

**DESCRIPTION**

The AD-BxxxxS-1WR3 series are specially designed for applications where an isolated voltage is required in a distributed power supply system. They are suitable for: pure digital circuits, low frequency analog circuits, relay-driven circuits and data switching circuits.

**FEATURES**

- Continuous short-circuit protection
- No load input current as low as 5mA
- -40°C to +85°C Working Temperature Range
- Excellent thermal characteristic
- High efficiency up to 88%
- 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-B0303S-1WR3	3.3 (2.97~3.63)	3.3	303/30	78/81	2400
AD-B0305S-1WR3		5	200/20	79/82	2400
AD-B0309S-1WR3		9	111/12	79/82	1000
AD-B0312S-1WR3		12	84/9	80/83	560
AD-B0315S-1WR3		15	67/7	80/83	560
AD-B0324S-1WR3		24	42/4	81/84	220
AD-B0503S-1WR3	5 (4.5~5.5)	3.3	303/30	80/83	2400
AD-B0505S-1WR3		5	200/20	85/88	2400
AD-B0509S-1WR3		9	111/12	80/83	1000
AD-B0512S-1WR3		12	84/9	80/83	560
AD-B0515S-1WR3		15	67/7	80/83	560
AD-B0524S-1WR3		24	42/4	81/85	220
AD-B1203S-1WR3	12 (10.8~13.2)	3.3	303/30	81/84	2400
AD-B1205S-1WR3		5	200/20	86/88	2400
AD-B1209S-1WR3		9	111/12	87/89	1000
AD-B1212S-1WR3		12	84/9	88/90	560
AD-B1215S-1WR3		15	67/7	88/90	560
AD-B1224S-1WR3		24	42/4	88/90	220
AD-B1503S-1WR3	15 (13.5~16.5)	3.3	303/30	81/84	2400
AD-B1505S-1WR3		5	200/20	86/88	2400
AD-B1509S-1WR3		9	111/12	87/89	1000
AD-B1512S-1WR3		12	84/9	88/90	560
AD-B1515S-1WR3		15	67/7	88/90	560
AD-B1524S-1WR3		24	42/4	88/90	220
AD-B2403S-1WR3	24 (21.6~26.4)	3.3	303/30	81/84	2400
AD-B2405S-1WR3		5	200/20	86/88	2400
AD-B2409S-1WR3		9	111/12	87/89	1000
AD-B2412S-1WR3		12	84/9	88/91	560
AD-B2415S-1WR3		15	67/7	88/91	560
AD-B2424S-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	--	37	--/15	mA
	5VDC input	--	24	--/10	
	12VDC input	--	10	--/8	
	15VDC input	--	83	--/6	
Reflect Ripple Current		--	15	--	mA
Surge Voltage (1sec. max)	3.3VDC input	--	--	5	VDC
	5VDC input	--	--	9	
Input Filter		Capacitance Filter			
Hot Plug		Unavailable			

**OUTPUT SPECIFICATIONS**

Item	Operating Conditions		Min	Typ	Max	Unit
Output Load	Load Percentage		10	--	100	%
Output Voltage Accuracy	Refer to Fig1. Output Regulation Curve (100% Load)		--	--	±15	%
Linear Regulation	Input Voltage Change: ±1%	3.3VDC output	--	--	±1.5	%
		Other output	--	--	±1.2	%
Load Regulation	10~100% Load	3.3VDC output	--	15	20	%
		5VDC output	--	10	15	%
		9VDC output	--	8	10	%
		12VDC output	--	7	10	%
		15VDC output	--	6	10	%
		24VDC output	--	5	10	%
Ripple & Noise	Pure resistance load, 20MHz bandwidth peak-to-peak value		--	3	80	mVp-p
Temperature Drift Coefficient	Full Load		--	--	±3	%/°C
Output Short Circuit Protection	Continuous Short Circuit Protection, Automatic Recovery		--	--	1	S



**GENERAL SPECIFICATIONS**

Item	Test Condition	Min	Typ	Max	Unit
Insolation Voltage	Input-output, test time 1minute, leakage current less than 1mA	1500	--	--	VDC
Insolation Resistance	Input-output, insolation voltage 500VDC	1000	--	--	MΩ
Isolation Capacitor	Input-output, 100KHz/0.1V	--	40	--	pF
Operating Temperature	Refer to Fig2. Temperature Derating	-40	--	+85	°C
Storage Temperature		-40	--	+125	°C
Case Temperature Rise During Operation		--	25	--	°C
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	300	KHz
Vibrations		10-55Hz, 10G, 30Min along X,Y & Z			
Housing Material		Black flame retardant & heat resistant plastic (UL94V-0)			
Minimum Trouble-Free Interval	MIL-HDBK-217F@25°C	3.5x10 <sup>6</sup>			Hrs



**TYPICAL CHARACTERISTIC CURVES**

Fig1. Output Regulation Curve

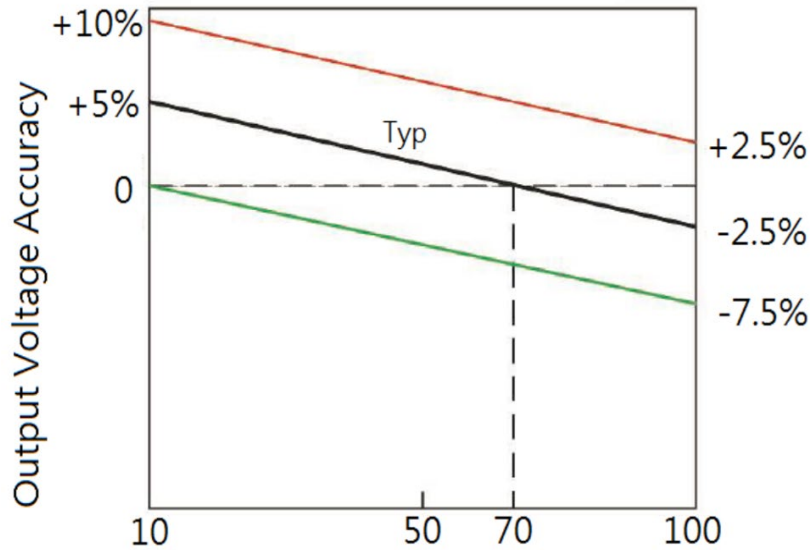
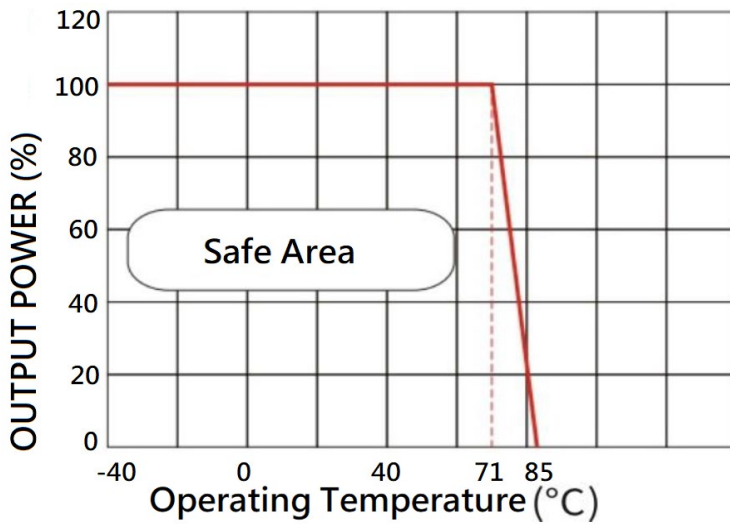


Fig2. Temperature Derating

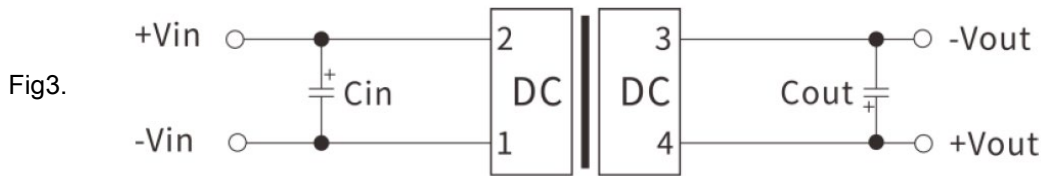




**DESIGN REFERENCE**

**Typical Application**

Input and/or output ripple can be further reduced, by connecting a filter capacitor from the input and/or output terminals to ground as shown in Fig3.



Choosing suitable filter capacitor values is very important for a smooth operation of the modules, particularly to avoid start-up problems caused by capacitor values that are too high.

For recommended input and output capacitor values refer to Table 1.

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

Table1. Recommend Input and output Capacitor Values

**EMI Compliance Circuit**

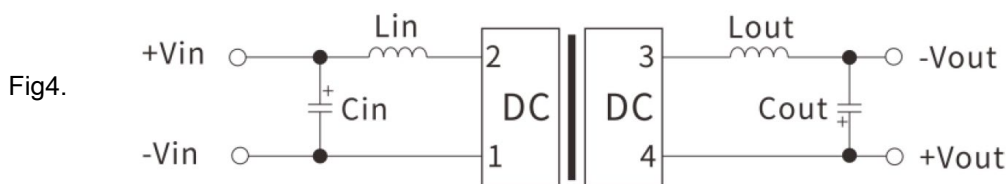


Table 2. Recommend EMI Reference Value

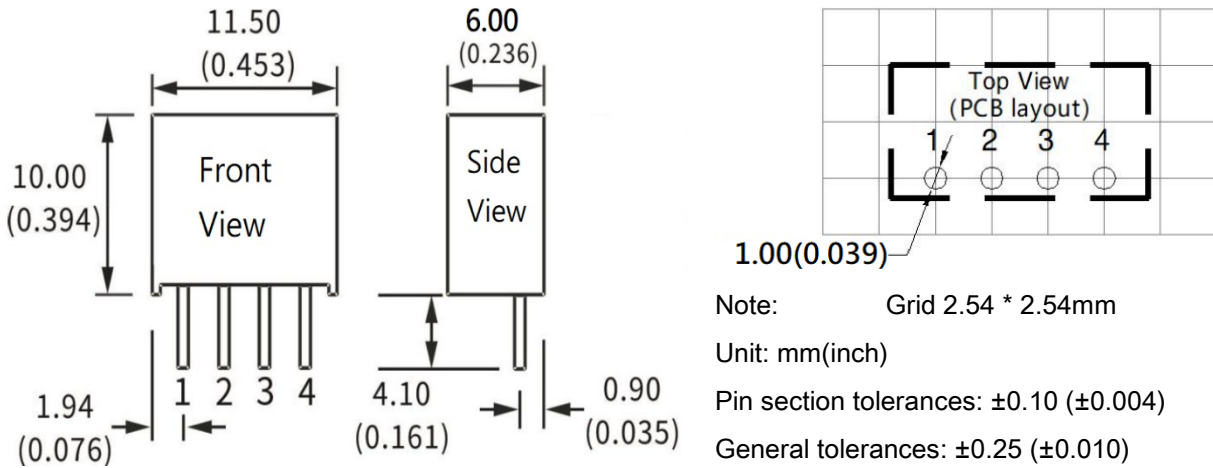
Vin (VDC)	3.3 / 5 / 12 / 15
Cin	4.7uF/50V
Cout	Refer to Table 1.
Lin	4.7uH
Lout	4.7uH



**PACKAGE INFORMATION**

Package Code: S

Dimension: 11.5x6.0x10.0 mm (0.453x0.236x0.394 inch)



Pin-Out	
Pin #	Function
1	GND
2	Vin
3	0V
4	+Vo