FEATURES:

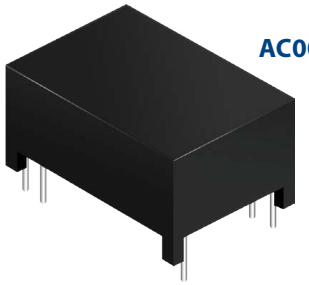
- AC/DC Power Module
- Universal Input: 90~264VAC
- High Efficiency Up To 70%~82%
- Protection: Short Circuit/Overload
- Internal Input Filter
- RoHS Compliant
- UL Recognized

ADAM TECH

AC-DC Converter
AX003 SERIES
2.64~3 Watt 3KV Isolated Single Output Module

Specifications typical at TA=25°C nominal input voltage and rated output current unless otherwise specified

Part Number	Output Wattage	Output Voltage	Output Current (mA)		Ripple & Noise	Efficiency
	(W)	(V)	Min	Max	(mV) Max (Note 2)	(% TYP)
AC003-S03	2.64	3.3	0	800	100	70
AC003-S05	3	5	0	600	100	72
AC003-S06	3	6	0	500	100	72
AC003-S09	3	9	0	333	100	75
AC003-S12	3	12	0	250	100	78
AC003-S24	3	24	0	125	100	80
AC003-S27	3	27	0	110	100	80
AD003-S03	2.64	3.3	0	800	100	70
AD003-S05	3	5	0	600	100	72
AD003-S12	3	12	0	250	100	78



AC003

AD003

Notes:

1. 2nd Character in Part Number:
   C: Represents module version with enclosure
   D: Represents open frame version without enclosure
   E: Represents wired version with enclosure

2. Ripple & noise is measured by using 20 MHz bandwidth, measured with 47uf paralleled with a high-frequency 0.47uf capacitor across each output by full load.

Input Specifications

Parameters	Conditions		Min	Typ	Max	Units
Rated Input Voltage	Vo, Io nom			100~240		Vac
Input Voltage Range	Vo, Io nom	AC in	90		264	Vac
		DC in	120		370	Vdc
Line Frequency	Vi nom, Io nom		47	50/60	63	Hz
Inrush Current	Io nom	Vi:115VAC			10	A
		Vi:230VAC			18	A

Output Specifications

Parameters	Conditions	Min	Typ	Max	Units
Voltage Accuracy	For external circuit please refer to recommended circuit		±1	±3	%
Minimum Load	Vi nom	0			%
Line Regulation	Io nom, Vi min…Vi max			±1	%
Load Regulation	Vi nom, Io min…Io nom			±2	%
Transient Recovery Time	Vi nom, Io nom = ← → 0.5 Io nom		300		uS
Ripple & Noise	Vi nom, Io nom, BW=20MHz (Tested as Figure2)			100	mVp-p
Efficiency	Vi nom, Io nom, Po/Pi		Up to 82%, See models list		

General Specifications

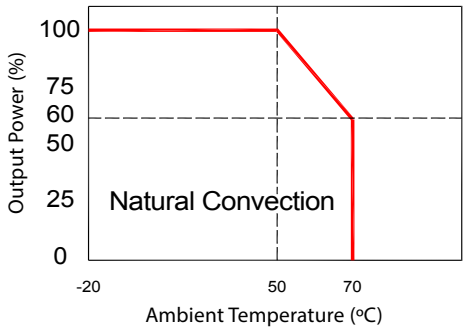
Parameters	Conditions	Min	Typ	Max	Units
Switching Frequency	Vi nom, Io nom		65		KHz
Isolation Voltage	Input / Output		3KVac/ 5mA/5Secs		
Isolation Resistance	Input / Output, @500 Vdc	100			MΩ
Ambient Temperature	Operating at Vi nom, Io nom	-20		+70	ºC
Derating	Vi nom, Io nom +51 to 71ºC			2	%/ºC
Case Temperature	Operating at Vi nom, Io nom			+85	ºC
Storage Temperature	Non Operational	-40		+85	ºC
Relative Humidity	Vi nom, Io nom			95	% RH
Safety Standards	EN 62368-1 approved				
EMI Conduction & Radiation	Compliance to EN55032				
EMS Immunity	Compliance to EN55024				
Dimensions	GA003/GC003 L35.05 x W25.40 x H17.78, GA003-SXXB L36.0x W26.2 x H19.75 GB003 L32.5 x W23.0 x H16.0				mm
Cooling	Free air convection				
Case Material				DAP UL 94V-0	
Weight	GA003/GB003/GC003			30g/12g/32g	

Part Number

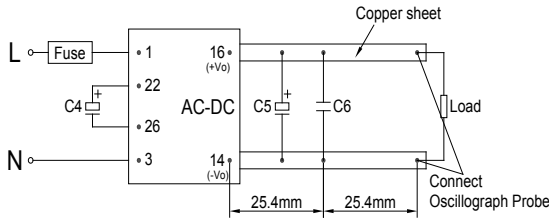
A	X	003	-	S	05
A	B	C		D	E

A: Series
B: Package (C, D, E)
C: Output Watt
D: Single Output
E: Output Voltage

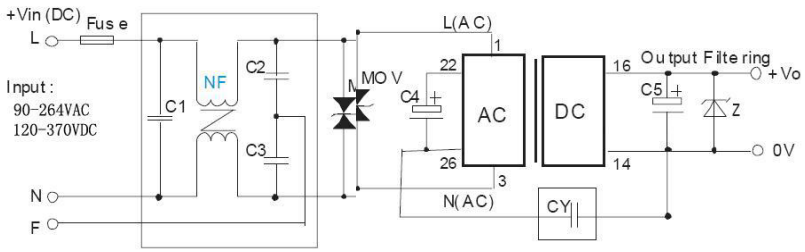
Temperature Derating Graph



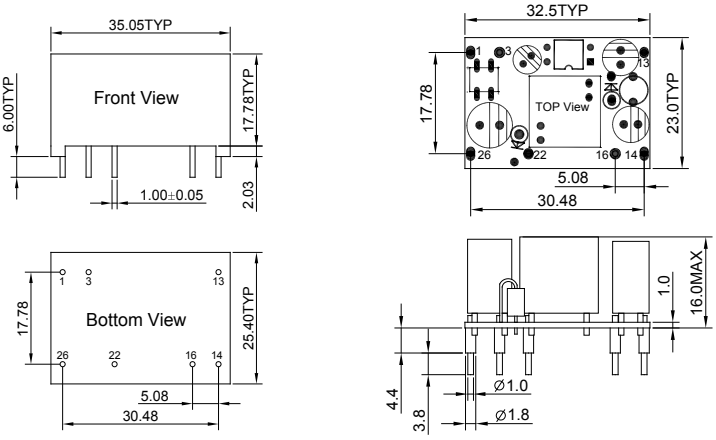
Ripple Testing Demonstration



Typical Application Circuit



Markings and Dimensions



AC003 **AD003**

UNIT: mm unless otherwise specified, all tolerances are ±0.50

Typical Application Guide

AC/DC Application

1. Recommended Circuit: Typical application circuit is shown as Figure 1. If EMC performance is not required, circuit in frame of dashed line can be removed.
2. Clearance and creepage: for application Environment of Class I and Class II devices, users should guarantee there is clearance no less than 2mm and creepage no less than 2.5mm between L and N before the fuse.
3. Fuse, 1A/250V or 10Ω/2W wire-wound resistor.
4. Input filtering capacitor. Terminals 22 and 26 are internal rectification and filtering terminals. To protect the models further, it is recommended to connect an electrolytic capacitor C4 (it is recommended to be 4.7uF/400V). If operation voltage of the module is between 160~264VAC, C4 can be removed.
5. Input EMI filtering network (Refer to Figure 1). Combination of NF, C1, C2 and C3 form input EMI filtering network.

MOV: pressure sensitive resistor, model 471KD07
C1: X2 capacitor, recommended parameter 0.1uF/275V
CY: 102K/400V (Y1 CAP)
NF: common model choke, UU9.8 or ring core, inductance is about 10mH, wire diameter 0.22mm.

6. Output filtering capacitor C5 is electrolytic capacitor. To make sure the product works at perfect operation status, use of a full loading external capacitor is necessary, and it is recommended to use a high frequency low resistance electrolytic capacitor. C5 rated voltage must be 1.2 times greater than output voltage. Please refer to manufacturer's datasheet for capacitance and current parameters.
7. "Z" is a TVS to protect post circuits (when module works incorrectly), is recommended.
8. Refer to ripple testing demonstration, C6 is recommended to be 0.1uF.

Application Notes

1. Please make sure all terminals are connected in accordance with instruction manual.
2. The module is a sort of electronic component, installing and using should be implemented by professionals.
3. This series of power module is a sort of first level power supply, safety standards must be strictly abided in application.
4. Make sure the input of module is connected with a fuse, to meet the requirement of safety standards. The parameters of fuse should be appropriate.
5. The input and output of module are dangerous energies, and it must be guaranteed that end users will not be able to touch them.
6. Application circuits and parameters are for reference only. They should be confirmed by experiment before a circuit design is finished.
7. Check live datasheet link for updates to this document.
8. This product can not be used in parallel and can not support hot-plug.

PIN Connection

PIN	1	3	13	14	16	22	26
AC003/AD003	L	N	NC	-Vout	+Vout	+Vin(DC)	-Vin(DC)