Product Feature

1. Package Type：DIP-24
2. Operating Temperature Range：-40℃ - +85℃
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 mechani
7. Fields of application：electric power, industrial control,etc

RoHS CE 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)		
ATB2403ZP-6WR3	24 (9-36)	40	3.3	1500/0	77	1800
ATB2405ZP-6WR3			5	1200/0	82	1000
ATB2409ZP-6WR3			9	667/0	83	1000
ATB2412ZP-6WR3			12	500/0	85	470
ATB2415ZP-6WR3			15	400/0	86	220
ATB2424ZP-6WR3			24	250/0	86	100
ATA2405ZP-6WR3			±5	±600/0	82	680
ATA2409ZP-6WR3			±9	±333/0	84	220
ATA2412ZP-6WR3			±12	±250/0	85	330
ATA2415ZP-6WR3			±15	±200/0	88	220
ATA2424ZP-6WR3			±24	±125/0	86	100
ATB4803ZP-6WR3	48 (18-75)	80	3.3	1500/0	80	1800
ATB4805ZP-6WR3			5	1200/0	84	1000
ATB4809ZP-6WR3			9	667/0	85	680
ATB4812ZP-6WR3			12	500/0	87	470
ATB4815ZP-6WR3			15	400/0	88	220
ATB4824ZP-6WR3			24	2500/0	87	100
ATA4805ZP-6WR3			±5	±600/0	83	680
ATA4812ZP-6WR3			±12	±250/0	87	330
ATA4815ZP-6WR3			±15	±200/0	88	220

Input Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Input Current (full load/no load)	24VDC Input	--	302/5	333/12	mA
	48VDC Input	--	156/4	160/8	
Reflected Ripple Current	24VDC Input	--	20	--	
	48VDC Input	--	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 AccATAcy	5% - 100% Load		--	±1	±3.0	%
Linear Regulation	Full load, Input voltage from low limit to high limit	Vo1	--	±0.2	±0.5	
		V02				
Load Regulation	5% - 100% Load	Vo1	--	±0.5	±1	
		V02				
Ripple & Noise	20MHZ Bandwidth		--	--	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	%/℃
Over Current Protection	input voltage range		110	140	--	%Io
Over Voltage Protection			110	--	160	%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	Derating when operating temperature≥85℃ (See Figure 1)	-40	--	85	℃
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	℃
Switching Frequency	Full Load, Nominal Input Voltage	--	300	--	kHz
MTBF	MIL-HDBK-217F@25℃	>1000Kh			

Mechanical Specifications

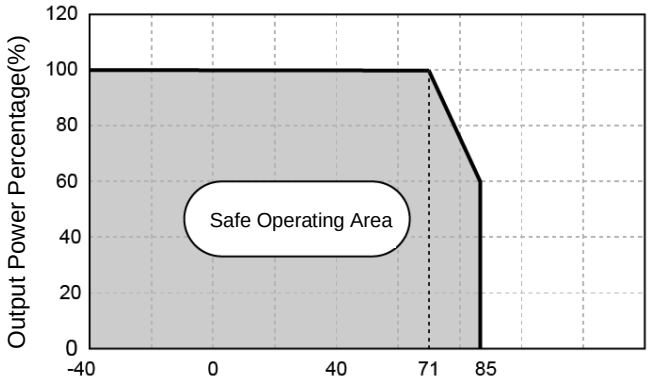
Case Material	Aluminum alloy, black anodized coating
Package Dimensions	32.00 * 20.00 * 11.10 mm
Weight	14.3g(Typ.)
Cooling Method	Free air convection

EMC Specifications

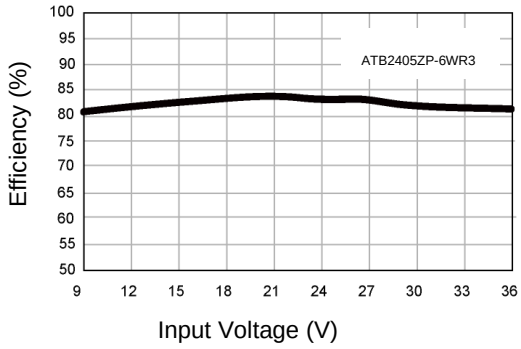
EMI	CE	CISPR32/EN55032 CLASS A(open board)/CLASS B (application circuit 3-②)	
	RE	CISPR32/EN55032 CLASS A(open board)/CLASS B (application circuit 3-②)	
EMS	ESD	IEC/EN61000-4-2 Contact±4KV	Perf.Criteria B
	RS	IEC/EN61000-4-3 10V/m	Perf.Criteria A
	EFT	IEC/EN61000-4-4 ±2KV(application circuit3-①)	Perf.Criteria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

Typical Characteristic Curves

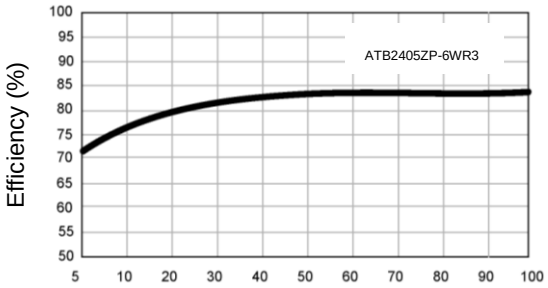
Temperature Derating Curve



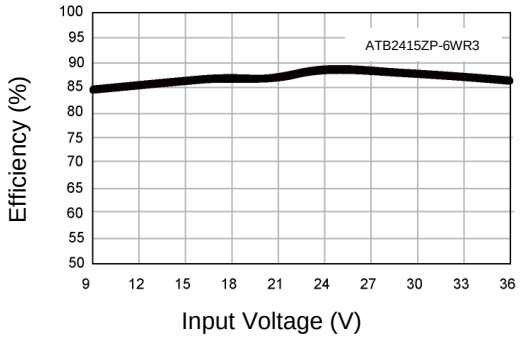
Efficiency VS Input Voltage (full load)



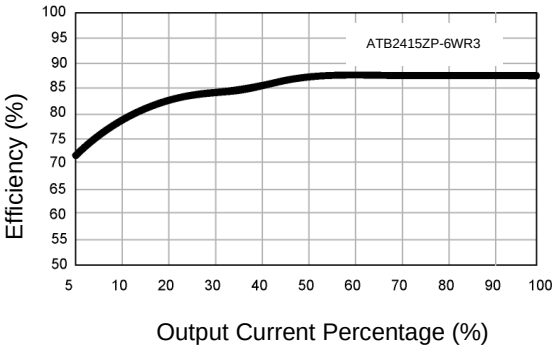
Efficiency VS Output Load（Vin=24V）



Efficiency VS Input Voltage (full load)



Efficiency VS Input Voltage (Vin=24V)



Circuit Design and Application

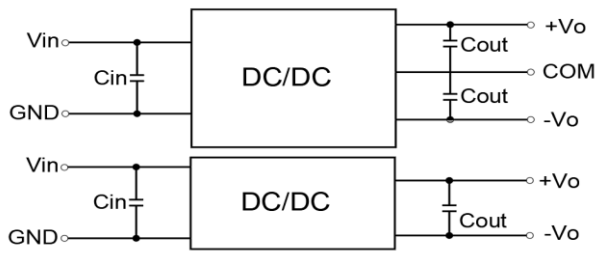


Figure 2

Recommended Capacitive Load Value Table		
Vin	24V	48V
Cin	100uF	10-47uF
Cout	10uF	10uF

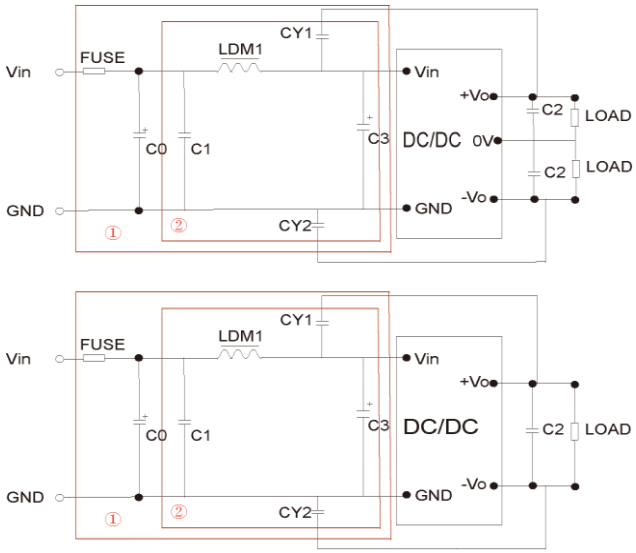


Figure 3

EMI Recommended Parameter Table		
Model	Vin：24V	Vin：48V
FUSE	Select according to the actual input current of the customer	
C1	1uF/50V	1uF/100V
C2	Refer to Figure 2 Cout parameter	
LCM	4.7uH	
CY1、CY2	1nF/2KV	

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

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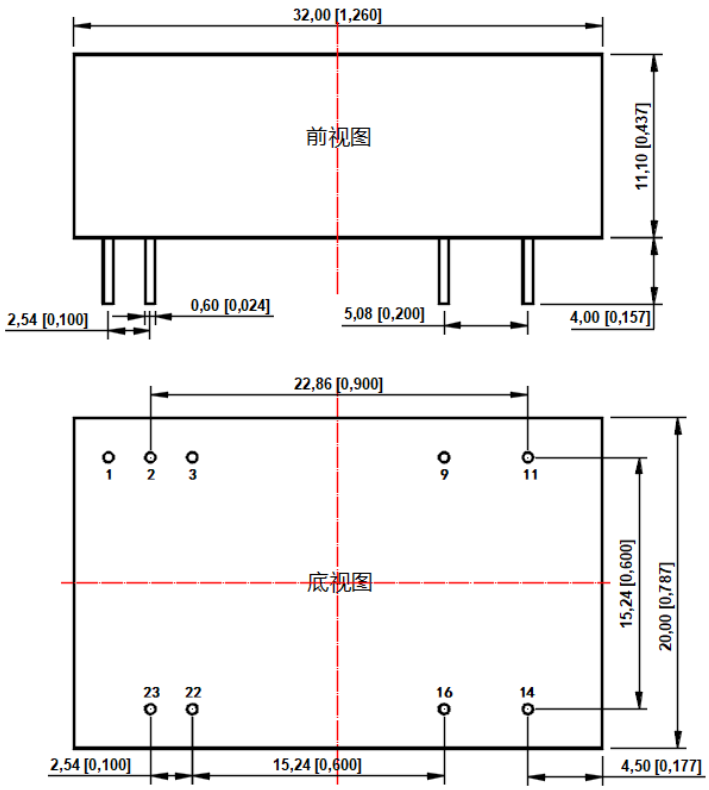
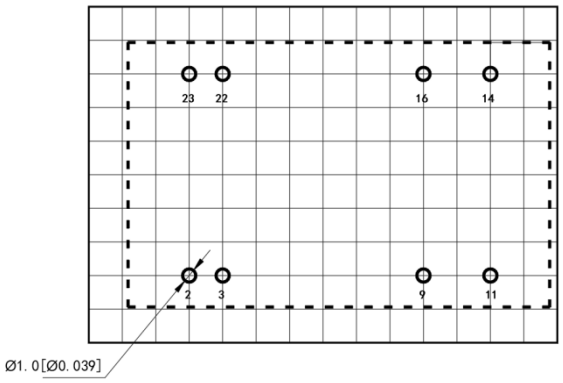
Dimensions and Recommended Layout

Dimensions



PCB Printing Layout & Pin Definition Table



Pin	Function (single)	Function (double)
2	GND	GND
3	GND	GND
9	No pin	COM
11	NC	-Vo
14	+Vo	+Vo
16	-Vo	COM
22	Vin	Vin
23	Vin	Vin

Note:
Unit: mm[inch]
Pin section tolerances:±0.10[±0.004]
General tolerances:±0.50[±0.020]

Note：

1.The input voltage cannot exceed the specified range value, otherwise permanent and irreparable damage may be caused ;

2. Unless otherwise specified,the parameters in this datasheet were measured at 25°C, humidity 40%~75%, input nominal voltage and output pure resistance mode under full load;

3. All index test methods are based on our company's enterprise standards.