

### FEATURES

- 1) Package Type: 1 \* 1
- 2) Operating Temperature Range: -40°C - +85°C
- 3) Isolation Voltage: 1500VDC
- 4) Wide Input Voltage Range: 4: 1
- 5) High efficiency up to 88%
- 6) With the output overcurrent, output short circuit protection mechanism



3 years  
Warranty

### Selection Guide

Part No.	Input Voltage (VDC)		Output		Full Load Efficiency% (Min./Typ.)	Capacitive Load Max. (μF)
	Nominal (Range)	Maximum	Voltage (VDC)	Current Max.(mA)		
ZYB2403YMD-6WR3	24 (9-36)	40	3.3	1500/0	77/79	1800
ZYB2405YMD-6WR3			5	1200/0	81/83	1000
ZYB2409YMD-6WR3			9	667/0	83/85	680
ZYB2412YMD-6WR3			12	500/0	85/87	470
ZYB2415YMD-6WR3			15	400/0	85/87	220
ZYB2424YMD-6WR3			24	250/0	86/88	100
ZYA2405YMD-6WR3			±5	±600/0	81/83	#470
ZYA2412YMD-6WR3			±12	±250/0	85/87	#100
ZYA2415YMD-6WR3			±15	±200/0	85/87	#100
ZYA2424YMD-6WR3			±24	±125/0	85/87	#100
ZYB4803YMD-6WR3	48 (18-75)	80	3.3	1500/0	77/79	1800
ZYB4805YMD-6WR3			5	1200/0	81/83	1000
ZYB4812YMD-6WR3			12	500/0	85/87	470
ZYB4815YMD-6WR3			15	400/0	86/88	220
ZYB4824YMD-6WR3			24	250/0	86/88	100
ZYA4805YMD-6WR3			±5	±600/0	81/83	#470
ZYA4812YMD-6WR3			±12	±250/0	85/87	#100
ZYA4815YMD-6WR3			±15	±200/0	86/88	#100

### Input Specifications

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Input Current	24VDC Input	3.3V output	--	261/5	268/12	mA

(full load/no load)		Other		292/5	309/12	
	48VDC Input	3.3V output	--	130/4	134/8	
		Other		146/4	155/8	
Reflected Ripple Current			--	20	--	
Impulse Voltage	24VDC Input		-0.7	--	50	VDC
	48VDC Input		-0.7	--	100	
Starting Voltage	24VDC Input		--	--	9	
	48VDC Input		--	--	18	
Undervoltage Protection	24VDC Input		5.5	6.5	--	
	48VDC Input		12	15.5	--	
Input Filter			PI filter			
Hot Plug			Unavailable			

## Output Specifications

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Output Voltage Accuracy	0% - 100% Load		--	±1	±3.0	%
Linear Regulation	Full load, Input voltage from low limit to high limit	Vo1	--	±0.2	±0.5	
		V02		±0.5	±1	
Load Regulation	5% - 100% Load	Vo1	--	±0.5	±1	
		V02		±0.5	±1.5	
Ripple & Noise	20MHZ Bandwidth		--	60	85	mVp-p
Transient Recovery Time	25% load step change		--	300	500	µs
Transient Response Deviation		3.3V、5V、±5V output	--	±5	±8	%
		Other	--	±3	±5	
Temperature Coefficient	Full Load		--	--	±0.03	%/°C
Over Current Protection	input voltage range		110	--	160	%Io
Over Voltage Protection			110	--	190	%Vo
Short-circuit Protection			Continuous, Self-Recovery			

### General Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Insulation Voltage	Input-output, test time 1 minute, leakage current less than 1mA	1500	--	--	VDC
Insulation Resistance	Input-output, insulated voltage 500VDC	1000	--	--	MΩ
Isolation Capacitance	Input-output, 100KHz/0.1V	--	1000	--	pF
Operating Temperature		-40	--	+85	°C
Storage Temperature		-55	--	+125	
Storage Humidity	Non-condensing	5	--	95	%RH
Pin welding can withstand the highest temperature	Soldering spot is 1.5mm away from case for 10 seconds	--	--	+300	°C
Switching Frequency		--	312.5	--	kHz
MTBF		1000Kh			

### Mechanical Specifications

<b>Case Material</b>	Aluminum alloy, black anodized coating
<b>Package Dimensions</b>	25.40mm * 12.00mm * 25.40mm
<b>Weight</b>	11.60g(Typ.)
<b>Cooling Method</b>	Free air convection

### EMC Specifications

EMI	CE	CISPR32/EN55032 CLASS A(open board)/CLASS B (application circuit 3-②)	
	RE	CISPR32/EN55032 CLASS A(open board)/CLASS B (application circuit 3-②)	
EMS	ESD	IEC/EN61000-4-2 Contact±4KV	perf. CriteriaB
	RS	IEC/EN61000-4-3 10V/m	perf. CriteriaA
	EFT	IEC/EN61000-4-4 ±2KV(application circuit3-①)	Perf.Criteria B
	Surge	IEC/EN61000-4-5 line to line±2KV(application circuit3-①)	Perf.Criteria B
	CS	IEC/EN61000-4-6 3 Vr.m.s	Perf.Criteria A

### Typical Characteristic Curves

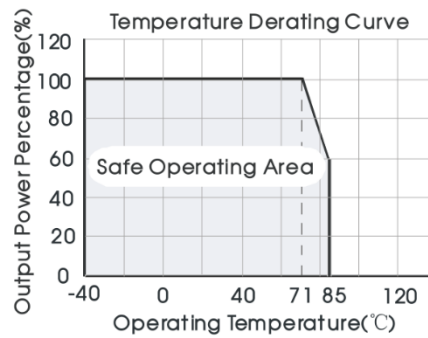
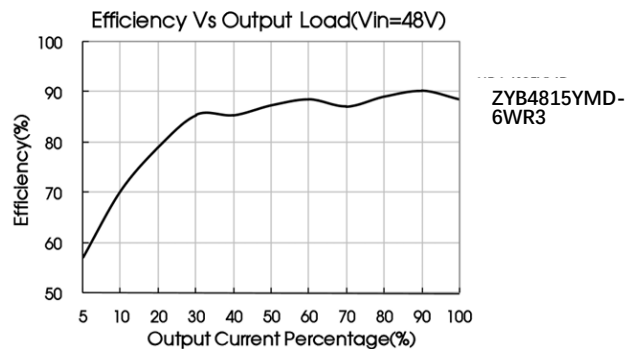
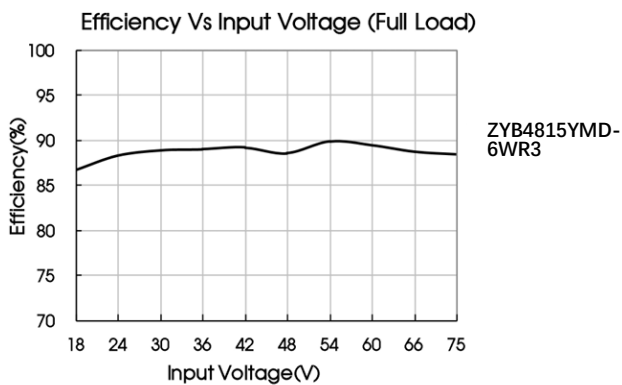
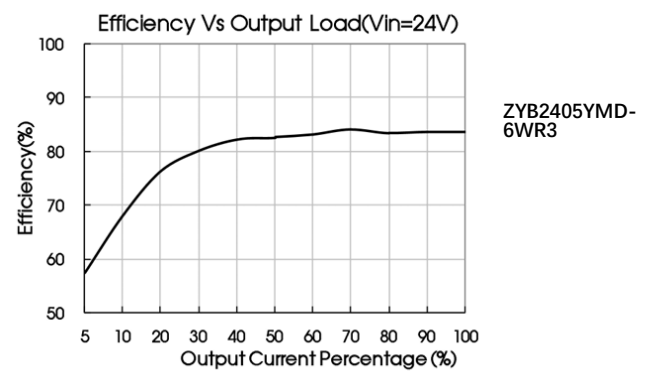
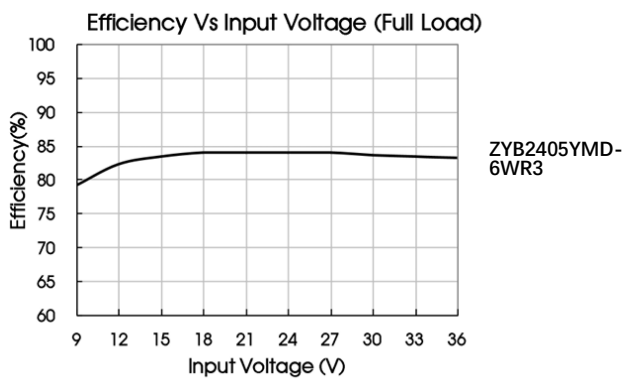


Fig. 1



### Circuit Design and Application

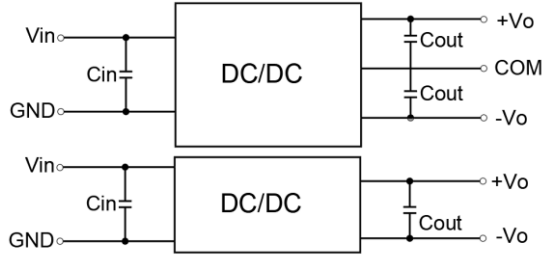


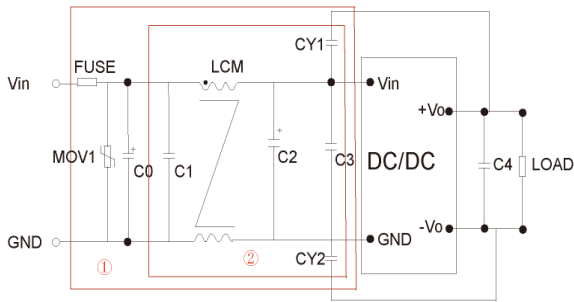
Figure 2

Recommended Capacitive Load Value Table

Parameter	24V	48V
Vin	24V	48V
Cin	100uF	10-47uF
Cout	10uF	10uF

EMI Recommended Parameter Table

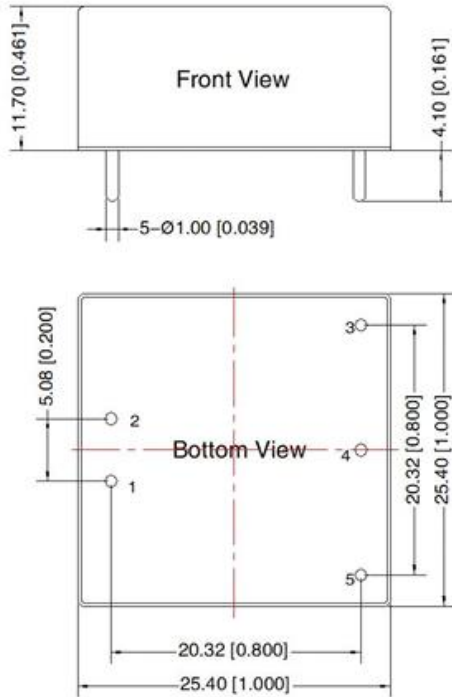
Model	Vin: 24V	Vin: 48V
FUSE	Select according to the actual input current of the customer	
MOV	20D470K	14D101K
C0	680uF/50V	680uF/100V
C1	1uF/50V	1uF/100V
C2	330uF/50V	330uF/100V
C3	4.7uF/50V	4.7uF/100V
C3	Refer to Figure 2 Cout parameter	
LCM	4.7mH	
CY1、CY2	1nF/2KV	



Note: Part 1 in Figure 3 is for EMC testing;  
The Part2 is used for EMI filtering, which can be selected according to the demand.

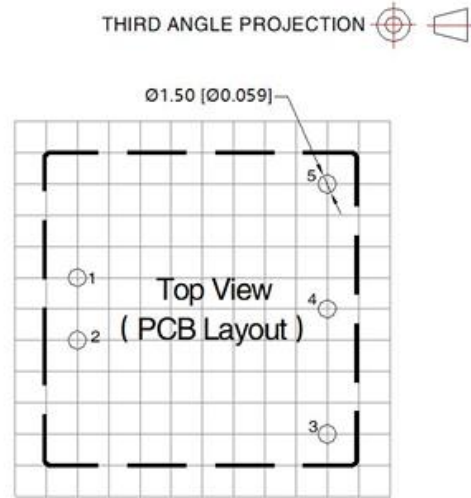
### Dimensions and Recommended Layout

#### Dimensions



Note:  
 Unit: mm[inch]  
 PIN1/2/3/4/5:  $\varnothing$  1.0mm  
 Pin diameter tolerances:  $\pm$  0.10 [ $\pm$  0.004]  
 General tolerances:  $\pm$  0.50 [ $\pm$  0.020]

#### PCB Printing Layout & Pin Definition Table



Note: Grid 2.54\*2.54mm

Pin-Out		
Pin	Single	Dual
1	GND	GND
2	Vin	Vin
3	+Vo	+Vo
4	No Pin	0V
5	0V	-Vo

#### Note:

1. If the product works under the minimum required load, it cannot guarantee that the performance of the product complies with all the performance indicators in this manual;
2. The maximum capacitive load is tested under the input voltage range and full load condition;
3. Unless otherwise stated, all indexes in this manual are measured at Ta=25°C, humidity <75%RH, nominal input voltage and rated output load;
4. All index testing methods in this manual are based on the enterprise standards of the company;
5. Our company can provide product customization, specific needs can directly contact our technical staff;

#### NORPAS-POWER TECHNOLOGY CO., LTD.

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Specifications can be changed without notice! Make sure you are using the latest documentation, downloadable at www.norpas-power.com

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