

Input Voltage	Output voltage	Output current	Output Power	Efficiency	Dimension
36-75V	24V	5A	120W	91%	74*74*29.5mm



The RW-1114-36-75-24V-120W is an 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 29.5mm (2.91 in. x 2.91 in. x 1.16 in) and provides the rated output voltage of 24V and the maximum output current of 5A

Features

- Design meeting RoHS / CE
- High efficiency: 91% (@ 48Vin, 25°C)
- Isolated between input and output
- Imported components, high reliability
- 100% full load burn-in test
- 3 month warranty
- Waterproof level IP67
- Short circuit, Over load, Over temperature, **reverse** protections

Applications

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

Model naming method

RW-1114-36-75-24V-120W

RW-1114: SKU NAME
36-75: Input voltage range
24V: Output voltage
120W: POWER

Datasheet

Parameter	Min	Typ	Max	Units	Remarks
Absolute maximum ratings					
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	-	-	2000	m	
Cooling way	-	-	-		Natural cooling
Input characteristics					
Input voltage	36	48	75	V	
Max. input voltage	-	-	78	V	Continuous
Undervoltage shutdown	30	34.5	36	V	Automatic recovery
Undervoltage recovery	31	35.5	36	V	Automatic recovery
Max. input current	-	-	6	A	V _{in} = 36V; I _{out} = 5A
No load current	-	20	50	mA	V _{in} = 48V
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	

Enable PIN cable	-	-	-	AWG	If the unit with this function
Fuse	-	10	-	A	Input positive has built-in fuse
Output characteristics					
Efficiency	-	91	-	%	Vin = 48V; Iout = 5A
Output voltage	23.65	24	24.35	V	Vin = 48V; Iout = 5A
Regulator accuracy	-	±3	±5	%	
Voltage regulation	-	±2	±3	%	
Load Regulation	-	±1	±2	%	
Overvoltage protection	-	-	40	V	Hiccup mode (output)
Output current	0	-	5	A	
Overcurrent protection	6	7	10	A	
External capacitance	-	-	-	μF	Don't need
Output ripple and noise	-	18	300	mVp-p	Vin = 36–75V; Oscilloscope bandwidth: 20 MHz
Output voltage risetime	-	8	50	mS	
Boot delay time	-	55	300	mS	
Out voltage overshoot	-	-	5	%	
Over temperatur protection	-	-	90	°C	Shell temperature, @ 70°C Restore working

Short circuit protection	-	YES	-		Long-term (4 hours) short circuit is not damaged, Hiccup mode
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	
Safety and EMC features					
Anti-electric Strength	Input to Output	≥1500	V	Leakage current ≤ 3.5mA, 1min, no breakdown, no arcing	
	Input to Shell	≥1500	V		
	Output to Shell	≥500	V		
Insulation resistance	Input to Output	≥10	MΩ	Test voltage = 500V	
	Input to Shell				
	Output to Shell				
Other characteristics					
Weight	≤ 290	G			
Package	white box				
MTBF	≥200,000	H	Vin = 48V; Iout = 5A		
Switching frequency	130±10	KHz			

Characteristic Curves

Conditions: $T_A = 25^\circ\text{C}$ (77°F), $V_{in} = 48\text{ V}$, $V_{out} = 24\text{V}$, unless otherwise specified.

Figure 1, Efficiency

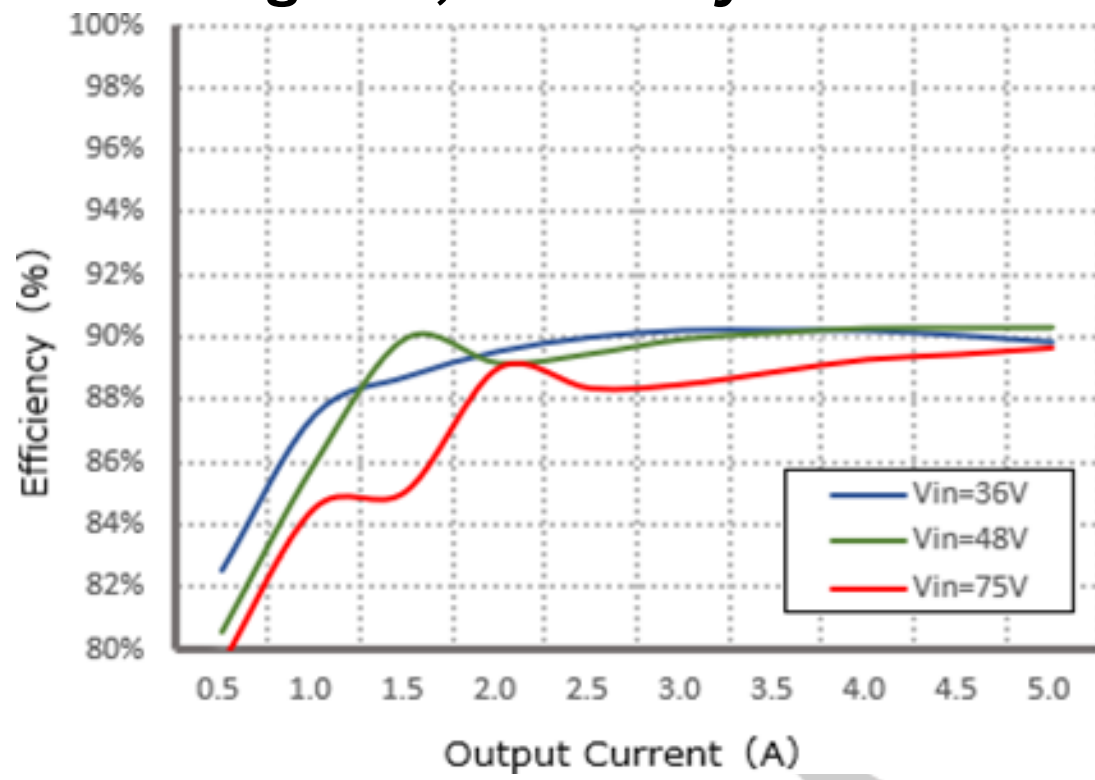


Figure 2, Power dissipation

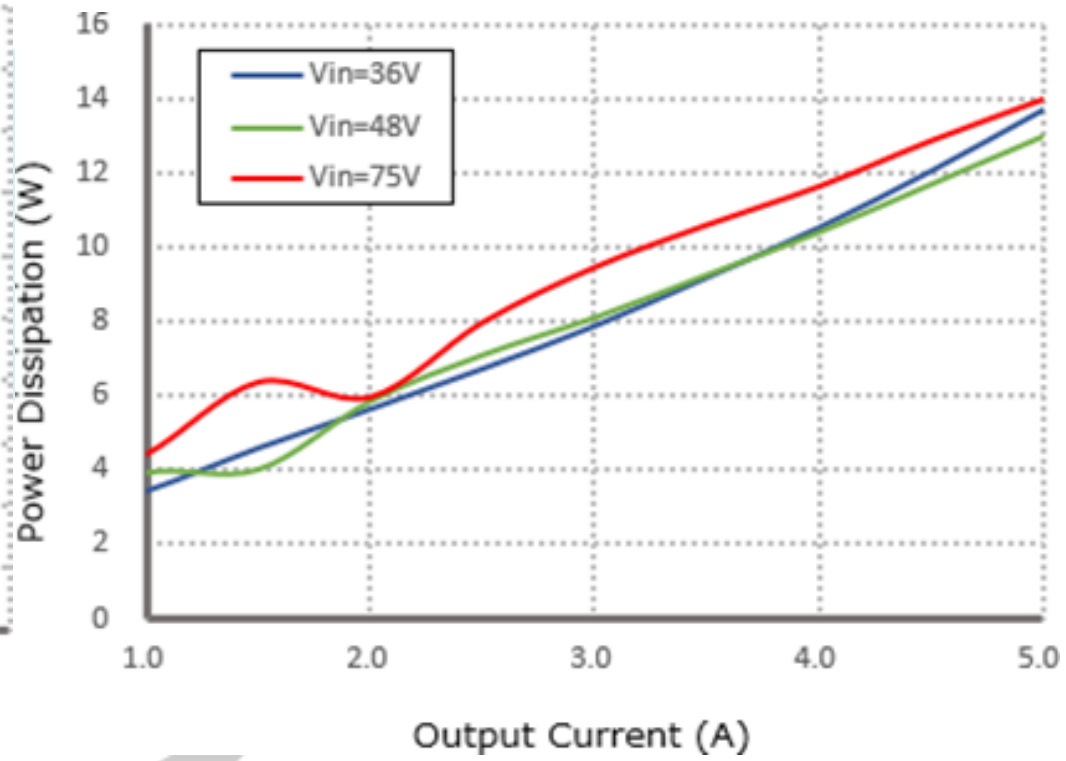
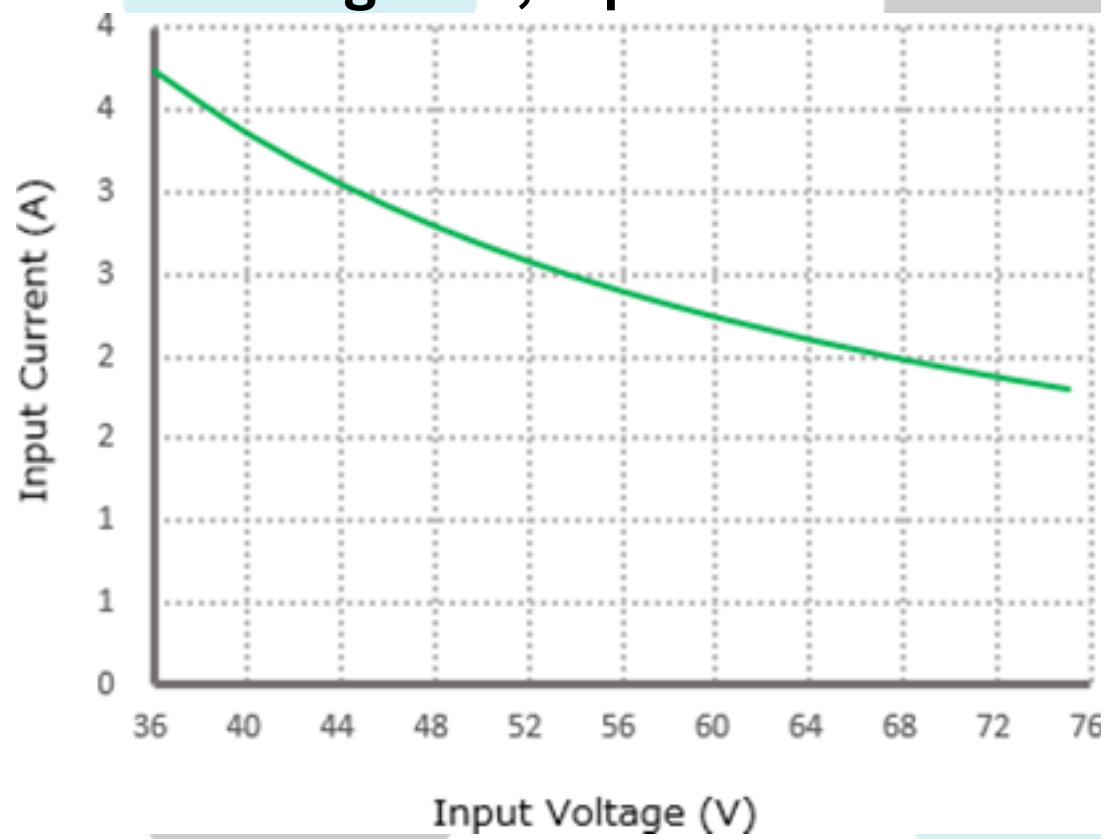


Figure 3, Input V-I



Typical Waveforms

Conditions: TA = 25°C (77°F), Vin = 48V, unless otherwise specified.

Figure 4, 25% - 50% load dynamic

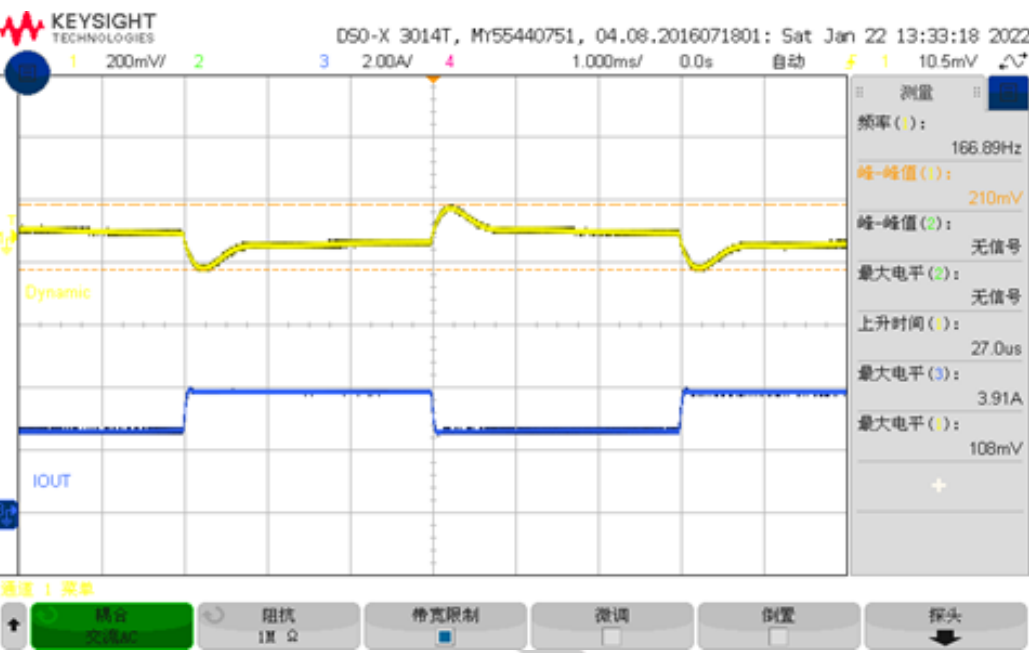


Figure 5, 50% - 75% load dynamic

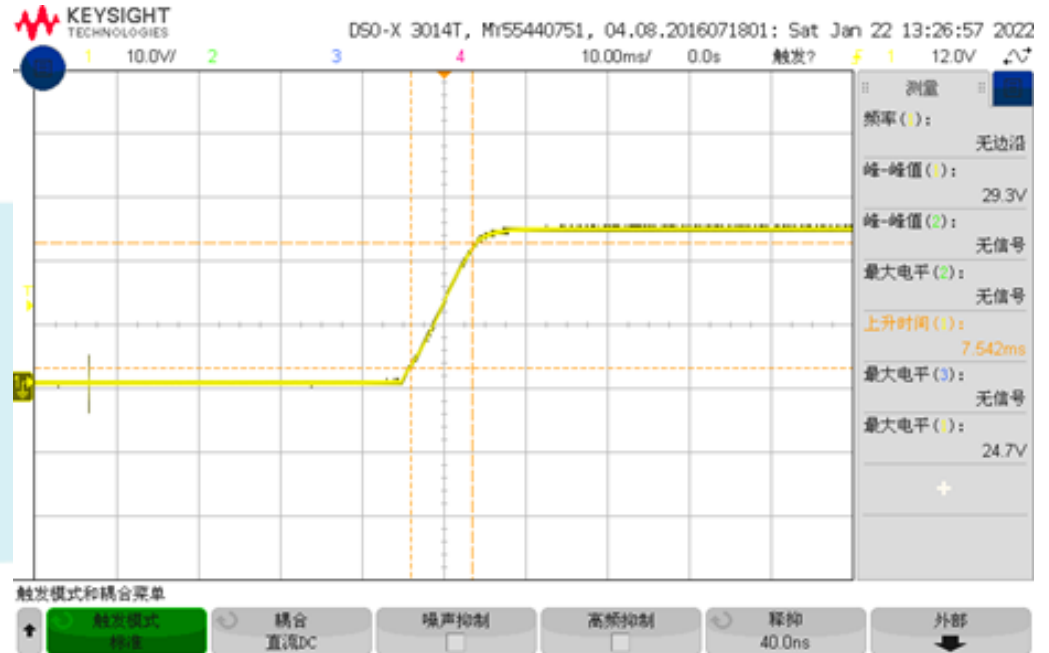


Figure 6, Output voltage established (Iout = 5A)

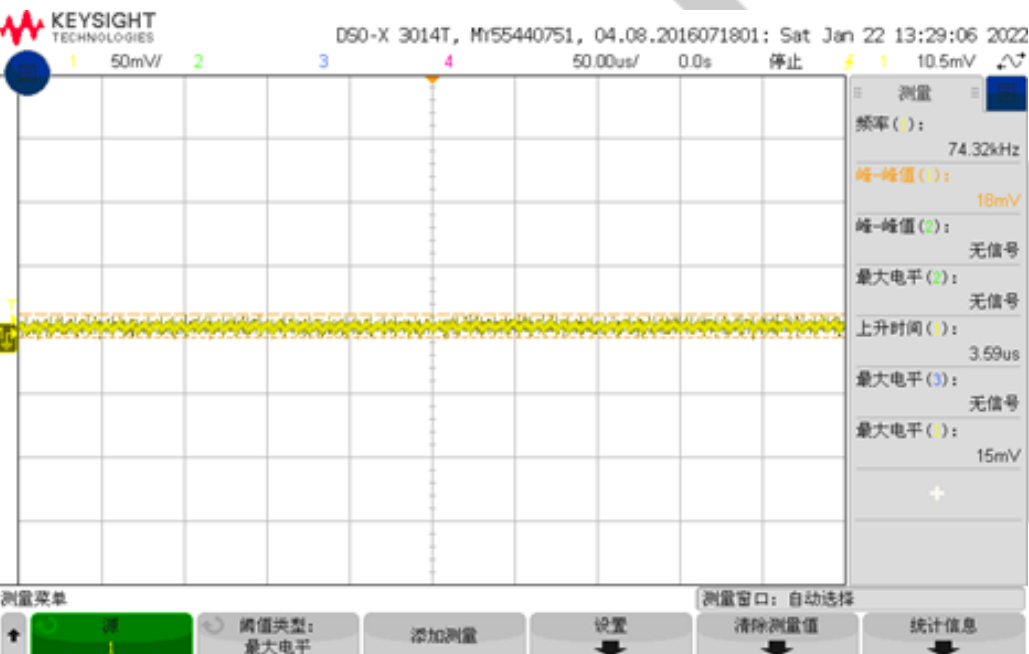
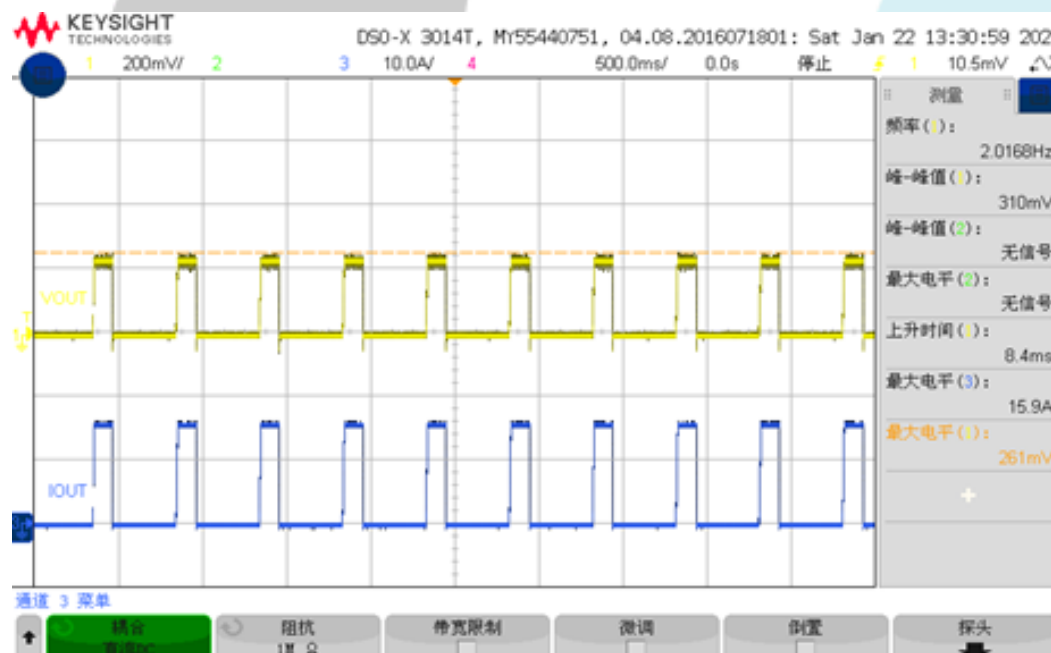


Figure 7, Output ripple & noise



Figure 8, Boot delay time



Feature Description

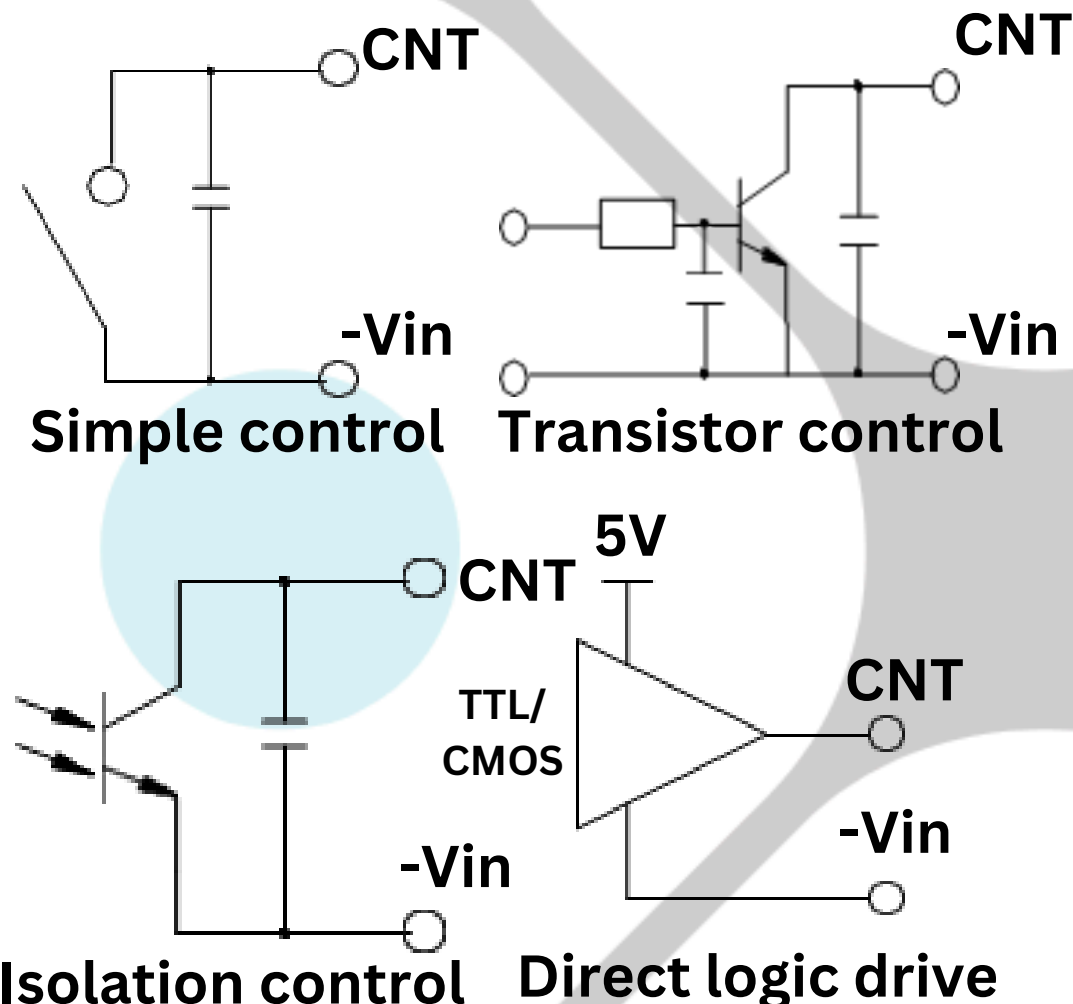
Remote On/Off (EN) (Optional)

Logic Enable	Low level (0-30Vdc)	High level (32-75Vdc)	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.

Reverse Protection

Reverse voltage protection circuits prevent damage to power supplies and electronic circuits in the event of a reverse voltage applied at the input terminals. The protection ensures that the components are not damaged by accidental swap of the power supply connections.

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.

Output Overvoltage Protection

When the voltage directly across the output pins exceeds the output overvoltage protection threshold, the converter will enter hiccup mode. When the fault condition is removed, the converter will automatically restart.

Thermal Consideration

Sufficient airflow should be provided to help ensure reliable operating of the RW-1114-36-75-24V-120W. Therefore, thermal components are mounted on the top surface of the RW-1114-36-75-24V-120W 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.

