Product Feature

1. Package Type：DIP-24
2. Operating Temperature Range：-40℃ - +105℃
3. Isolation Voltage：1500VDC
4. Wide Input Voltage Range： 4：1
5. High efficiency up to 88%
6. With the input undervoltage protection, output overcurrent, output short circuit protection, output overvoltage protection
7. No load power consumption：0.1W

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(m A) Max./Min.		
ATA2405ZP-6WR3	24 (9-36)	40	±5	±600/0	80/82	680
ATA2409ZP-6WR3			±9	±333/0	82/84	470
ATA2412ZP-6WR3			±12	±250/0	83/85	330
ATA2415ZP-6WR3			±15	±200/0	86/88	220
ATA2424ZP-6WR3			±24	±125/0	84/86	100
ATB2403ZP-6WR3	24 (9-36)	40	3.3	1500/0	75/78	1800
ATB2405ZP-6WR3			5	1200/0	81/84	1000
ATB2409ZP-6WR3			9	667/0	82/85	680
ATB2412ZP-6WR3			12	500/0	83/86	470
ATB2415ZP-6WR3			15	400/0	84/87	220
ATB2424ZP-6WR3			24	250/0	84/87	100
ATA4805ZP-6WR3	48 (18-75)	80	±5	±600/0	81/83	680
ATA4812ZP-6WR3			±12	±250/0	85/87	330
ATA4815ZP-6WR3			±15	±200/0	86/88	220
ATB4803ZP-6WR3	48 (18-75)	80	3.3	1500/0	77/80	1800
ATB4805ZP-6WR3			5	1200/0	81/84	1000
ATB4812ZP-6WR3			12	500/0	85/88	470
ATB4815ZP-6WR3			15	400/0	86/88	220
ATB4824ZP-6WR3			24	250/0	86/88	100

Note: Capacitive load of main output is the same with Auxiliary output.

Input Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Input Filter		PI filter			
Input Voltage	ATA/B24xxZP series	9	--	36	VDC
	ATA/B48xxZP series	18	--	75	VDC
Input Starting Voltage	ATA/B24xxZP series	--	--	9	VDC
	ATA/B48xxZP series	-	--	18	VDC
Starting time	Nominal Input Voltage and Constant resistance load	--	10	--	ms
Reflected Ripple Current	20MHZ Bandwidth，Nominal Input Voltage	-	20	--	mA
Input static current	ATA/B24xxZP series	--	5	10	mA
	ATA/B48xxZP series	--	3	8	mA
Switching Frequency①	100% load，Nominal Input Voltage	-	300	--	kHz
Ripple & Noise②	20MHZ Bandwidth，5% - 100% Load，using the parallel line test method	-	40	80	mVp-p
Note:①when load is less than 50%, Switching Frequency will decreases with load reduce ②Ripple & Noise<5Vo with 0-5% load					

Regulation Specifications

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Output Voltage Accuracy			--	±1	±3	%
Linear Regulation	Full load, Input voltage from low limit to high limit	+Vo	--	±0.2	±0.5	%
		-Vo	--	±0.5	±1	%
Load Regulation	Nominal Input Voltage，5% - 100% Load	+Vo	--	±0.5	±1	%
		-Vo		±0.5	±1.5	%
Cross regulation	Dual output product, we suggest main output need at least 50% load, and auxiliary need 25-100% load;			--	±5	%
Transient Recovery Time	25% load step change，Nominal Input Voltage		-	300	500	μs
Transient Response Deviation				±3	±5	%

General Specifications

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Insulation Voltage	Input-output, test time 1 minute, leakage current less than 1mA	Input-Output	1500			VDC
		Input-Case	1000	--	--	VDC
		Output-Case	1000	--	--	VDC
Insulation Resistance	Input-output, insulated voltage 500VDC		1G	--	--	Q
Isolation Capacitance	Input-output, 100KHz/0.1V		--	1000	--	pF

Insulation Grade			Functional insulation			
Impulse Voltage	ATA/B24xxZP series(1sec max.)		-0.7	--	50	VDC
	ATA/B48xxZP series(1sec max.)		-0.7	--	100	VDC
Hot Plug			Unavailable			
Input undervoltage protection	ATA/B24xxZP series		6	8		VDC
	ATA/B48xxZP series		12	16		VDC
Output Short-circuit Protection			hiccup mode，Continuous, Self-Recovery			
Output Over Current Protection	Hiccup mode		110	——	240	%Io
Output overvoltage protection	Input voltage range		110		160	%Vo
Operating Temperature	Natural convection 0.1m/s(see temperature derating curve)		-40		105	℃
Maximum working case temperature			--	--	105	℃
Pin welding can withstand the highest temperature	Soldering spot is 1.5mm away from case for 10 seconds		--	--	300	℃
Temperature Coefficient	Full load		--	±0.02	--	%/℃
Storage Humidity	Non-condensing		5		95	%RH
Vibration			IEC/EN61373 - Category 1, Grade B			
Storage Temperature			-55		125	℃
MTBF	MIL-HDBK-217F	25℃	3000		--	khours
		85℃	1000			khours

Mechanical Specifications

Case Material	Aluminum alloy
Package Dimensions	32.00 * 20.00 * 10.80 mm
Weight	12g(Typ.)
Cooling Method	Free air convection

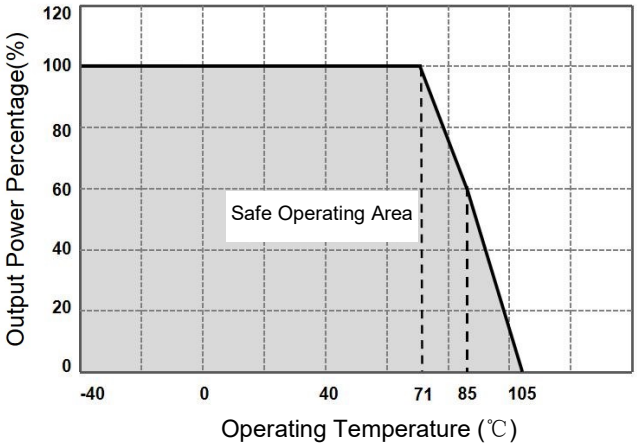
EMC Specifications

EMI	CE	without extra components	CISPR32/EN55032 CLASS A
		see EMC for recommended circuit	CISPR32/EN55032 CLASS B
	RE	without extra components	CISPR32/EN55032 CLASS A
		see EMC for recommended circuit	CISPR32/EN55032 CLASS B
EMS	ESD	Contact ±6kV,Air±8kV	EN61000-4-2,perf.Criteria B
	RS	10V/m	EN61000-4-3,Criteria A
	EFT	±2kV(see EMC for recommended circuit)	EN61000-4-4, Criteria B

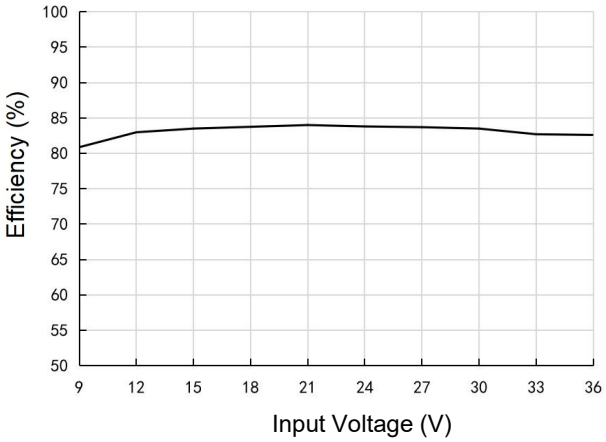
	Surge	±2kV(see EMC for recommended circuit)	EN61000-4-5,Criteria B
	CS	10Vr.m.s	EN61000-4-6,Criteria A
	Voltage dips, short interruptions and voltage variations immunity	0%,70%	EN61000-4-29,Criteria B

Typical Characteristic Curves

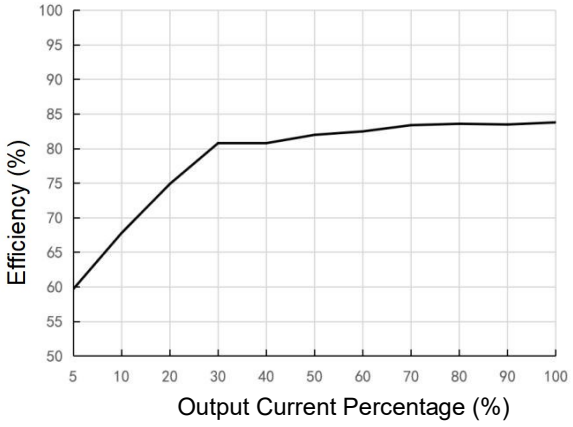
Temperature Derating Curve



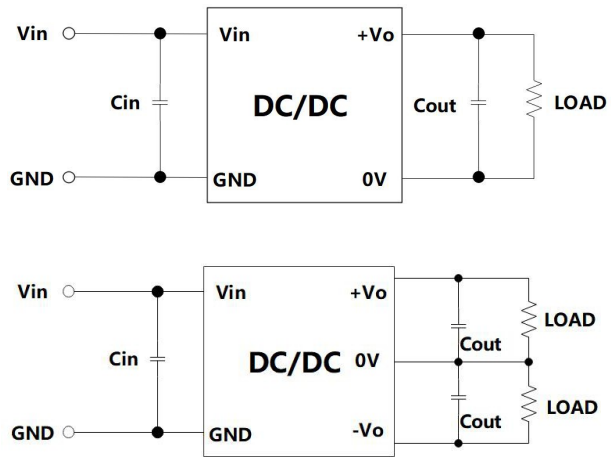
Efficiency VS Input Voltage (full load)



Efficiency VS Input Voltage (Vin=24V)

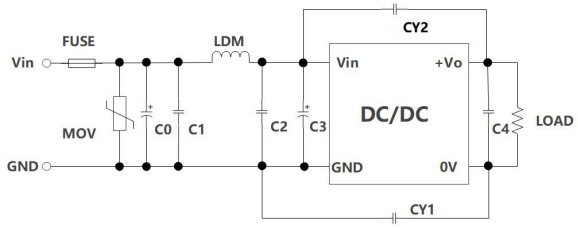


Circuit Design and Application

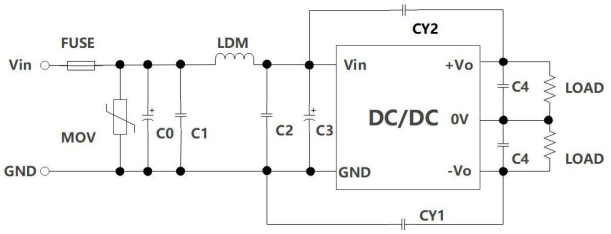


Recommended Capacitive Load Value Table			
Vin(VDC)	**Cin**	**Vo(VDC)**	**Cout**
24	100μF/50V	(±)3.3/5	10uF/16V
		(±)9/12/15	10uF/25V
		(±)24	10uF/50V
48	47uF/100V	(±)3.3/5	10uF/16V
		(±)12/15	10uF/25V
		(±)24	10uF/50V

Single



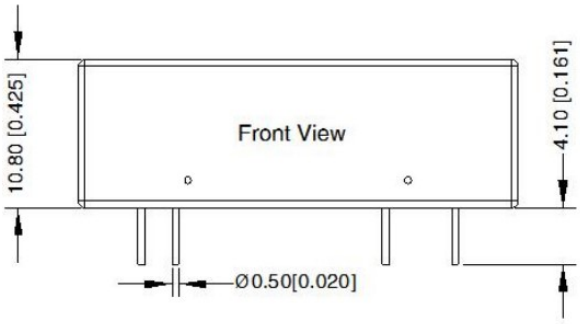
Dual

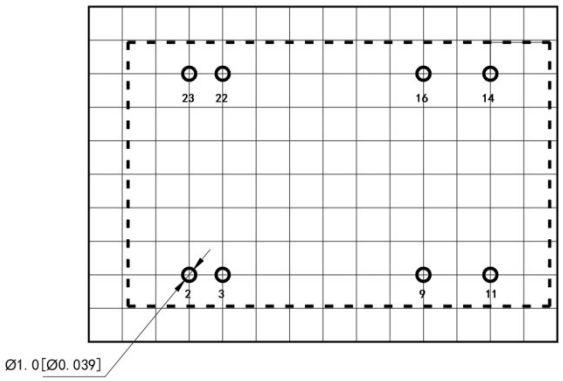


EMI Recommended Parameter Table		
Model	**Vin:24VDC**	**Vin:48VDC**
FUSE	Select according to the actual input current of the customer	
MOV	20D470K	14D101K
LDM	4.7uH	
C0/C3	330μF/50V	330μF/100V
C1/C2	1μF/50V	1μF/100V
C4	Same as Cout in typical application diagram	
CY1/CY2	1nF /2kVDC	

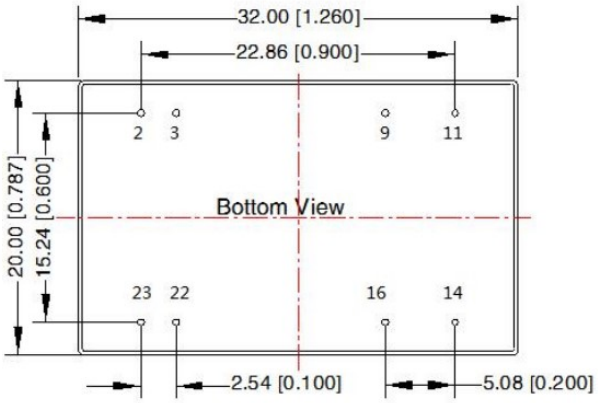
Dimensions and Recommended Layout

Dimensions	PCB Printing Layout & Pin Definition Table





Note: The grid distance is 2.54mm*2.54mm



Pin	Function (single)	Function (double)
2	GND	GND
3	GND	GND
9	No pin	COM
11	NC	-Vo
14	+Vo	+Vo
16	0V	0V
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℃, 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.