18Vdc)	Left open
positive logic	Off	On	Off

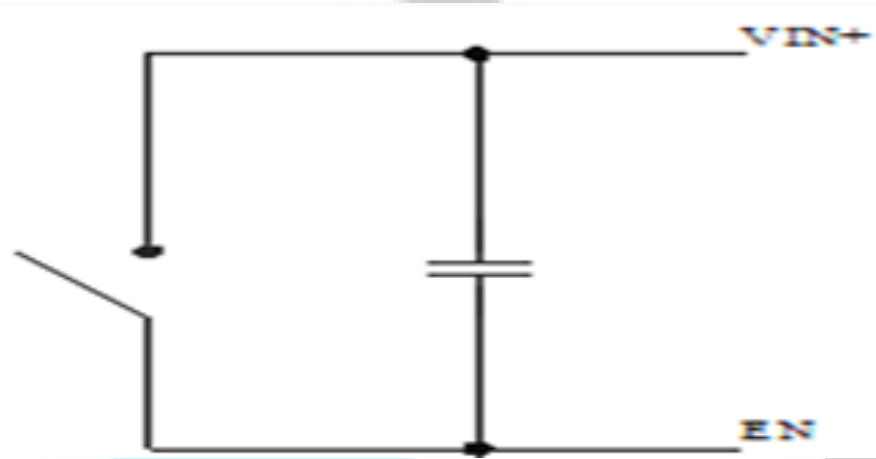
#### Input Undervoltage Protection

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.

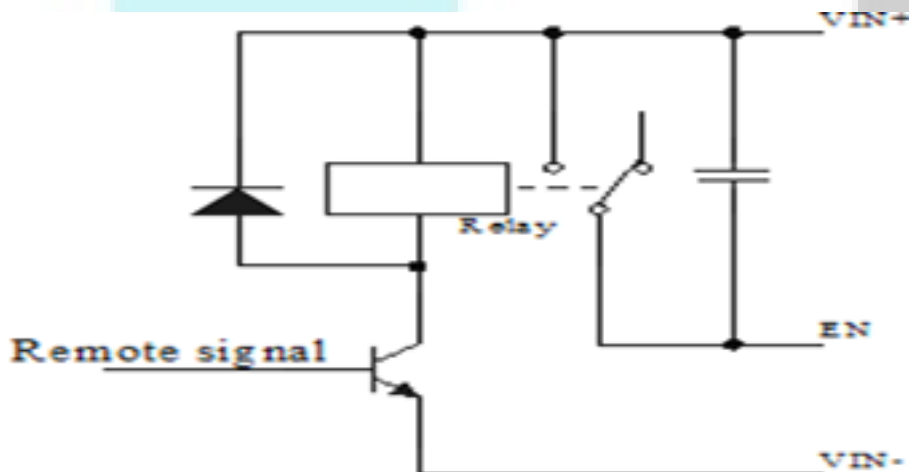
#### Various circuits for driving the EN

#### 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.



Simple control



Transistor control

#### 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 RW-1421-12-19-95W

Therefore, thermal components are mounted on the top surface of the RW-1421-12-19-95W 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.

