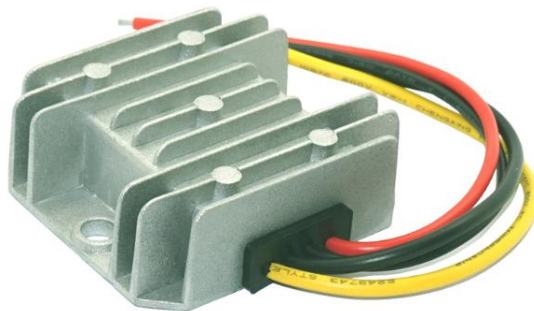


Step-Down 24V to 12V 5A DC-DC Converters 60W

Features:

1. 100% full power & stable current output
2. 100% Imported components
3. Wide input voltage from 18-36Vdc
4. 100% waterproof & anti-shock protection, Ultra compact size, light weight
5. Industry grade step-down converter, efficiency up to 97%
6. Waterproof level: IP68
7. According CE(EN61000) / RoHS design
8. Die-cast aluminum shell, epoxy potting, Cooling by free air convection,
9. Protections: Over-current, Over-temperature, and Short-circuit, Auto-recovery when device is back to normal operating
10. Non-Isolated Module
11. 1 year warranty



WG-24S12 series is a compact size high reliability power converter offered by SZWENGGAO, It features wide input voltage, low power consumption, high efficiency, high reliability. It can work safely and reliability in $-40^{\circ}\text{C} \sim 80^{\circ}\text{C}$. It widely used in industrial, automotive, instruments, telecommunication and civil applications.

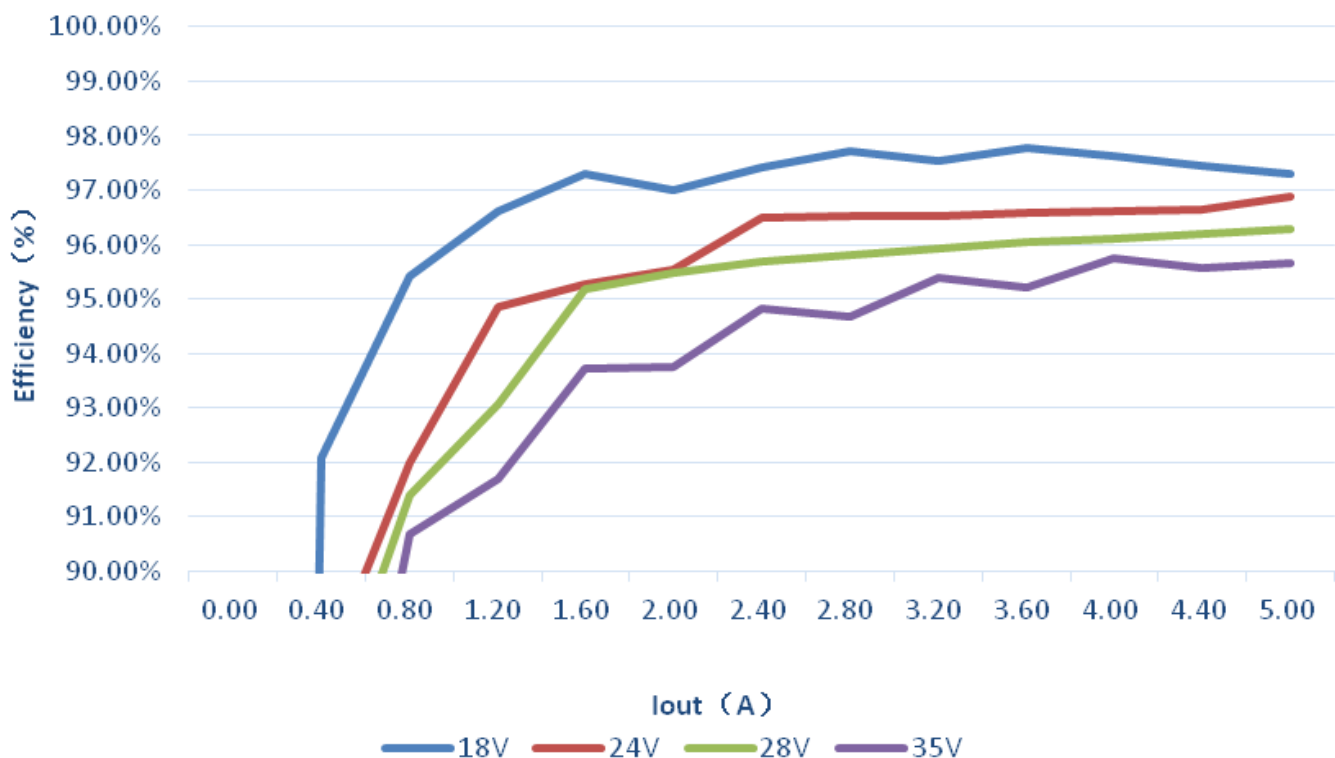
Input Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Input voltage range	--	18	24	36	VDC
Input current	--	3.45	2.62	1.84	A
No-load loss	--	0.37	0.49	0.7	W
Input filter	--	Without capacitances			
Hot plug	--	Unavailable			
Recommended input fuse	--	External connect 5A fuse			

Output Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Output voltage accuracy	Full load test, input volt range	--	± 1	± 2	%
Line regulation	Full load	--	± 0.5	± 1	%
Load regulation	10%~100% load	--	± 0.5	± 1	%
Ripple & Noise*	20 MHz bandwidth	50	72	100	mVp-p
Temperature coefficient	$-40^{\circ}\text{C} \sim +80^{\circ}\text{C}$	--	--	± 0.03	%/ $^{\circ}\text{C}$
Over temperature protection	Chip (built-in protection)	--	130	--	$^{\circ}\text{C}$
Short-circuit protection	--	Self-recovery, when device is back to normal operating			
Over current protection	--	10.35A $\pm 12\%$ @ 24Vin , 10.25A $\pm 12\%$ @ 28Vin, self-recovery			
Transient response deviation	Input 28V, 25-50% load step	--	60	64	mV
Transient recovery time	Input 28V, 25-50% load step	--	0.4	0.5	mS
Thermal impedance	--	--	5	--	$^{\circ}\text{C/W}$

Efficiency

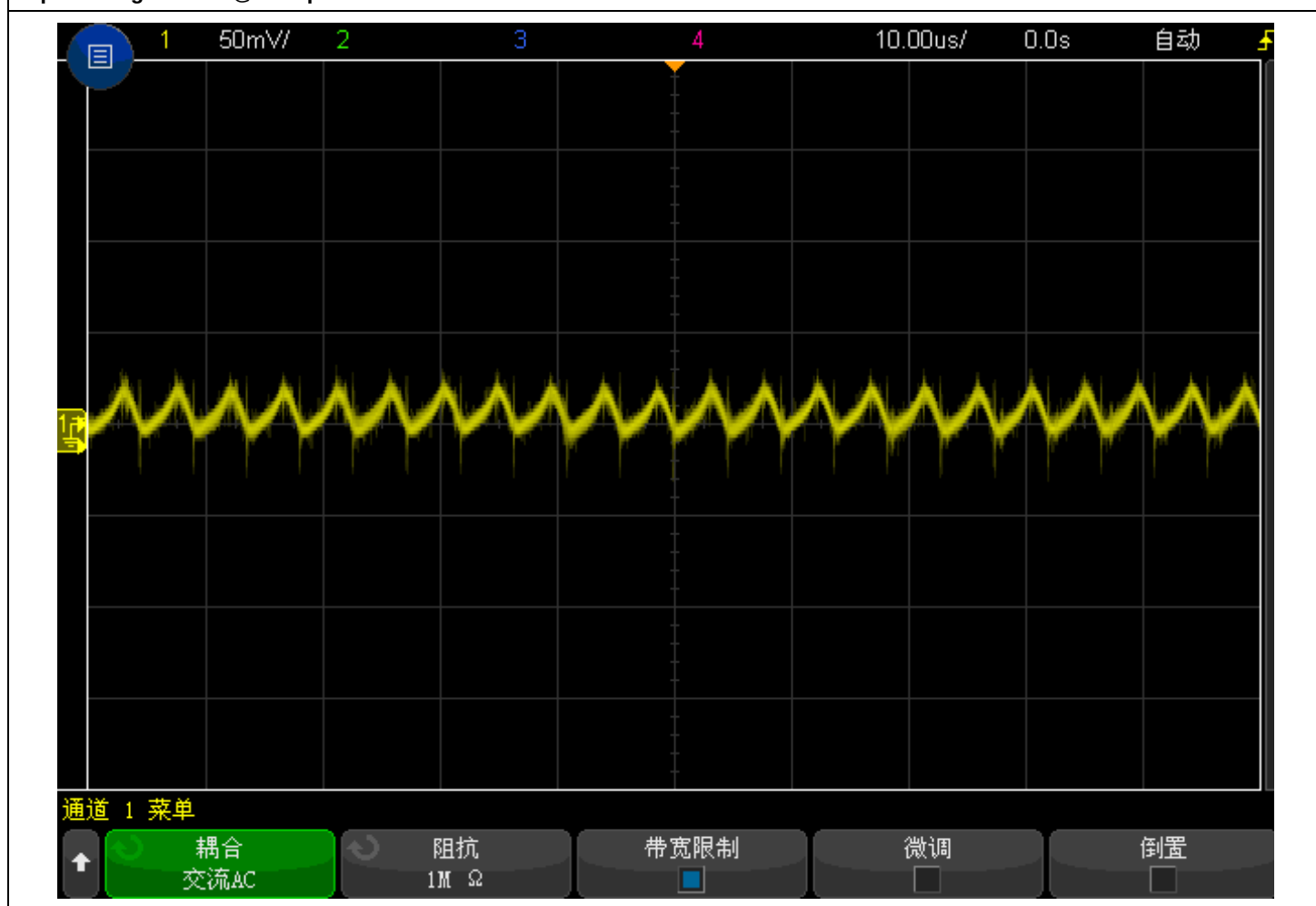


Vin (V)	Iin (A)	Iout (A)	Vout (V)	Pout (W)	Losses (W)	Efficiency (%)	Vin (V)	Iin (A)	Iout (A)	Vout (V)	Pout (W)	Losses (W)	Efficiency (%)
18.47	0.02	0.00	12.32	0.00	0.37	0.00%	24.37	0.02	0.00	12.33	0.00	0.49	0.00%
18.47	0.29	0.40	12.33	4.93	0.42	92.08%	24.36	0.23	0.40	12.32	4.93	0.67	87.96%
18.46	0.56	0.80	12.33	9.86	0.47	95.42%	24.35	0.44	0.80	12.32	9.86	0.86	91.99%
18.45	0.83	1.20	12.33	14.80	0.52	96.62%	24.35	0.64	1.20	12.32	14.78	0.80	94.87%
18.43	1.10	1.60	12.33	19.73	0.54	97.31%	24.34	0.85	1.60	12.32	19.71	0.98	95.28%
18.42	1.38	2.00	12.33	24.66	0.76	97.01%	24.33	1.06	2.00	12.32	24.64	1.15	95.54%
18.41	1.65	2.40	12.33	29.59	0.78	97.42%	24.32	1.26	2.40	12.32	29.57	1.08	96.49%
18.4	1.92	2.80	12.33	34.52	0.80	97.72%	24.31	1.47	2.80	12.32	34.50	1.24	96.53%
18.39	2.20	3.20	12.33	39.46	1.00	97.52%	24.31	1.68	3.20	12.32	39.42	1.42	96.53%
18.38	2.47	3.60	12.33	44.39	1.01	97.77%	24.3	1.89	3.60	12.32	44.35	1.58	96.57%
18.37	2.75	4.00	12.33	49.32	1.20	97.63%	24.29	2.10	4.00	12.32	49.28	1.73	96.61%
18.36	3.03	4.40	12.32	54.21	1.42	97.44%	24.28	2.31	4.40	12.32	54.21	1.88	96.65%
18.35	3.45	5.00	12.32	61.60	1.71	97.30%	24.27	2.62	5.00	12.32	61.60	1.99	96.87%

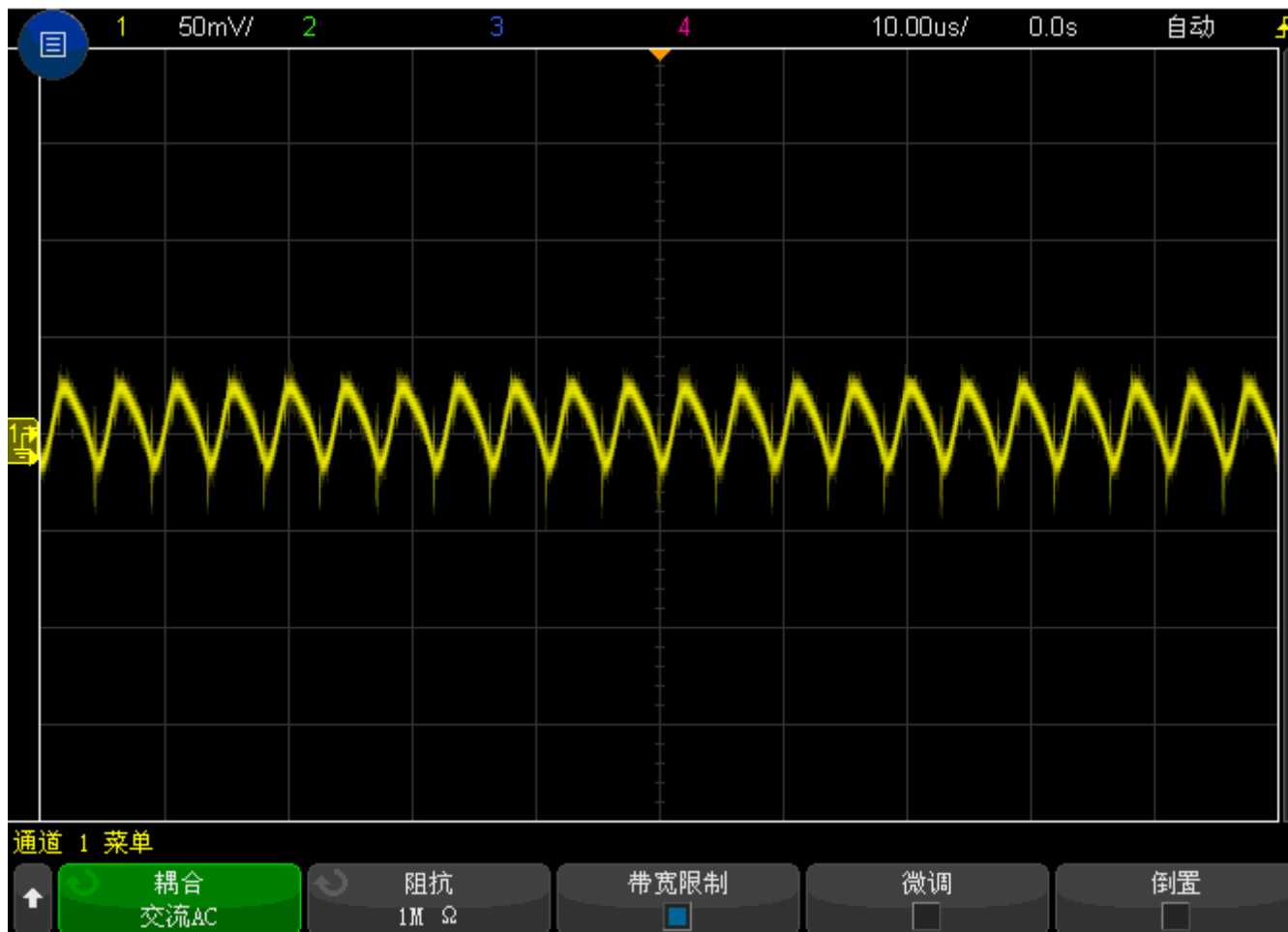
Vin (V)	Iin (A)	Iout (A)	Vout (V)	Pout (W)	Losses (W)	Efficiency (%)	Vin (V)	Iin (A)	Iout (A)	Vout (V)	Pout (W)	Losses (W)	Efficiency (%)
28.39	0.02	0.00	12.32	0.00	0.57	0.00%	35.07	0.02	0.00	12.32	0.00	0.70	0.00%
28.39	0.20	0.40	12.32	4.93	0.75	86.79%	35.06	0.17	0.40	12.32	4.93	1.03	82.68%
28.38	0.38	0.80	12.32	9.86	0.93	91.39%	35.06	0.31	0.80	12.32	9.86	1.01	90.68%
28.37	0.56	1.20	12.32	14.78	1.10	93.06%	35.05	0.46	1.20	12.32	14.78	1.34	91.70%
28.37	0.73	1.60	12.32	19.71	1.00	95.18%	35.05	0.60	1.60	12.32	19.71	1.32	93.73%
28.36	0.91	2.00	12.32	24.64	1.17	95.48%	35.04	0.75	2.00	12.32	24.64	1.64	93.76%
28.35	1.09	2.40	12.32	29.57	1.33	95.68%	35.04	0.89	2.40	12.32	29.57	1.62	94.81%
28.35	1.27	2.80	12.32	34.50	1.51	95.81%	35.03	1.04	2.80	12.32	34.50	1.94	94.69%
28.34	1.45	3.20	12.32	39.42	1.67	95.94%	35.03	1.18	3.20	12.32	39.42	1.91	95.38%
28.33	1.63	3.60	12.32	44.35	1.83	96.05%	35.02	1.33	3.60	12.32	44.35	2.22	95.22%
28.33	1.81	4.00	12.32	49.28	2.00	96.10%	35.01	1.47	4.00	12.32	49.28	2.18	95.75%
28.32	1.99	4.40	12.32	54.21	2.15	96.19%	35.01	1.62	4.40	12.32	54.21	2.51	95.58%
28.31	2.26	5.00	12.32	61.60	2.38	96.28%	35.00	1.84	5.00	12.32	61.60	2.80	95.65%

Ripple & Noise

Input voltage 18Vdc @ 5Amps full load test



Input voltage 35Vdc @ 5Amps full load test



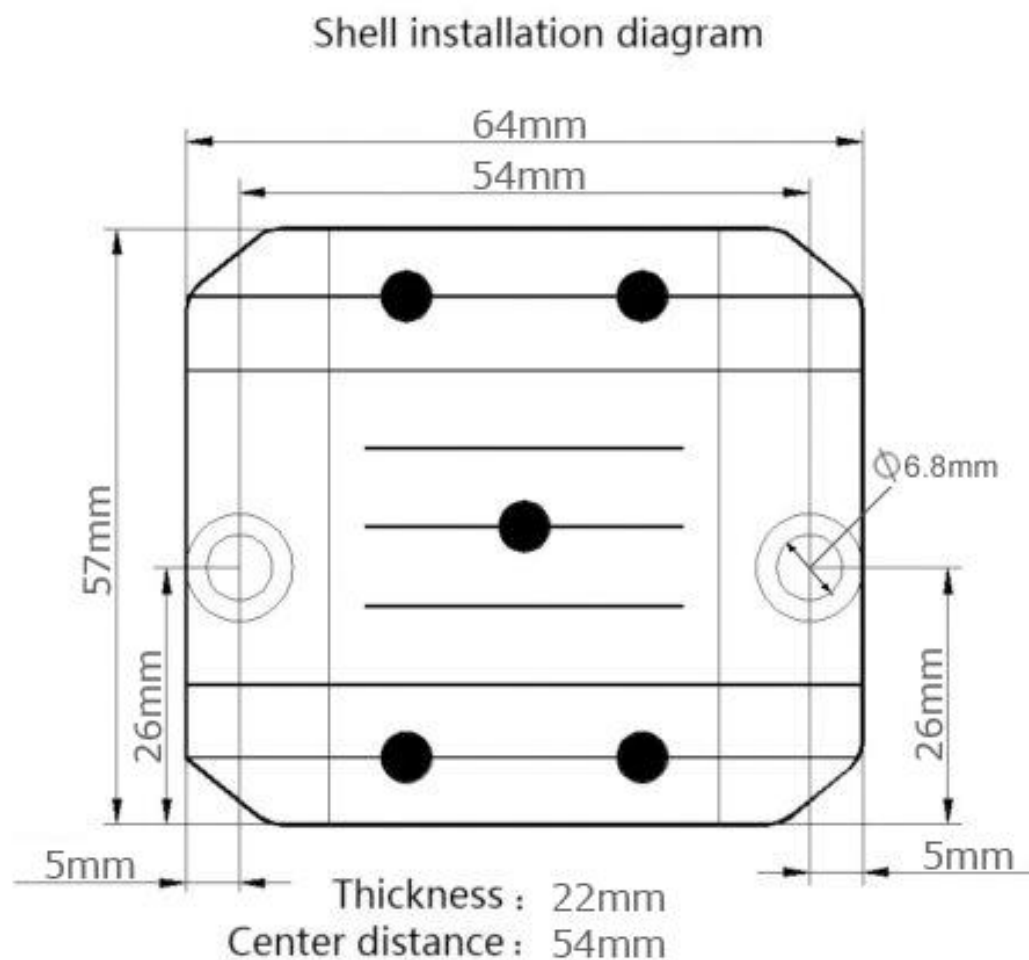
General Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Working temperature	--	-40	--	80	℃
Storage temperature	--	-55	--	125	℃
Storage humidity	--	--	--	95	%RH
Switching frequency	100% load, input voltage range	195	200	205	KHz
Lifetime		--	--	100,000	Hours

Physical Specifications

Casing material	Die-cast aluminum shell
Input cable (positive "+")	Red ; 18AWG; 16.5cm length
Input cable (negative "-")	Black ; 18AWG; 16.5cm length
Output cable (positive "+")	Yellow ; 18AWG; 16.5cm length
Output cable (negative "-")	Black ; 18AWG; 16.5cm length
Weight	108g
Cooling method	Free convection
Packing	White box

Dimensions



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