DC/DC Converter 1/16 Brick
ZED75-48S28 Series

Typical Features

- ◆Wide input voltage range 36-75VDC
- ◆Efficiency up to 91%
- ◆Low no-load power consumption
- ◆Ambient Temperature from -40℃ to +85℃
- ◆Isolation voltage 1500VDC(Input-Output), 1500VDC(Input-Aluminum Cover)
- ◆Input under voltage protection, output over current, over voltage, over temp. & short circuit protections
- ◆Standard 1/16 brick size

ZED75-48S28 is a high-performance DC-DC converter with the rated input voltage 48VDC (full range from 36V to 75VDC), regulated single output 28V/75W, without minimum load limit and Max ambient temperature +85°C. It has the advantages of input under-voltage protection, output over-current, over voltage, over-temperature & short circuit protections, input remote control, output voltage distal end compensation and output Trim functions, etc.

Typical Product List

Part No.	Input voltage range (VDC)	Output power (W)	Output voltage (VDC)	Output current (A)	Ripple & Noise (mVp-p)	Full load efficiency (%) Min/Typ.	Remarks
ZED75-48S28C	36 - 75	75	28	2.6	120	89/91	Standard Positive logic
ZED75-48S28N							Standard Negative logic
ZED75-48S28C-H							Heatsink Positive logic
ZED75-48S28N-H							Heatsink Negative logic

Input Specifications

Item	Operating conditions	Min.	Typ.	Max.	Unit
Max input current	Input voltage 36V, full load output	--	--	3	A
No load input current	Rated input voltage	--	--	15	mA
Input Inrush voltage (1sec. max.)	The unit could be permanently damaged by input over this Voltage	-0.7	--	85	VDC
Start-up voltage		--	--	36	
Input under voltage protection	With No-load (over current protection will work in advance at full load)	--	--	34	
Remote Control (CNT)	Positive logic - CNT no connection or connect to 3.5-15V to turn on, connect to 0-1.2V to turn off the converter.				Reference voltage -Vin
	Negative logic - CNT no connection or connect to 3.5-15V to turn off, connect to 0-1.2V to turn on the converter.				

Output Specifications

Item	Operating 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	%/℃
Ripple & Noise	20M bandwidth, external capacitor above 220uF	--	120	280	mVp-p
Output voltage TRIM		-20	--	+10	%
Output voltage Sense		--	--	+5	%
Over temp protection	Temperature of the Aluminum Cover	105	115	125	℃
Over current protection	Full input voltage range	2.9	--	3.6	A
Short circuit protection		Hiccup, continuous, self-recovery			

General Specifications

Item	Operating conditions		Min.	Typ.	Max.	Unit
Isolation Voltage	I/P-O/P	Test 1min, leakage current < 5mA	--	--	1500	VDC
	I/P-Cover	Test 1min, leakage current < 5mA	--	--	1500	VDC
Insulation resistance	I/P-O/P	@ 500VDC	10	--	--	MΩ
Switching frequency			--	300	--	KHz
MTBF			150	--	--	K hours

Environmental characteristics

Item	Operating conditions	Min.	Typ.	Max.	Unit
Operating Temperature	Ambient condition	-40	--	+85	℃
Storage Humidity	No condensing	5	--	95	%RH
Storage Temperature		-40	--	+125	℃
Pin Soldering temperature	soldering time< 1.5S	--	--	+350	
Cooling requirement		EN60068-2-1			
Dry heat requirement		EN60068-2-2			
Damp heat requirement		EN60068-2-30			
Shock and vibration		IEC/EN 61373 C1/Body Mounted Class B			

EMC Performances (EN50155)

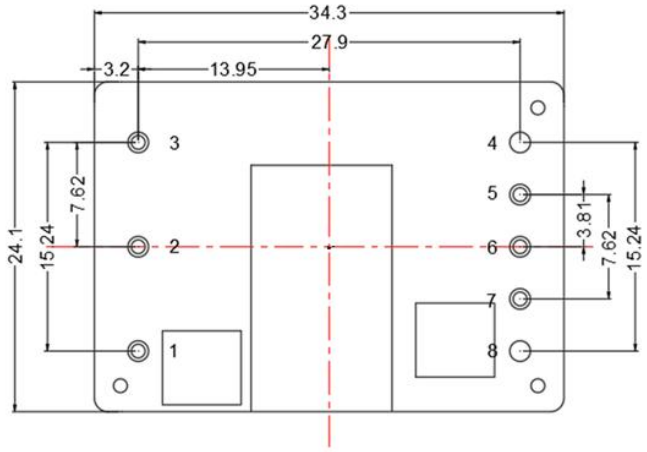
EMI	CE	EN50121-3-2	150kHz-500kHz 79dBuV	
		EN55016-2-1	500kHz-30MHz 73dBuV	
	RE	EN50121-3-2	30MHz-230MHz 40dBuV/m at 10m	
		EN55016-2-1	230MHz-1GHz 47dBuV/m at 10m	

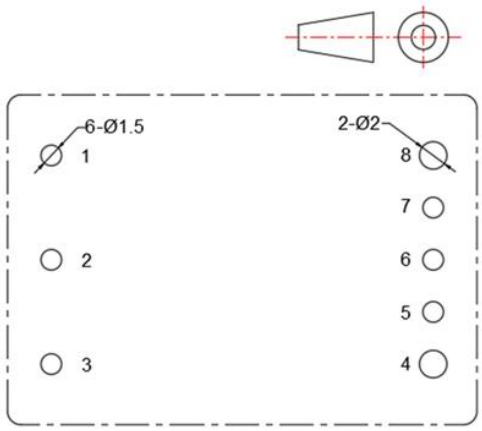
EMS	ESD	EN50121-3-2	Contact ±2KV/Air ±4KV	perf. Criteria A
	RS	EN50121-3-2	10V/m	perf. Criteria A
	EFT	EN50121-3-2	±2kV 5/50ns 5kHz	perf. Criteria A
	Surge	EN50121-3-2	Line to line ± 1KV (42Ω, 0.5μF)	perf. Criteria A
	CS	EN50121-3-2	0.15MHz-80MHz 10 Vr.m.s	perf. Criteria A

Physical Characteristics

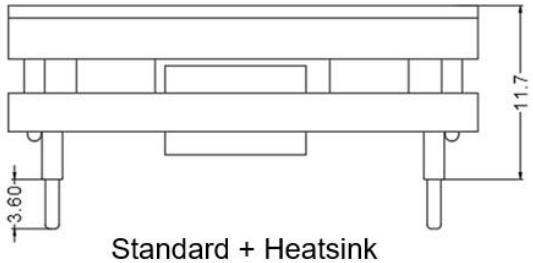
Case Material	No Case
Heat sink	Aluminum Cover
Cooling method	Conduction cooling or forced air cooling with fan
Unit Weight	Standard 15g, With Heat sink 28g

Mechanical Dimensions



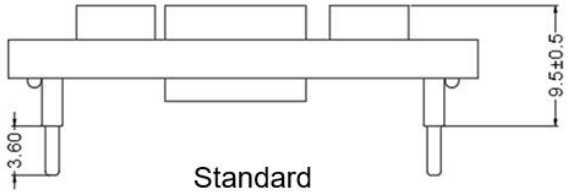


Recommended PCB holes size



Standard + Heatsink
34.3x24.1x11.7mm

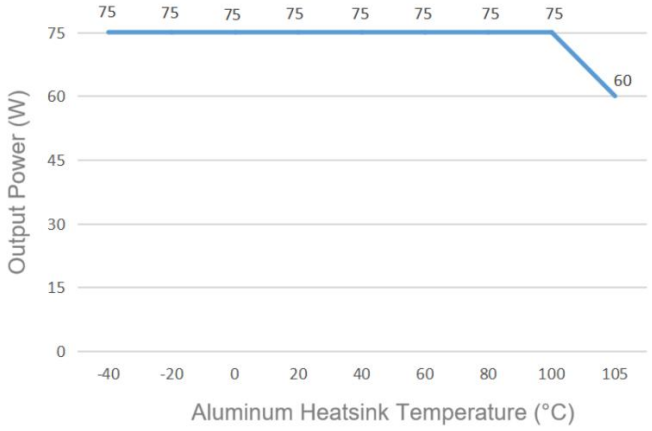
Note:
Unit: mm
Pin 1,2,3,5,6,7 diameter: 1.00
Pin 4,8 diameter: 1.50
General tolerance: X.X ±0.5, X.XX ±0.1

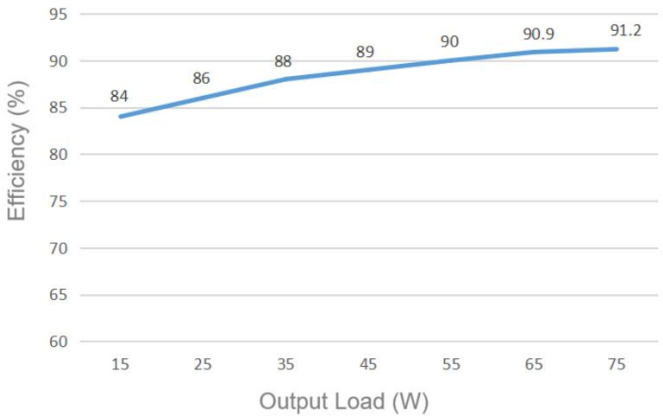


Standard
34.3x24.1x9.5mm

Pin No.	1	2	3	4	5	6	7	8
Function	Vin+	CNT	Vin-	Vout-	-Sense	TRIM	+Sense	Vout+
Description	Input V+	Remote Control	Input V-	Output V-	Output distal end compensation S-	Output Voltage Trim	Output distal end compensation S+	Output V+

Product Characteristics Graphs



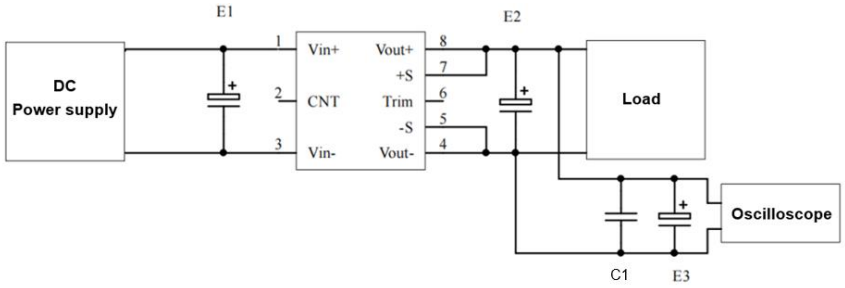


Note:
1. The output power and the efficiency in the graphs are tested with typical values.
2. The data in temperature derating graph is tested under Aipu laboratory test conditions. It is recommended to keep the temperature of the Aluminum Cover not more than 105 °C while the converter operates at the rated load for the customer application.

Recommended circuits for application

1. Ripple and Noise

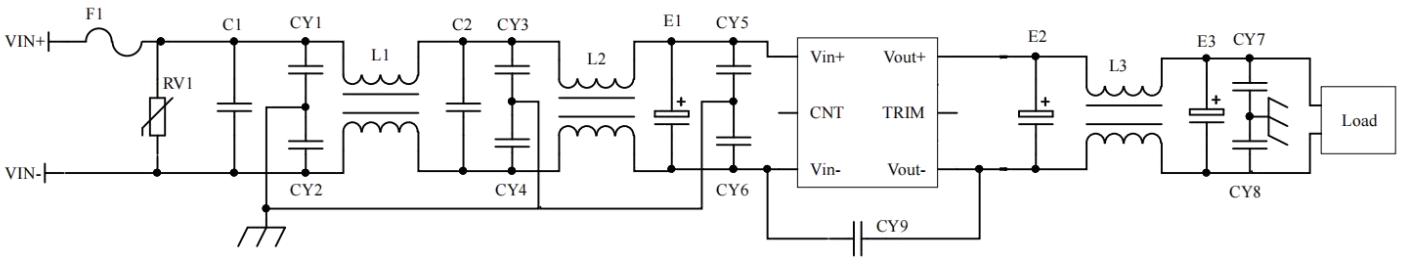
All this series of converters will be tested according to the circuit diagram below before shipping.



Output Volt. \ Capacitance	E1 (μF)	E2 (μF)	C1(μF)	E3 (μF)
3.3VDC	100	1000	1	10
5VDC		680		
12VDC		220		
.....				
48VDC				
.....	68	68		
110VDC				

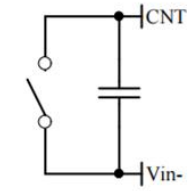
2. Typical application circuit

If this circuit recommended is not adopted, please connect an electrolytic capacitor ≥100 μF in parallel at the input to suppress the possible surge voltage.

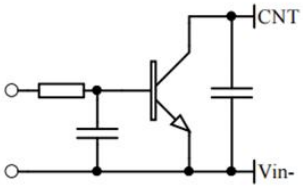


F1	T5A/250Vac Time-delay fuse
RV1	10D 100V Varistor
C1, C2	105/250V Polyester Film Capacitor
CY1, CY2, CY3, CY4, CY5, CY6	102/250Vac Y2 capacitors
CY7, CY8	103/2KV Ceramic Capacitor
CY9	471/250Vac Y2 capacitor
E1	100μF/100V Electrolytic Capacitor
E2，E3	220μF/35V Electrolytic Capacitor
L1, L2	>4mH, temperature rise less than 25°@3A
L3	>220uH, temperature rise less than 25°@2.6A

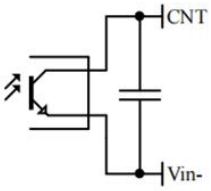
3. Remote control (CNT) application



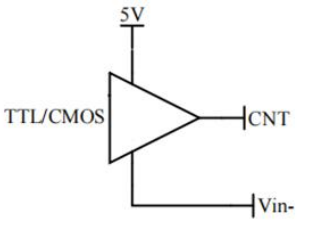
Switch control method



Transistor control method



Isolation control method



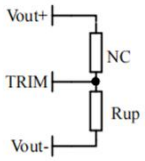
TTL/CMOS control method

4. TRIM & TRIM resistance calculation

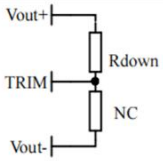
The calculation of △U and Rup & Rdown:

Rup=75/△U-5.1(KΩ)

Rdown=30*(28-2.5-△U)/△U – 5.1 (KΩ)



Voltage-up: Add Rup between Trim and Vout-



Voltage-down: Add Rdown between Trim and Vout+

5. This converter is not available for connecting in parallel to increase the output power. Please contact Aipu technician for this kind of application requirement.

Others

1. The product warranty period is two years. The failed product can be repaired/replaced free of charge if it operates at normal condition. A paid service shall be also provided if the product failed after operating under wrong or unreasonable conditions.
2. Aipupower can provide customization design and filter modules for matching, please contact our technician for details.

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