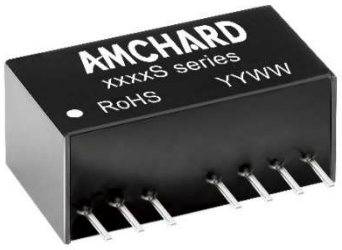
Product Feature

1. Package Type：SIP8
2. Operating temperature range: -40℃ - +85℃
3. Isolation voltage：1600VDC
4. 4:1 Ultra-wide input voltage range
5. High efficiency up to 87%
6. The mechanism has input undervoltage protection, output short circuit protection and over current protection
7. Fields of application：Power, industrial control, communications, Internet of Things, automotive, etc



RoHS CE 3 years Warranty

Selection Guide

Part No.	Input Voltage (VDC)		Output			Full Load Efficiency% (Min./Typ.)	Capacitive Load(μF) Max.
	Nominal (Range)	Maximum	Voltage (VDC)	Current Min.(mA)	Current Max.(mA)		
ATB2403S-6WR3	24 (9-36)	40	3.3	0	1350	78	1800
ATB2405S-6WR3			5	0	1200	82	1000
ATB2406S-6WR3			6	0	1000	82	680
ATB2409S-6WR3			9	0	667	84	470
ATB2412S-6WR3			12	0	500	86	470
ATB2415S-6WR3			15	0	400	87	220
ATB2424S-6WR3			24	0	250	85	100
ATA2405S-6WR3			±5	0	600	80	470#
ATA2409S-6WR3			±9	0	333	83	220#
ATA2412S-6WR3			±12	0	250	83	120#
ATA2415S-6WR3			±15	0	200	83	100#
ATA2424S-6WR3			±24	0	125	82	68#
ATB4812S-6WR3	48 (18-75)	80	12	0	500	83	330
ATB4815S-6WR3			15	0	400	84	150
ATB4824S-6WR3			24	0	250	82	68
ATA4805S-6WR3			±5	0	600	80	470#
ATA4812S-6WR3			±12	0	250	83	120#
ATA4815S-6WR3			±15	0	200	83	100#

Input Specifications

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Input Current (full load/no-load)	24V input	3.3VDC output	--	238/5	248/12	mA
		Other	--	305/5	315/12	
	48V input	5VDC output	--	156/5	166/12	
		Other	--	146/10	156/16	
Reflected Ripple Current			--	50	--	

Impulse Voltage	24VDCnominal input series	-0.7	--	50	VDC
	48VDCnominal input series	-0.7	--	100	
Starting Voltage	24VDCnominal input series	--	--	9	
	48VDCnominal input series	--	--	18	
Input undervoltage protection	24VDCnominal input series	5.5	6.5	--	
	48VDCnominal input series	12	15.5	--	
Input Filter		Capacitance Filter			
Hot Plug		Unavailable			
CTRL	turn on module	connected GND or (0-1.2V)			
	turn off module	No connected or (3.5-12V)			

Output Specifications

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Output Voltage Accuracy	5%-100% load		--	±1.0	±3.0	%
Linear Regulation Rate	full load, input voltage from the lower limit to the higher limit		--	±0.5	±1	
Load Regulation Rate	5%-100% load		--	±0.5	±1.5	
Instantaneous Recovery Time	25% step change of load, nominal input voltage		--	0.3	0.5	ms
Transient Response Deviation	25% step change of load, nominal input voltage	3.3 、5VDC output	--	±5	±8	%
		Other voltage output	--	±3	±5	
Temperature Drift Coefficient	Full load		--	--	±0.03	%/℃
Ripple & Noise	20MHz bandwidth,5%-100% load		--	50	100	mVp-p
Over Current Protection	input voltage range		110	160	230	%Io
Short-Circuit Protection			Continuous, Self-Recovery			

General Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Isolation Voltage	Input-output, test time 1 minute, leakage current less than 1mA	1600	--	--	VDC
Insulation Resistance	Input-output, insulated voltage 500VDC	1000	--	--	MΩ
Isolation Capacitance	Input-output, 100KHz/0.1V	--	1000	--	pF
Operating Temperature	See Figure 1	-40	--	105	℃
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	250	312.5	400	kHz
MTBF	MIL-HDBK-217F@25℃	>1000Kh			

Mechanical Specifications

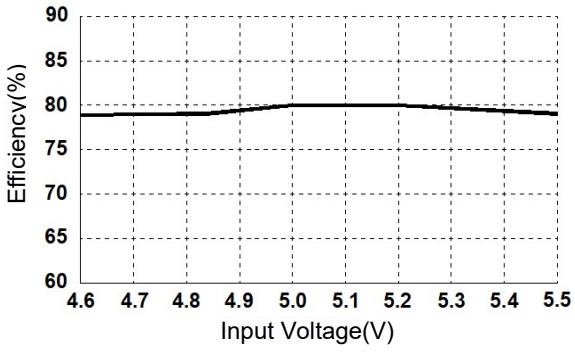
Case Material	Black plastic; flame-retardant and heat-resistant（UL94V-0 rated）
Package Dimensions	22.0 x 9.5 x 12.0mm
Weight	4.9g
Cooling Method	Free air convection

EMC Specifications

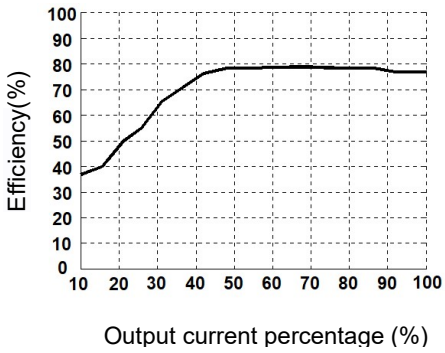
EMI	CE	CISPR32/EN55032 CLASS B（The recommended circuit is shown in Figure 3-②）	
	RE	CISPR32/EN55032 CLASS B（The recommended circuit is shown in Figure 3-②）	
EMS	ESD	IEC/EN61000-4-2 Contact±4KV	Perf.Criteria B
	RS	IEC/EN61000-4-3 10V/m	Perf.Criteria A
	EFT	IEC/EN61000-4-4 ±2KV (The recommended circuit is shown in Figure3-①)	Perf.Criteria B
	Surge	IEC/EN61000-4-5 line to line ±1KV (The recommended circuit is shown in Figure 3-①)	Perf.Criteria B
	CS	IEC/EN61000-4-6 3Vr.m.s	Perf.Criteria A

Typical Characteristic Curves

Efficiency VS input voltage (full load)



Efficiency VS out Power (Vin=24)



Temperature Derating Curve

Figure 1

Typical Circuit Design And Application

Application circuit

All DC/DC converters of this series are tested in accordance with the test circuit recommended in FIG. 2 before delivery. If the input and output ripple is required to be further reduced, the input and output external capacitors Cin and Cout can be increased or a capacitor with a small series equivalent impedance value can be selected, but the capacitance value cannot be greater than the maximum capacitive load of the product.

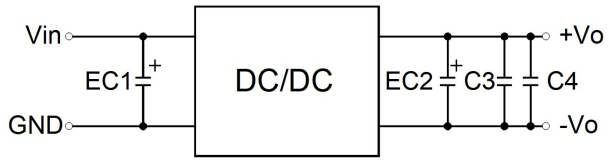
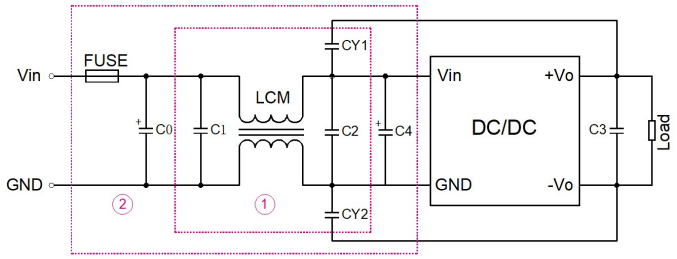


Figure 2

Vout(VDC)	EC1(uF)	EC2(uF)	C3(uF)	C4(uF)
5	100μF/50V	100uF/16V	10uF/50V	0.1uF/16V
12/15		47μF/25V	10μF/50V	0.1μF/25V
24		47μF/50V	10μF/50V	0.1μF/50V

EMC Solutions - Recommended Circuits

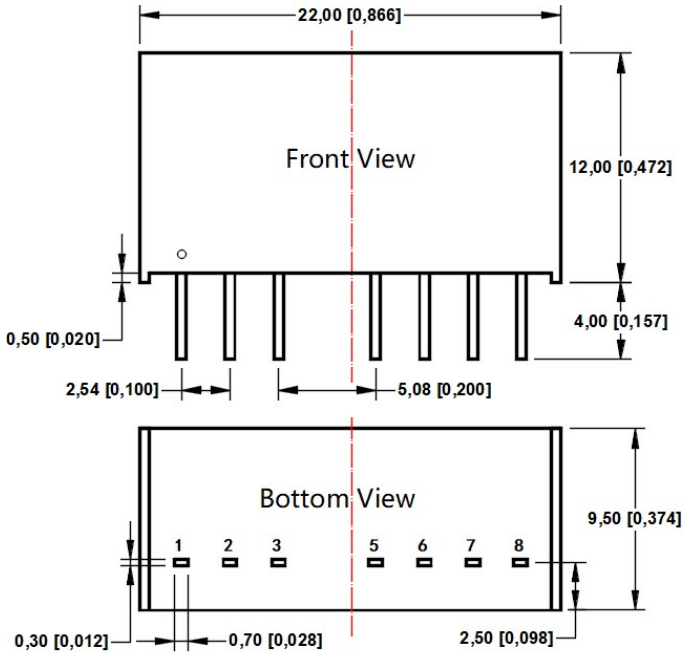


Model	Vin:24V
FUSE	Select according to the
C0、C4	330uF/50V
C1、C2	10μF/50V
LCM	1.4-1.7mH
C3	22μF/50V
CY1、CY2	1nF/400VAC

Note: Part ① in Figure 3 is for EMS test; Part ② in Figure 3 is used for EMI filtering, which can be selected according to the demand.

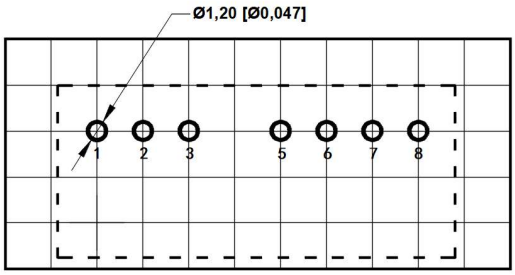
Dimensions and Recommended Layout

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)
1	GND	GND
2	Vin	Vin
3	CTRL	CTRL
5	NC	NC
6	+Vo	+Vo
7	-Vo	COM
8	NC	-Vo

NC: No Conned to any external circuit.

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℃, 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;