

Typical Features

- ◆ Wide input range: 36-75V
- ◆ High efficiency up to 91%
- ◆ Low no-load power consumption
- ◆ Operating Temperature: -40°C to +85°C
- ◆ High isolation voltage, 1500VDC
- ◆ Protection: Input under voltage, output over voltage, short circuit, over current, over temp
- ◆ Standard 1/16 brick

ZED75-48S12 high efficiency 1/16 brick dc-dc converter, rated input voltage 48VDC, output 12V/75W, no minimum load, ultra wide input 18-36VDC, regulated single output, high isolation insulation voltage, allowing operating temperature up to 85 °C, with input under-voltage protection, output over-current protection, over-voltage protection, over-temperature protection, short-circuit protection, remote control and remote compensation, output voltage regulation and other functions.

Typical Product List

Part no	Input voltage range (VDC)	Output power (W)	Output voltage (VDC)	Output current (A)	Ripple & Noise (mV)	Full load efficiency(%) Min/Typ.	Note
ZED75-48S12C	36-75	75	12.0	6.2	120	88/90	Standard positive logic
ZED75-48S12N							Standard negative logic
ZED75-48S12C-H							Heatsink positive logic
ZED75-48S12N-H							Heatsink negative logic

Input Specification

Item	Operating conditions	Min.	Typ.	Max.	Unit
Max input current	36V input voltage, full load output	--	--	2.5	A
No load input current	Rated input voltage	--	--	10	mA
Input surge voltage (1sec. max.)	Inputs above this range may cause permanent damage	-0.7	--	100	VDC
Start up voltage		--	--	34	
Input under voltage protection	No-load test, full-load test will have over current protection in advance	--	--	33	
Control Pin(CNT)	Positive logic: CNT is suspended or connected to 3.5-15V to turn on, connected to 0-1.2V to turn off				Reference voltage -VIN

Output Specification

Item	Working conditions	Min.	Typ.	Max.	Unit
Output Voltage Accuracy	Nominal input voltage, 0%-100% load	--	±0.2	±1.0	%
Line Regulation	Full load, input voltage from low to high	--	±0.1	±0.5	
Load Regulation	Nominal input voltage, 10%-100% load	--	±0.1	±0.5	
Transient recovery time	25% load step change (step rate 1A/50uS)	--	200	250	uS
Transient Response Deviation		-5	--	5	%
Temperature Drift Coefficient	Full load	-0.02	--	+0.02	%/°C

Ripple & Noise	20M bandwidth, external capacitor above 220uF	--	100	120	mVp-p
Output voltage adjustment (TRIM)		-20	--	+10	%
Output voltage remote compensation (Sense)		--	--	3	%
Over temp protection	Maximum temperature of product metal substrate surface	105	115	125	℃
Output over voltage protection		6.8	--	9	A
Output over current protection		Hiccup, continuous, self-recovery			

General Specification

Item	Operating conditions		Min.	Typ.	Max.	Unit
Isolation Voltage	I/P-O/P	Test 1min, leakage current < 3mA	--	--	1500	VDC
Insulation resistance	I/P-O/P	Insulation voltage 500VDC	10	--	--	MΩ
Switching frequency			--	250	--	KHz
MTBF			150	--	--	K hours

Environmental characteristics

Item	Operating conditions		Min.	Typ.	Max.	Unit
Operating Temperature	See temperature derating curve		-40	--	+85	℃
Storage Humidity	No condensing		5	--	95	%RH
Storage Temperature			-40	--	+125	℃
Soldering resistance of pins	The solder joint is 1.5mm away from the shell, and the soldering time< 1.5S		--	--	+350	
Cooling requirements			EN60068-2-1			
Dry heat requirement			EN60068-2-2			
Damp heat requirement			EN60068-2-30			
Shock and vibration			10-55Hz, 10G, 30 Min. alongX,YandZ			

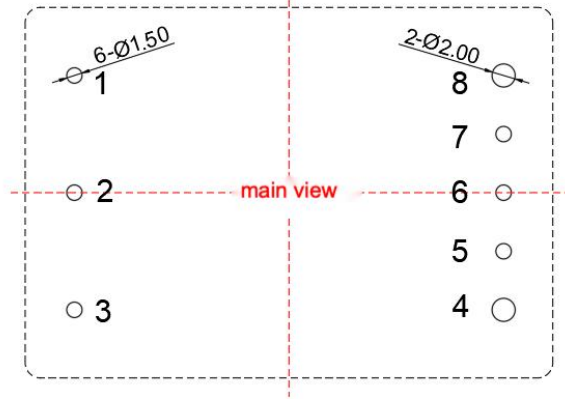
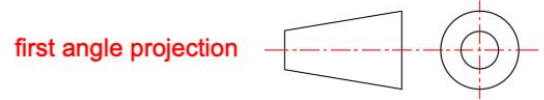
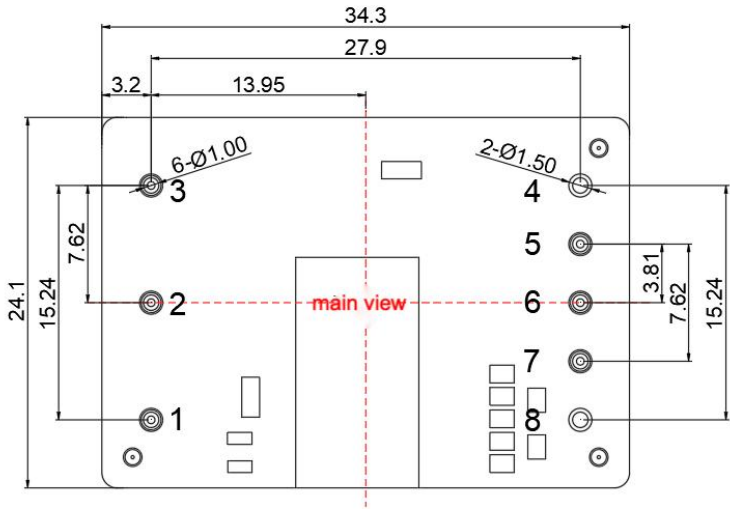
EMC Characteristics

EMI	CE	CISPR32/EN55032	CLASS A		
	RE	CISPR32/EN55032	CLASS A		
EMS	ESD	IEC/EN61000-4-2	Contact ±6kV/Air ±8KV		perf. Criteria B
	RS	IEC/EN61000-4-3	10V/m		perf. Criteria B
	EFT	IEC/EN61000-4-4	±2kV	100kHz	perf. Criteria B
	Surge	IEC/EN61000-4-5	line to line ±2kV		perf. Criteria B
	CE	IEC/EN61000-4-6	3 Vr.m.s		perf. Criteria B

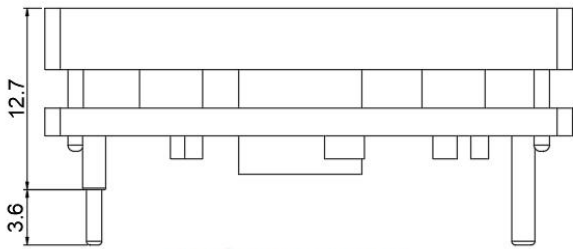
Physical Characteristics

Case Materials	Naked board
Heat sink	Without heat sink
Cooling method H	Conduction cooling or forced air cooling
Product Weight	15g

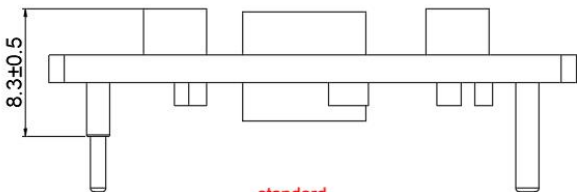
Dimension and Pin-Out



recommended PCB slot size



standard + aluminium heat sink
34.3mm*24.1mm*12.7mm



standard
34.3mm*24.1mm*12.7mm

note:
unit: mm
1,2,3,4,5,6,7 pin dia: 1.00
4,8 pin dia: 1.50
tolerance: x.x±0.5, x.xx±0.1

No.	1	2	3	4	5	6	7	8
Pin-out	Vin+	CNT	Vin-	Vout-	-S	TRIM	+S	Vout+
Usage	Input positive terminal	Remote control terminal	Input negative terminal	Output negative terminal	Remote compensation negative terminal	Output voltage fine-tuning	Remote compensation positive terminal	Output positive terminal

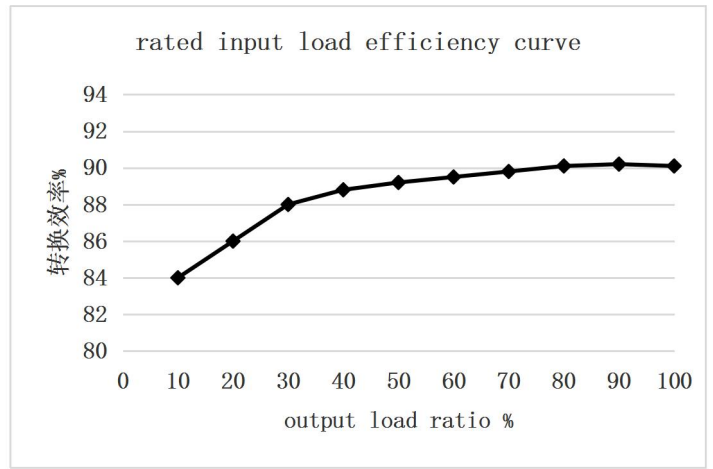
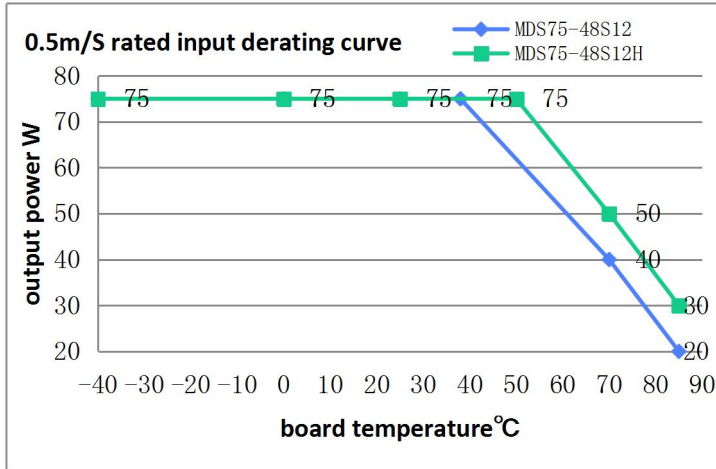
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Product Characteristic Curve



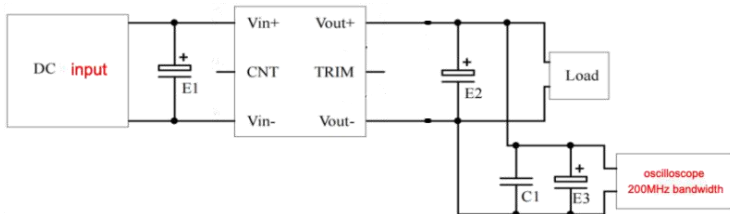
Note:

- Both the temperature derating curve and the efficiency curve are tested with typical values;
- The temperature derating curve is tested according to our laboratory test conditions. If the actual environmental conditions used by customers are inconsistent, it is necessary to ensure that the temperature of the aluminum casing of the product does not exceed 105 °C, and it can be used within any rated load range.

Design Reference

1. Ripple and Noise

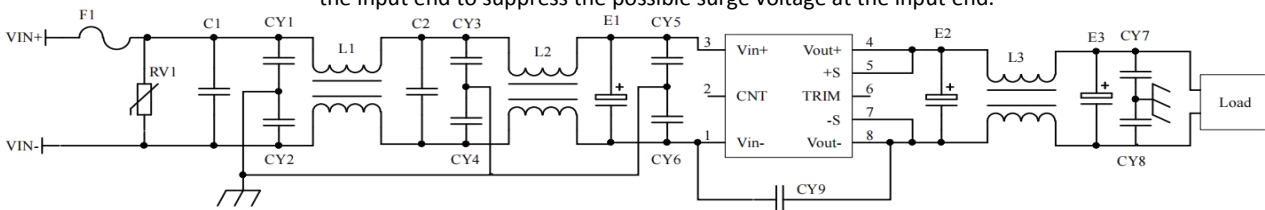
All DC/DC converters of this series are tested according to the test circuit recommended in the following figure before leaving the factory.



capacitor value output voltage	E1 (μF)	E2 (μF)	C1 (μF)	E3 (μF)
3.3VDC	100	1000	1	10
5VDC		680		
12VDC		220		
.....				
48VDC				
.....				
110VDC	68	68		

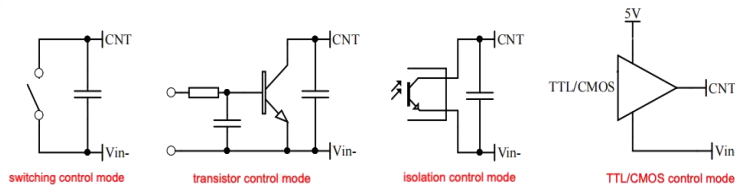
2. Recommended application circuit

If customer does not use the circuit recommended by our company, please be sure to connect an electrolytic capacitor of at least 100 μF in parallel at the input end to suppress the possible surge voltage at the input end.



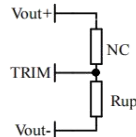
F1	T6.3A/250Vac fuse
RV1	10D 100V varistor
C1,C2	105/250V polyester film capacitor
CY1,CY2,CY3,CY4,CY5,CY6	102/250Vac safety standard Y2 capacitor
CY7,CY8	103/2KV ceramic capacitor
CY9	471/250Vac safety standard Y2 capacitor
E1	47μF/100V electrolytic capacitor
E2 , E3	220μf/16V electrolytic capacitor
L1,L2	Inductance greater than 5mH, temperature rise less than 25℃ at 3A over-current
L3	Inductance greater than 0.2mH, temperature rise less than 25℃ at 7A over-current

2. Remote control terminal (CNT) control method application recommendation

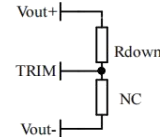


3. Use of TRIM and calculation of TRIM resistance

The relationship between output change voltage ΔU and resistance is as follows:



$$R_{up} = 25 / \Delta U - 5.1 \text{ (K } \Omega \text{)}$$



$$R_{down} = 10 * (12 - 2.5 * \Delta U) / \Delta U - 5.1 \text{ (K } \Omega \text{)}$$

4. This product does not support the use of direct parallel connection to increase the power. If you need to use it in parallel, please consult our technical staff.

Others

- The warranty period of this product is two years. During the normal damage, it will be repaired free of charge. Damages caused by errors in the use method or manufacturing technology, a paid service is provided.
- Our company can provide product customization and matching filter modules. For details, please contact our technical staff directly.

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