



3Watt,Single Output, AC/DC Converter

AS3220R - X S 05

A B C D E

A:Series 3 Watt

B:Regulated

C:Package1,2,3

D:Single(S)

E:Output Voltage

FEATURES:

AC/DC Power Module

Universal Input 90~264VAC

High Efficiency Up To 82%

Protection: Short Circuit /Overload



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

Part Number	Output Wattage	Output Volatge	Output Current	Efficiency
	(W)	Vdc	mA	%(TYP)
AS3220R-XS03	2.4	3.3	800	70
AS3220R-XS05	3.0	5	600	72
AS3220R-XS06	3.0	6	500	72
AS3220R-XS07	3.0	7	425	72
AS3220R-XS08	3.0	8	375	75
AS3220R-XS09	3.0	9	333	75
AS3220R-XS10	3.0	10	300	78
AS3220R-XS12	3.0	12	250	78
AS3220R-XS13	3.0	13	230	78
AS3220R-XS14	3.0	14	215	78
AS3220R-XS15	3.0	15	200	79
AS3220R-XS16	3.2	16	200	79
AS3220R-XS18	3.0	18	167	80
AS3220R-XS24	3.0	24	125	80
AS3220R-XS27	3.0	27	110	80
AS3220R-XS36	3.0	36	83	82
AS3220R-XS48	3.0	48	62.5	82

Notes:"X" Represent module version 1: Represent unit with potting within a plasitc enclosure;  
2: Represent unit with open frame version without enclosure; 3: Represent unit with potting within a plasitc enclosure wired;

Input Specifications

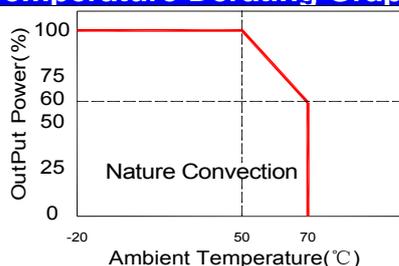
Parameters	Conditions	Min	Typ	Max	Units
Rated input voltage	Vo,lo nom		100-240		VAC
Input voltage range	Vo,lo nom	AC in	90	264	VAC
		DC in	120	370	VDC
Line frequency	Vi nom.lo nom	47	50/60	63	Hz
Inrush current	Io nom	Vi:115VAC		10	A
		Vi:230VAC		18	A

Output Specifications

Parameters	Conditions	Min	Typ	Max	Units
Voltage accuracy	For external circuit please refer to recommended circuit		±1	±3	%
Minimun 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=l←→0.5Io 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		3.0kVac/ 5mA/5Secs		
Isolation resistance	Input / output, @500Vdc	100			MΩ
Ambient temperature	Operating at Vi nom, Io nom	-20		+70	°C
Derating	Vi nom, Io nom +51 to 71°C			2	%/°C
Case temperature	Operating at Vi nom, Io nom			+85	°C
Storage temperature	Nom operational	-40		+85	°C
Relative humidity	Vi nom, Io nom			95	% RH
Dimension	AS3220R-1S/AS3220R-2S L35.05 x W25.40 x H17.78, AS3220R-3S L32.5 x W23.0 x H16.0				
Cooling	Free air convection				
Case material	DAP UL 94V-0				
Weight	AS3220R-1S/AS3220R-2S /AS3220R-3S		30g/12g/32g		

## Temperature Derating Graph



## RIPPLE TESTING DEMONSTRATION

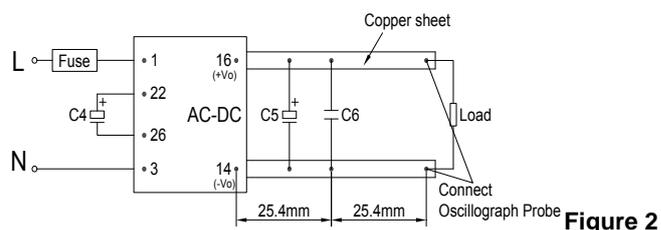


Figure 2

## TYPICAL APPLICATION CIRCUIT

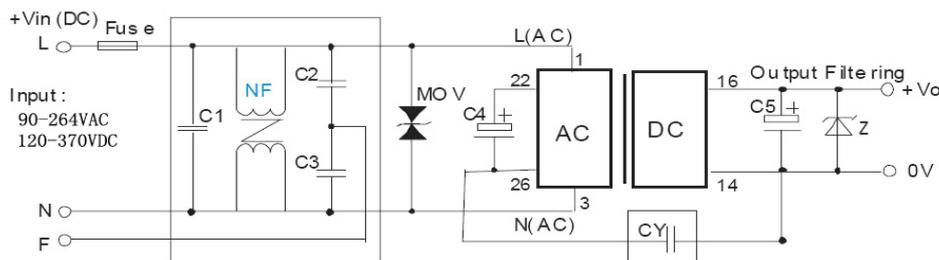


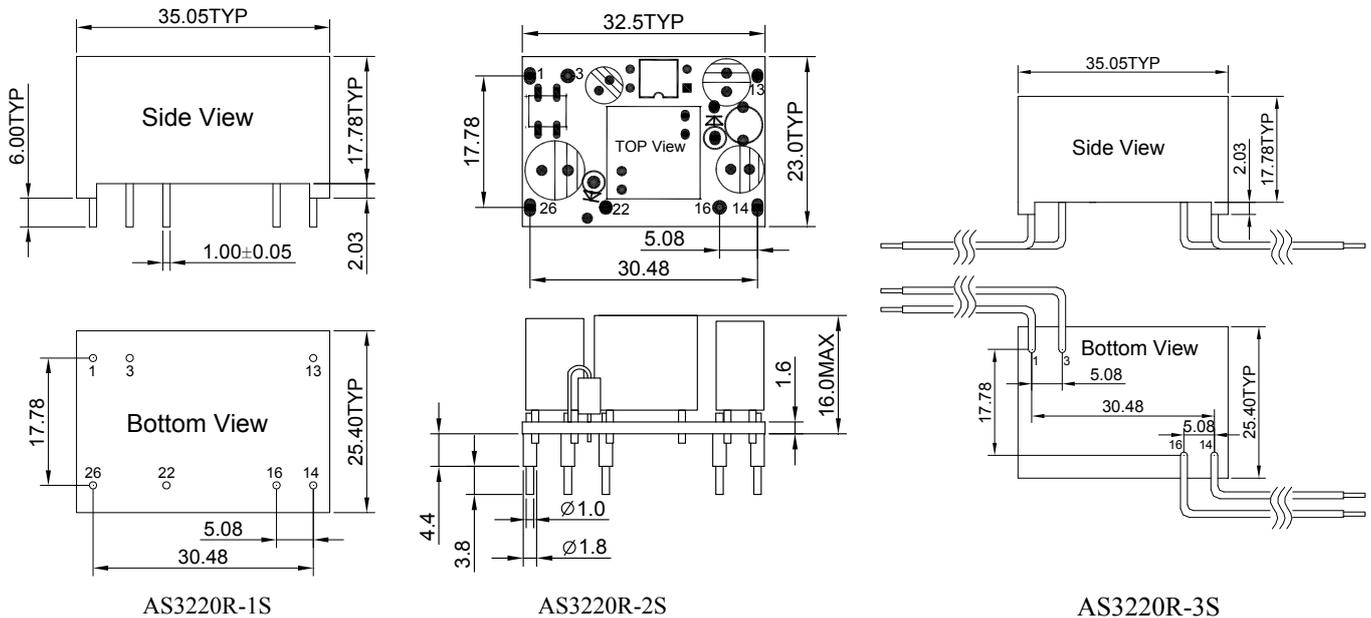
Figure 1

## 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 Figure1) 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 work at perfect operation status with full loading external capacitor is necessary and it is recommended to use 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.

## Markings and dimensions



UNIT: mm Unless otherwise specified, all tolerances are  $\pm 0.50$

## PIN Connection

PIN	1	3	13	14	16	22	26
AS3220R-1S	L	N	NC	-Vout	+Vout	+Vin(DC)	-Vin(DC)
AS3220R-2S	L	N	NC	-Vout	+Vout	+Vin(DC)	-Vin(DC)
AS3220R-3S	L(White)	N(Black)		-Vout(Blue)	+Vout(Red)		

## APPLICATION NOTE

1. Please make sure all terminals are connected in accordance with instruction manual.
2. The module is a sort of electronic components, installing and using should be implemented by professionals.
3. This series of power module is a sort of first level power supply, safety standard must be strictly abided in application.
4. Make sure the input of module is connected with a fuse, to meet the requirement of safety standard. 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 finish a circuit design.
7. You may not be noticed for amendments and updated of this document. Please pay attention on new application in actual application.
8. This product can not be used in parallel and can not support hot-plug.