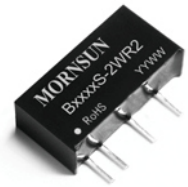
2W, Fixed input voltage, isolated & unregulated dual /single output



Continuous Short Circuit Protection

Patent Protection RoHS

FEATURES

- Continuous short-circuit protection
- Operating temperature range: -40℃ to +105℃
- High efficiency up to 85%
- High power density
- Miniature DIP package
- Isolation voltage: 1.5K VDC
- No external component required
- International standard pin-out

A_S-2WR2 & B_S-2WR2 series are specially designed for applications where an isolated voltage is required in a distributed power supply system. They are suitable for

1. *Where the voltage of the input power supply is stable (voltage variation: ±10%Vin);*
2. *Where isolation between input and output is necessary (isolation voltage ≤1500VDC);*
3. *Where the output voltage regulation is not strictly required;*
4. *Typical application: digit circuit condition; normal low-frequency artificial circuit condition; relay drive circuit and data switching circuit condition, etc.*

Certification	Part No.	Input Voltage (VDC)	Output		Efficiency (%, Min./Typ.) @ Full Load	Max. Capacitive Load* (μF)
		Nominal (Range)	Output Voltage (VDC)	Output Current (mA) (Max./Min.)		
UL/CE	A0505S-2WR2	5 (4.5-5.5)	±5	±200/±20	76/80	100
	A0509S-2WR2		±9	±111/±11	80/84	
	A0512S-2WR2		±12	±83/±8	80/84	
	A0515S-2WR2		±15	±67/±7	78/82	
	A0524S-2WR2		±24	±42/±4	80/84	
--	B0503S-2WR2		3.3	400/40	75/79	220
UL/CE	B0505S-2WR2		5	400/40	80/84	
--	B0507S-2WR2		7.2	278/28	78/82	
UL/CE	B0509S-2WR2		9	222/22	75/79	
	B0512S-2WR2		12	167/17	80/84	
	B0515S-2WR2		15	133/13	80/84	
	B0524S-2WR2		24	83/8	80/84	
--	B0905S-2WR2	9 (8.1-9.9)	5	400/40	75/79	
	B0912S-2WR2		12	167/17	79/83	
UL/CE	A1205S-2WR2	12 (10.8-13.2)	±5	±200/±20	76/80	100
--	A1207S-2WR2		±7.2	±139/±14	80/84	
UL/CE	A1209S-2WR2		±9	±111/±11	80/84	
	A1212S-2WR2		±12	±83/±8	80/84	
	A1215S-2WR2		±15	±67/±7	80/84	
	A1224S-2WR2		±24	±42/±4	80/84	
--	B1203S-2WR2		3.3	400/40	75/79	220
UL/CE	B1205S-2WR2		5	400/40	78/82	
	B1209S-2WR2		9	222/22	77/81	
	B1212S-2WR2		12	167/17	80/84	
	B1215S-2WR2		15	133/13	81/85	
	B1224S-2WR2		24	83/8	82/86	

--	A1505S-2WR2	15 (13.5-16.5)	±5	±200/±20	76/80	100
	A1515S-2WR2		±15	±67/±7	81/85	
	B1505S-2WR2		5	400/40	76/80	220
	B1515S-2WR2		15	133/13	81/85	
--	A2403S-2WR2	24 (21.6-26.4)	±3.3	±200/±20	76/80	100
UL/CE	A2405S-2WR2		±5	±200/±20	76/80	
--	A2407S-2WR2		±7.2	±139/±14	80/84	
UL/CE	A2409S-2WR2		±9	±111/±11	82/86	
	A2412S-2WR2		±12	±83/±8	80/84	
	A2415S-2WR2		±15	±67/±7	80/84	
	A2424S-2WR2		±24	±42/±4	80/84	
--	B2403S-2WR2		3.3	400/40	75/79	220
UL/CE	B2405S-2WR2		5	400/40	76/80	
	B2409S-2WR2		9	222/22	82/86	
	B2412S-2WR2		12	167/17	80/84	
	B2415S-2WR2		15	133/13	82/86	
	B2424S-2WR2		24	83/8	83/87	

Note: *The capacitive loads of positive and negative outputs are identical.

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Input Current (full load / no-load)	5V input	--	506/35	--	mA
	9V input	--	268/25	--	
	12V input	--	208/20	--	
	15V input	--	167/15	--	
	24V input	--	104/10	--	
Reflected Ripple Current		--	15	--	mA
Surge Voltage (1sec. max.)	5V input	-0.7	--	9	VDC
	9V input	-0.7	--	12	
	12V input	-0.7	--	18	
	15V input	-0.7	--	21	
	24V input	-0.7	--	30	
Input Filter		Filter capacitor			
Hot Plug		Unavailable			

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Output Voltage Accuracy			See tolerance envelope graph (Fig. 1)			
Line Regulation	Input voltage change: ±1%	3.3VDC output	--	--	±1.5	--
		Other output	--	--	±1.2	
Load Regulation	10%-100% load	3.3VDC output	--	18	--	%
		5VDC output	--	12	--	
		9VDC output	--	9	--	
		12VDC output	--	8	--	
		15VDC output	--	7	--	
		24VDC output	--	6	--	
Ripple & Noise*	20MHz bandwidth	Output Voltage≤12V	--	60	120	mVp-p
		Output Voltage:15V, 24V	--	75	150	
Temperature Coefficient	Full load		--	--	±0.03	%/℃

Short Circuit Protection**	24V input series/A0524S-2WR2/B0524S-2WR2	--	--	1	s
	Other models	Continuous, self-recovery			

Note: * Ripple and noise are measured by "parallel cable" method, please see DC-DC Converter Application Notes for specific operation;
**Supply voltage must be discontinued at the end of short circuit duration for A0524S-2WR2, B0524S-2WR2 models and 24V input series.

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Isolation Voltage	Input-output, with the test time of 1 minute and the leak current lower than 1mA	1500	--	--	VDC
Isolation Resistance	Input-output, isolation voltage 500VDC	1000	--	--	MΩ
Isolation Capacitance	Input-output, 100KHz/0.1V	--	20	--	pF
Operating Temperature	Derating when operating temperature up to 100℃, (see Fig. 2)	-40	--	105	℃
Storage Temperature		-55	--	125	
Casing Temperature Rise	Ta=25℃, nominal input, full load output	--	25	--	
Pin Welding Resistance Temperature	Welding spot is 1.5mm away from the casing, 10 seconds	--	--	300	
Storage Humidity	Non-condensing	--	--	95	%RH
Switching Frequency	Full load, nominal input voltage	--	100	300	KHz
MTBF	MIL-HDFK-217F@25℃	3500	--	--	K hours

Casing Material	Black flame-retardant heat-proof epoxy resin (UL94-V0)
Dimensions	19.65*7.05*10.16mm
Weight	2.4g(Typ.)
Cooling Method	Free convection

EMI	CE		CISPR22/EN55022	CLASS B (see Fig. 4 for recommended circuit)
	RE		CISPR22/EN55022	CLASS B (see Fig. 4 for recommended circuit)
EMS	ESD	A_S-2WR2	IEC/EN61000-4-2	Contact ±6KV perf. Criteria B
		B_S-2WR2	IEC/EN61000-4-2	Contact ±8KV perf. Criteria B

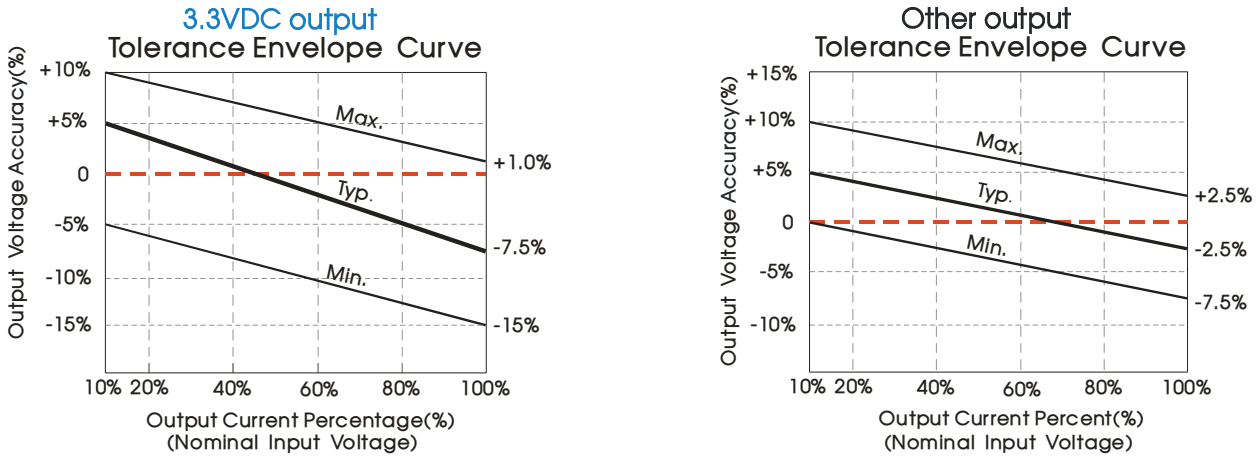


Fig. 1

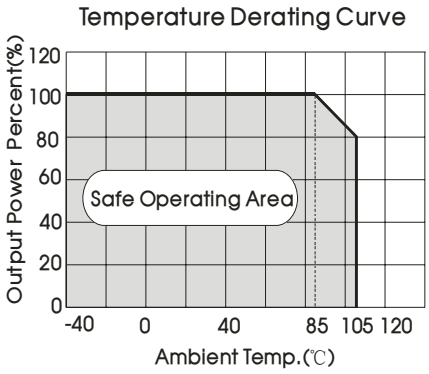
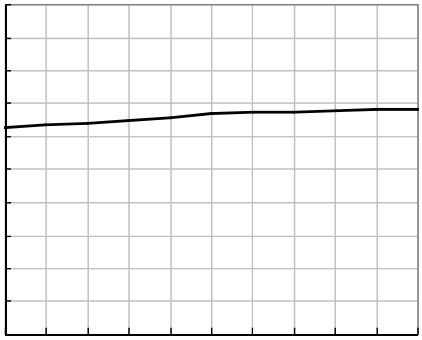
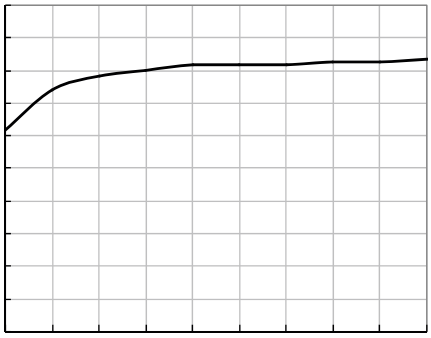
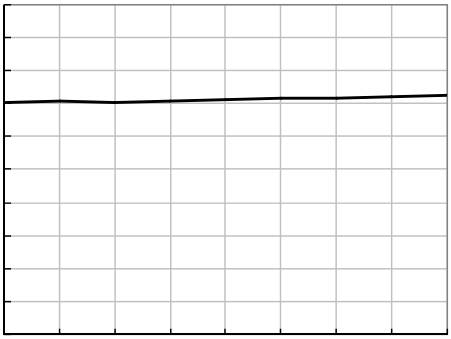
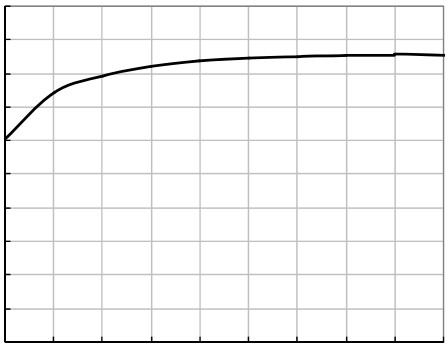


Fig. 2









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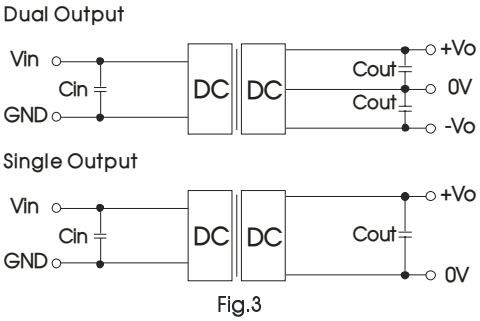


Fig.3

Recommended capacitive load value table (Table 1)

Vin (VDC)	Cin (μF)	Single Vo (VDC)			

2. EMC typical recommended circuit (CLASS B)

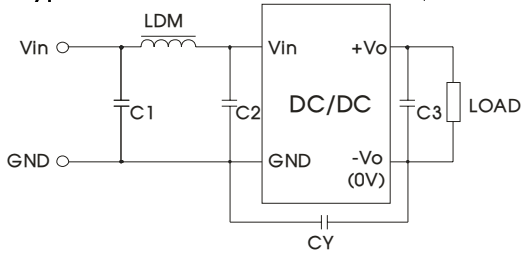


Fig. 4

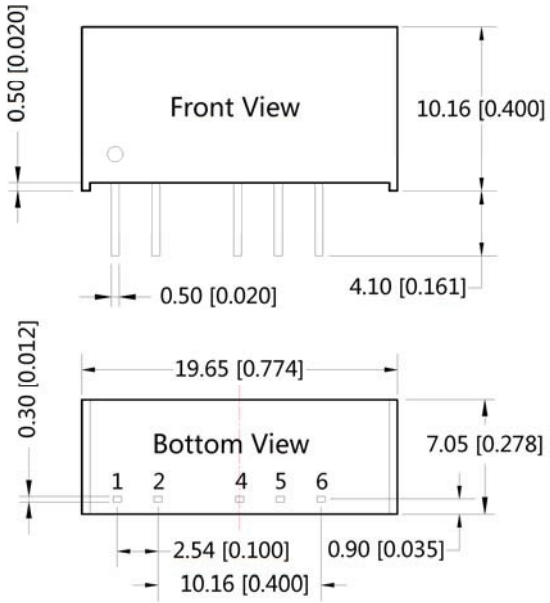
Input voltage (VDC)		3.3/5/9/12/15	24
EMI	C1/C2	4.7μF /50V	
	CY	--	470pF/3KV
	C3	Refer to the Cout in Fig.3	
	LDM	6.8μH	

Note: It is not needed to add the component in the peripheral circuit when parameter with the symbol of "--".

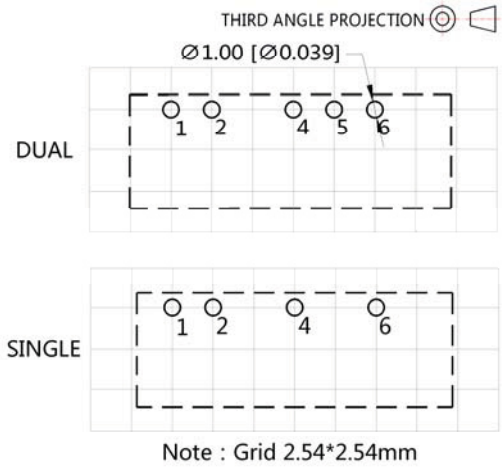
3. Output load requirements

When using, the minimum load of the module output should not be less than 10% of the nominal load. In order to meet the performance parameters of this datasheet, please connect a 10% dummy load in parallel at the output end, the dummy load is generally a resistor, Please note that the resistor needs to be used in derating.

4. For more information please find DC-DC converter application notes on www.mornsun-power.com



Note:
Unit :mm[inch]
Pin section tolerances :±0.10[±0.004]
General tolerances:±0.25[±0.010]



Note : Grid 2.54*2.54mm

Pin-Out		
Pin	Single	Dual
1	Vin	Vin
2	GND	GND
4	0V	-Vo
5	No Pin	0V
6	+Vo	+Vo

Notes:

1. Packing information please refer to Product Packing Information which can be downloaded from www.mornsun-power.com. Packing bag number: 58200001;
2. If the product is not operated within the required load range, the product performance cannot be guaranteed to comply with all parameters in the datasheet;
3. The maximum capacitive load offered were tested at nominal input voltage and full load;
4. Unless otherwise specified, parameters in this datasheet were measured under the conditions of Ta=25℃, humidity<75% with nominal input voltage and rated output load;
5. All index testing methods in this datasheet are based on our Company's corporate standards;
6. The performance parameters of the product models listed in this manual are as above, but some parameters of non-standard model products may exceed the requirements mentioned above. Please contact our technicians directly for specific information;
7. We can provide product customization service;
8. Specifications are subject to change without prior notice.

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