

**DESCRIPTION**

AD-FxxxxS-1WR3 series are specially designed for applications requiring an isolated voltage in a distributed power supply system. They are suitable for: The input power voltage is relatively stable circuits, power isolation, and the output ripple noise is relatively insensitive circuits. Including pure digital circuits, general low-frequency analog circuits, relay drive circuits, and data exchange circuits. etc. where the voltage of the input power supply is fixed (voltage variation $\leq \pm 10\%$).

FEATURES

- High efficiency up to 90%
- I/O Isolation test voltage 3000VDC
- -40°C to $+85^{\circ}\text{C}$ Working Temperature Range
- No-load power consumption bottom 0.025W
- MTBF $\geq 3500\text{KHrs}$
- Output short-circuit, over-current protection, and auto-recovery
- Industry-standard pin-out

ORDERING INFORMATION

Part Number	Input Voltage (VDC)	Output		Full Load Efficiency(%) Min/Typ	Capacitive Load (uF) Max.
	Nominal (Range)	Voltage (VDC)	Current (mA) Max/Min		
AD-F0303S-1WR3	3.3 (2.97~3.63)	3.3	303/30	78/81	2400
AD-F0305S-1WR3		5	200/20	79/82	2400
AD-F0312S-1WR3		12	84/9	80/83	560
AD-F0503S-1WR3	5 (4.5~5.5)	3.3	303/30	80/83	2400
AD-F0505S-1WR3		5	200/20	85/88	2400
AD-F0509S-1WR3		9	111/12	85/88	1000
AD-F0512S-1WR3		12	84/9	86/88	560
AD-F0515S-1WR3		15	67/7	87/89	560
AD-F0524S-1WR3		24	42/4	87/89	220
AD-F1203S-1WR3	12 (10.8~13.2)	3.3	303/30	80/83	2400
AD-F1205S-1WR3		5	200/20	85/88	2400
AD-F1209S-1WR3		9	111/12	85/88	1000
AD-F1212S-1WR3		12	84/9	86/88	560
AD-F1215S-1WR3		15	67/7	87/89	560
AD-F1224S-1WR3		24	42/4	87/89	220
AD-F1503S-1WR3	15 (13.5~16.5)	3.3	303/30	81/84	2400
AD-F1505S-1WR3		5	200/20	86/88	2400
AD-F1509S-1WR3		9	111/12	87/89	1000
AD-F1512S-1WR3		12	84/9	88/90	560
AD-F1515S-1WR3		15	67/7	88/90	560
AD-F1524S-1WR3		24	42/4	88/90	220
AD-F2403S-1WR3	24 (21.6~26.4)	3.3	303/30	81/84	2400
AD-F2405S-1WR3		5	200/20	86/88	2400
AD-F2409S-1WR3		9	111/12	87/89	1000
AD-F2412S-1WR3		12	84/9	88/91	560
AD-F2415S-1WR3		15	67/7	88/91	560
AD-F2424S-1WR3		24	42/4	88/91	220



INPUT SPECIFICATIONS

Item	Operating Conditions	Min	Typ	Max	Unit
Input Current (Full Load/No-Load)	3.3VDC input	--	378/8	--/15	mA
	5VDC input	--	227/5	--/10	
	12VDC input	--	93/2	--/5	
	15VDC input	--	74/2	--/4	
	24VDC input	--	46/1	--/2	
Reflect Ripple Current		--	15	--	mA
Surge Voltage (1sec. max)	3.3VDC input	-0.7	--	5	VDC
	5VDC input	-0.7	--	9	
	12VDC input	-0.7	--	18	
	15VDC input	-0.7	--	21	
	24VDC input	-0.7	--	30	
Input Filter		Capacitive Filter			
Hot Plug		Unsupported			

OUTPUT SPECIFICATIONS

Item	Operating Conditions	Min	Typ	Max	Unit	
Output Load	Load Percentage	10	--	100	%	
Load Regulation	10~100% Load	3.3VDC output	--	18	--	%
		5VDC output	--	12	--	
		9VDC output	--	8	--	
		12VDC output	--	7	--	
		15VDC output	--	6	--	
		24VDC output	--	5	--	
Linear Regulation	Input voltage change: ±0.1%	3.3VDC output	--	--	±1.5	%
		Others		--	±1.2	
Output Voltage Accuracy	See Fig 1. Output Regulation Curve	--	--	±15.0	%	
Ripple & Noise	Pure resistance load, 20MHz bandwidth peak-to-peak value	--	30	80	mVp-p	
Temperature Drift Coefficient (Full Load)		--	--	±0.03	%/°C	
Output Short Circuit Protection		Continuous, self-recovery				



GENERAL SPECIFICATIONS

Item	Test Condition	Min	Typ	Max	Unit
Insulation Voltage	Input-output, test time 1minute, leakage current less than 1mA	3000	--	--	VDC
Insulation Resistance	Input-output, insulation voltage 500VDC	1000	--	--	MΩ
Isolation Capacitor	Input-output, 100KHz/0.1V	--	20	--	pF
Operating Temperature	Refer to Fig2. Temperature Derating	-40	--	+85	°C
Storage Temperature		-40	--	+125	°C
Case Temperature Rise During Operation		--	25	--	%RH
Storage Humidity	No Condensation	5	--	95	%RH
Pin Soldering Temperature Resistance	Solder joint distance from housing 1.5mm, 10s	--	--	+300	°C
Switching Frequency	Full load, nominal voltage input	--	100	--	KHz
Vibrations		10-55Hz, 10G, 30Min along X,Y & Z			
Housing Material		Black flame retardant & heat resistant plastic (UL94V-0)			
MTBF	MIL-HDBK-217F@25°C	3.5X10 ⁶			Hrs

TYPICAL CHARACTERISTIC CURVES

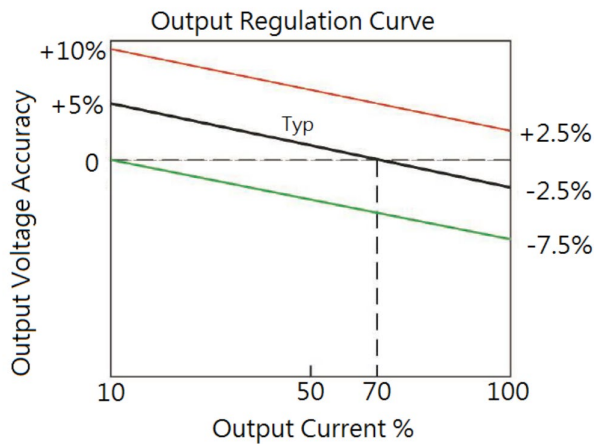


Fig 1.

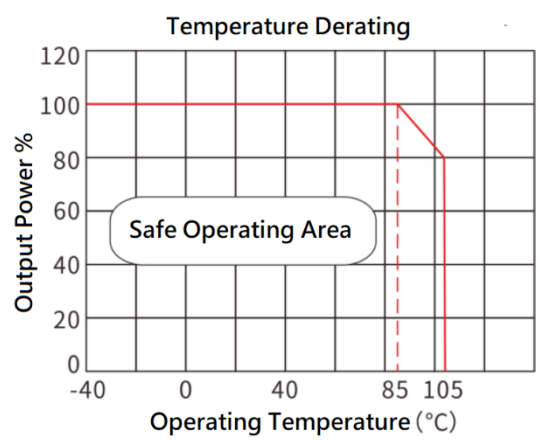


Fig 2.

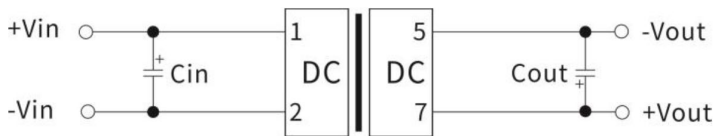


DESIGN REFERENCE

Typical Application

If want to reduce the input and output ripples, can connect a capacitor filter circuit to the input and output. The application circuit is shown in Fig 3 & 4. However, be careful to select the appropriate filter capacitor. If the capacitance is too large, it might cause startup problems.

Fig 3. Recommendation Output Capacitance



Vin (VDC)	Cin (uF)	Vo (VDC)	Cout (uF)
3.3/5	4.7	3.3/5	10
12	2.2	9	4.7
15	2.2	12	2.2
24	1.0	15	1
		24	0.47

Table1. Recommend Input and output Capacitor Values

Fig 4. EMI Typical application circuit



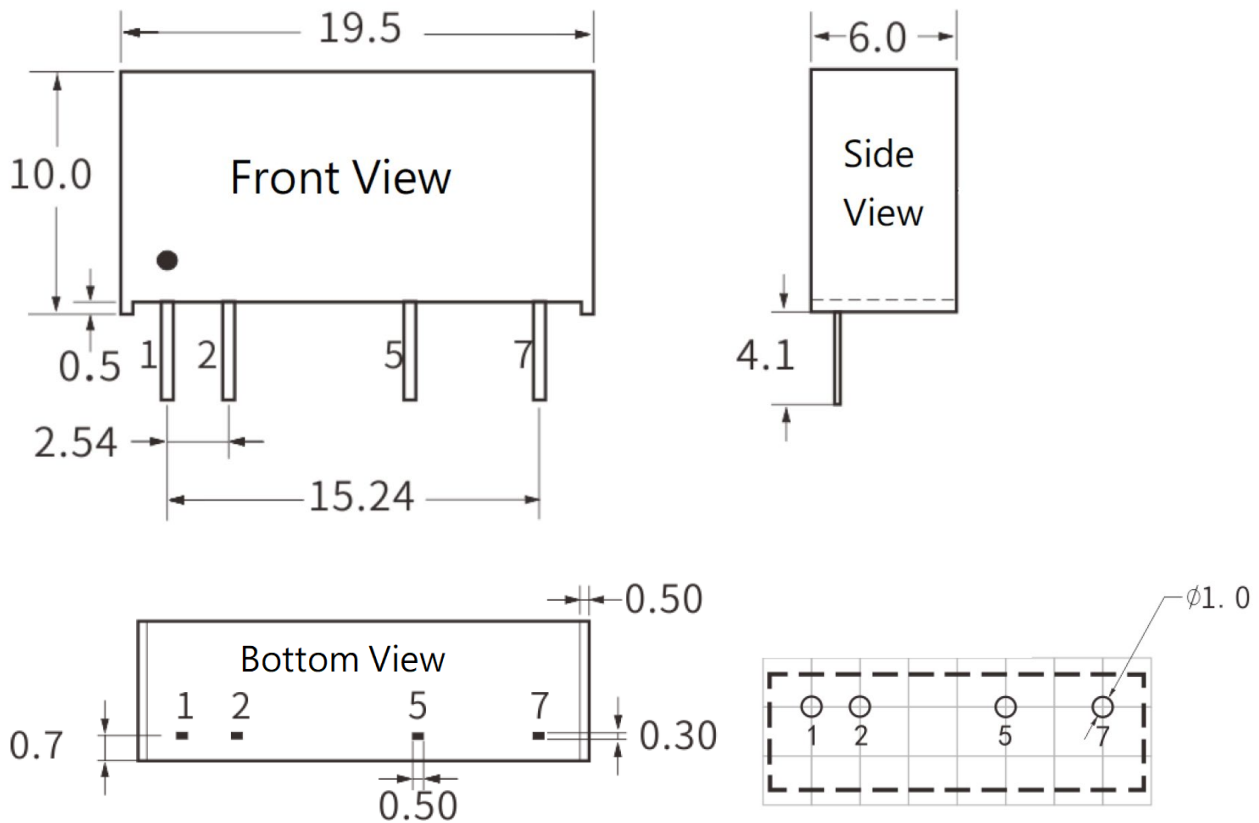
Vin (VDC)	3.3/5/12/15/24
Cin	4.7uF/50V
Cout	See Table 1
Lin	4.7uH
Lout	4.7uH

Table 2. Recommend EMC Reference Value



PACKAGE INFORMATION

Package Code: S Dimension :19.5x6.0x10.0 mm (0.768x0.236x0.394 inch)



Pin-Out	
Pin	Function
1	+Vin
2	-Vin
5	-Vout
7	+Vout

Note: Grid 2.54 * 2.54mm

Unit: mm (inch)

General tolerances: ± 0.25 mm