

Product Feature

1. Package Type: DIP-24
2. Operating Temperature Range: -40°C - +105°C
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



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 Frequency ^①	100% load, Nominal Input Voltage	-	300	--	kHz
Ripple & Noise ^②	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	°C
Maximum working case temperature		--	--	105	°C
Pin welding can withstand the highest temperature	Soldering spot is 1.5mm away from case for 10 seconds	--	--	300	°C
Temperature Coefficient	Full load	--	±0.02	--	%/°C
Storage Humidity	Non-condensing	5		95	%RH
Vibration		IEC/EN61373 - Category 1, Grade B			
Storage Temperature		-55		125	°C
MTBF	MIL-HDBK-217F	25°C	3000	--	khours
		85°C	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

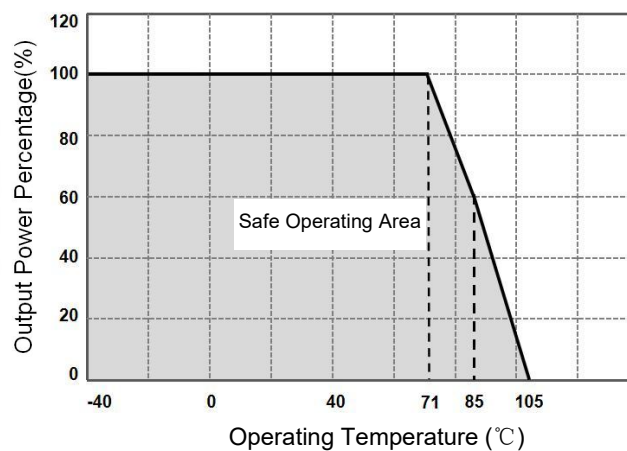
EMC Specifications

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	

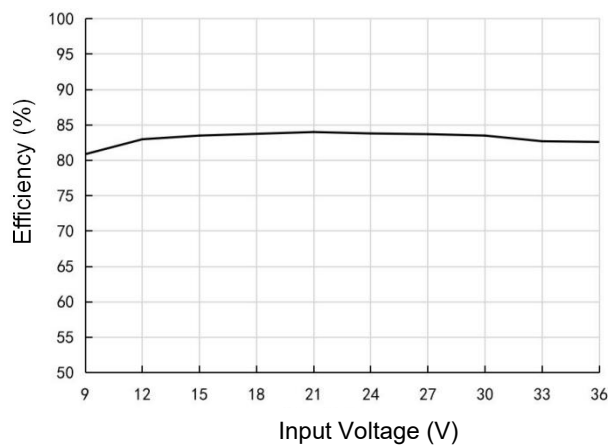
Surge	$\pm 2\text{kV}$ (see EMC for recommended circuit)	EN61000-4-5, Criteria B
CS	10Vr.m.s	EN61000-4-6, Criteria A
Voltage dips, short interruptions and voltage variations immunity	0%, 70%	EN61000-4-29, Criteria B

Typical Characteristic Curves

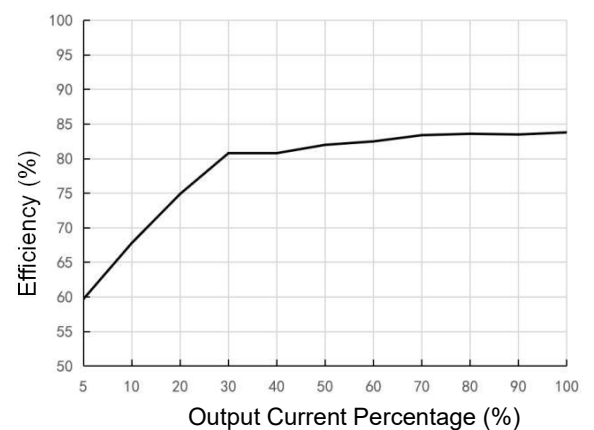
Temperature Derating Curve



Efficiency VS Input Voltage (full load)



Efficiency VS Input Voltage (Vin=24V)

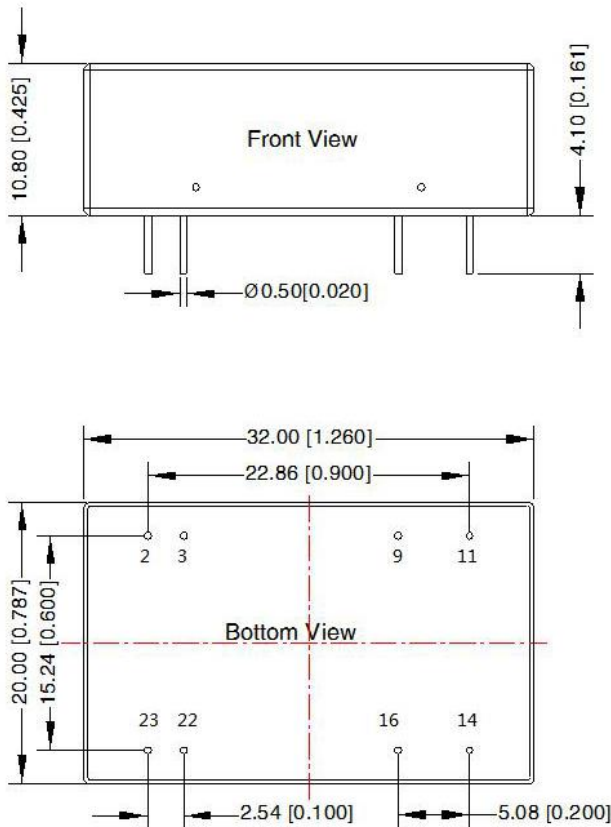


Circuit Design and Application

	<table><tr><th colspan="4">Recommended Capacitive Load Value Table</th></tr><tr><th>Vin(VDC)</th><th>Cin</th><th>Vo(VDC)</th><th>Cout</th></tr><tr><td rowspan="3">24</td><td rowspan="3">100μF/50V</td><td>(±)3.3/5</td><td>10uF/16V</td></tr><tr><td>(±)9/12/15</td><td>10uF/25V</td></tr><tr><td>(±)24</td><td>10uF/50V</td></tr><tr><td rowspan="3">48</td><td rowspan="3">47uF/100V</td><td>(±)3.3/5</td><td>10uF/16V</td></tr><tr><td>(±)12/15</td><td>10uF/25V</td></tr><tr><td>(±)24</td><td>10uF/50V</td></tr></table>	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			
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Single Dual	<table><tr><th colspan="3">EMI Recommended Parameter Table</th></tr><tr><th>Model</th><th>Vin:24VDC</th><th>Vin:48VDC</th></tr><tr><td>FUSE</td><td colspan="2">Select according to the actual input current of the customer</td></tr><tr><td>MOV</td><td>20D470K</td><td>14D101K</td></tr><tr><td>LDM</td><td colspan="2">4.7uH</td></tr><tr><td>C0/C3</td><td>330μF/50V</td><td>330μF/100V</td></tr><tr><td>C1/C2</td><td>1μF/50V</td><td>1μF/100V</td></tr><tr><td>C4</td><td colspan="2">Same as Cout in typical application diagram</td></tr><tr><td>CY1/CY2</td><td colspan="2">1nF /2kVDC</td></tr></table>	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	
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Dimensions and Recommended Layout

Dimensions



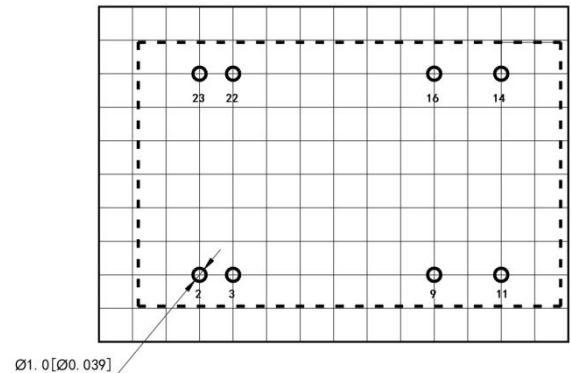
Note:

Unit: mm[inch]

Pin section tolerances: ± 0.10 [± 0.004]

General tolerances: ± 0.50 [± 0.020]

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:

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.

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