

Series AM1/4S-Z

0.25 Watt | DC-DC Converter



FEATURES:

- RoHS compliant
- 4 Pin SIP Package
- Low ripple and noise
- High efficiency up to 72%
- Operating temperature -40°C to + 85°C
- Input / Output isolation 1000 and 3000VDC
- Pin compatible with multiple manufacturers



Models Single output

Model	Input Voltage (V)	Output Voltage (V)	Output Current max (mA)	Isolation (VDC)	Input Current Full NoLoad (mA)		Max Capacitive Load (uF)	Efficiency (%)
AM1/4S-0503SZ	4.5-5.5	3.3	75.7	1000	78	20	100	64
AM1/4S-0505SZ	4.5-5.5	5	50	1000	70	17	100	71
AM1/4S-0507SZ	4.5-5.5	7.2	34.7	1000	74	18	100	68
AM1/4S-0509SZ	4.5-5.5	9	27.7	1000	68	15	100	73
AM1/4S-0512SZ	4.5-5.5	12	20.8	1000	68	14	100	76
AM1/4S-0515SZ	4.5-5.5	15	16.6	1000	70	20	100	71
AM1/4S-0518SZ	4.5-5.5	18	13.8	1000	69	17	100	72
AM1/4S-0524SZ	4.5-5.5	24	10.4	1000	65	18	100	77
AM1/4S-1203SZ	10.8-13.2	3.3	75.7	1000	32	10	100	65
AM1/4S-1205SZ	10.8-13.2	5	50	1000	31	12	100	67
AM1/4S-1207SZ	10.8-13.2	7.2	34.7	1000	31	10	100	67
AM1/4S-1209SZ	10.8-13.2	9	27.7	1000	33	12	100	64
AM1/4S-1212SZ	10.8-13.2	12	20.8	1000	33	15	100	63
AM1/4S-1215SZ	10.8-13.2	15	16.6	1000	31	13	100	67
AM1/4S-1218SZ	10.8-13.2	18	13.8	1000	32	13	100	65
AM1/4S-1224SZ	10.8-13.2	24	10.4	1000	38	18	100	55
AM1/4S-1505SZ	13.5-16.5	5	50	1000	27	8	100	62
AM1/4S-2403SZ	21.6-26.4	3.3	75.7	1000	17	8	100	60
AM1/4S-2405SZ	21.6-26.4	5	50	1000	17	7	100	61
AM1/4S-2407SZ	21.6-26.4	7.2	34.7	1000	18	8	100	57
AM1/4S-2409SZ	21.6-26.4	9	27.7	1000	17	8	100	62
AM1/4S-2412SZ	21.6-26.4	12	20.8	1000	19	10	100	56
AM1/4S-2415SZ	21.6-26.4	15	16.6	1000	19	7	100	55
AM1/4S-2418SZ	21.6-26.4	18	13.8	1000	18	10	100	57
AM1/4S-2424SZ	21.6-26.4	24	10.4	1000	18	10	100	59
AM1/4S-0503SH30Z	4.5-5.5	3.3	75.7	3000	78	20	100	64
AM1/4S-0505SH30Z	4.5-5.5	5	50	3000	70	17	100	71
AM1/4S-0507SH30Z	4.5-5.5	7.2	34.7	3000	74	18	100	68
AM1/4S-0509SH30Z	4.5-5.5	9	27.7	3000	68	15	100	73
AM1/4S-0512SH30Z	4.5-5.5	12	20.8	3000	68	14	100	76
AM1/4S-0515SH30Z	4.5-5.5	15	16.6	3000	70	20	100	71
AM1/4S-0518SH30Z	4.5-5.5	18	13.8	3000	69	17	100	72
AM1/4S-0524SH30Z	4.5-5.5	24	10.4	3000	65	18	100	77
AM1/4S-1203SH30Z	10.8-13.2	3.3	75.7	3000	32	10	100	65
AM1/4S-1205SH30Z	10.8-13.2	5	50	3000	31	12	100	67
AM1/4S-1207SH30Z	10.8-13.2	7.2	34.7	3000	31	10	100	67
AM1/4S-1209SH30Z	10.8-13.2	9	27.7	3000	33	12	100	64
AM1/4S-1212SH30Z	10.8-13.2	12	20.8	3000	33	15	100	63
AM1/4S-1215SH30Z	10.8-13.2	15	16.6	3000	31	13	100	67
AM1/4S-1218SH30Z	10.8-13.2	18	13.8	3000	32	13	100	65
AM1/4S-1224SH30Z	10.8-13.2	24	10.4	3000	38	18	100	55
AM1/4S-2403SH30Z	21.6-26.4	3.3	75.7	3000	17	8	100	60
AM1/4S-2405SH30Z	21.6-26.4	5	50	3000	17	7	100	61
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AM1/4S-2412SH30Z	21.6-26.4	12	20.8	3000	19	10	100	56
AM1/4S-2415SH30Z	21.6-26.4	15	16.6	3000	19	7	100	55
AM1/4S-2418SH30Z	21.6-26.4	18	13.8	3000	18	10	100	57
AM1/4S-2424SH30Z	21.6-26.4	24	10.4	3000	18	10	100	59

Input Specifications

Parameters	Nominal	Typical	Maximum	Units
Voltage range	5	4.5-5.5		VDC
	12	10.8-13.2		
	15	13.5 – 16.5		
	24	21.6-26.4		
Filter	Capacitor			
Absolute maximum rating	5	7		VDC
	12	15		
	15	17		
	24	28		
Peak input voltage time		100		ms
Input reflected ripple current *		20		mA p-p

* Measured with a 12μH source inductor and a 47μF (ESR<1Ω at 100KHz) source capacitor.

Isolation Specifications

Parameters	Conditions	Typical	Rated	Units
Tested I/O voltage	60sec		1000, 3000	VDC
Resistance		> 1000		MOhm
Capacitance		60		pF

Output Specifications

Parameters	Conditions	Typical	Maximum	Units
Voltage accuracy		±3		%
Line voltage regulation	For 1% change of Vin	±1.2		% of Vin
Load voltage regulation	Load 20 – 100%	±10		%
Load voltage regulation	3.3V output model, Load 20 – 100%	±20		%
Temperature coefficient		±0.02		%/°C
Ripple & noise	At 20MHz Bandwidth	100		mV p-p
Capacitive load			100	μF

General Specifications

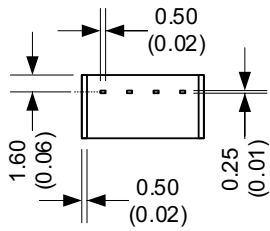
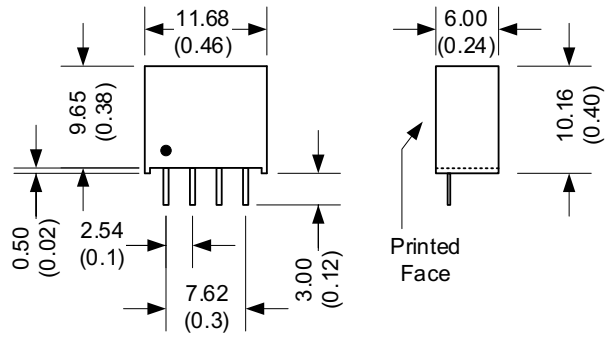
Parameters	Conditions	Typical	Maximum	Units
Switching frequency	100% load	80		KHz
Operating temperature	Without derating	-40 to +85		°C
Storage temperature		-40 to +125		°C
Maximum case temperature			100	°C
Cooling	Free air convection			
Humidity			95	%
Case material	Non-conductive black plastic			
Weight		1.5		g
Dimensions (Lx W x H)		0.46 x 0.24 x 0.40 inches 11.68 x 6.00 x 10.15 mm		
MTBF	>1121000 hrs(MIL-HDBK -217F, Ground Benign, t=+25°C)			

NOTE: All specifications in this datasheet are measured at an ambient temperature of 25°C, humidity<75%, nominal input voltage and at rated output load unless otherwise specified

Safety Specifications

Parameters	
Agency approvals	CE
Standards	Designed to meet IEN/EN/UL 60950-1, 62368-1
	EN55032 Class B (see recommended circuit)
	IEC61000-4-2 (ESD), criteria A
	IEC61000-4-3 (Radiated immunity), criteria A
	IEC61000-4-4 (EFT), criteria A with a 470μF/100V filter capacitor
	IEC61000-4-5 (Surge), criteria A with a 470μF/100V filter capacitor
	IEC61000-4-6 (CS), criteria A
	IEC61000-4-8 (PFMF), criteria A

Dimensions

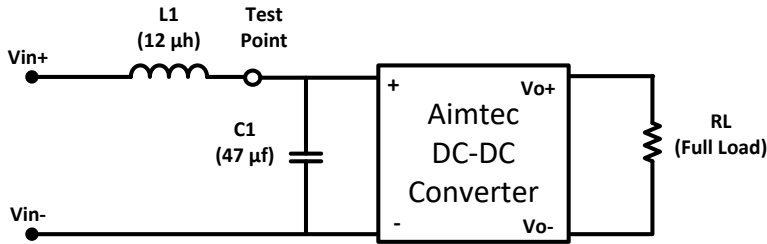


Unit: mm(inch)
Case tolerance: $\pm 0.5(0.02)$
Pin pitch and length tolerance: $\pm 0.35(0.014)$
Pin tolerance: $\pm 0.5(0.02)$

Pin Out Specifications

Pin	Single
1	- V Input
2	+V Input
3	- V Output
4	+V Output

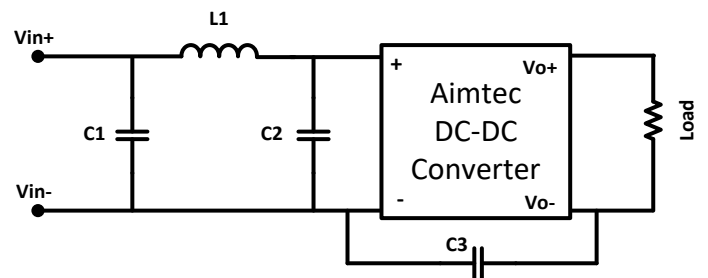
Input Reflected Ripple Current Measurement



* Tested at full load, and nominal input

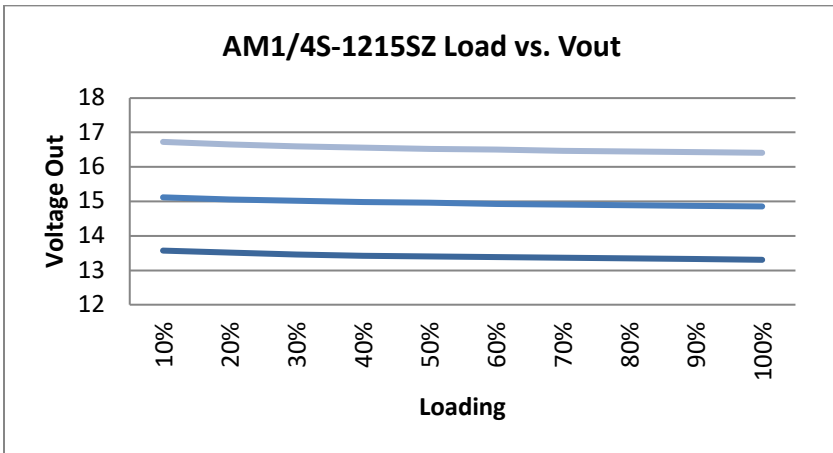
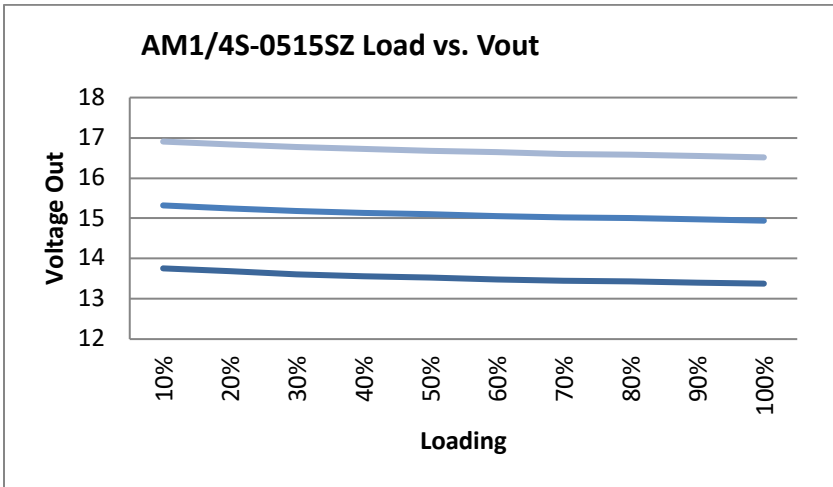
EMI Filter Circuit Example

V_{in}	C1	L1	C2	C3
3.3V	2.2 μ F / 100V	18 μ H		
5 V	2.2 μ F / 100V	18 μ H		
12 V	2.2 μ F / 100V	18 μ H		
15 V	2.2 μ F / 100V	18 μ H		
24 V	2.2 μ F / 100V	18 μ H	2.2 μ F / 100V	470 pF / 2kV



Additionally, in order to meet IEC 61000-4-4 and 61000-4-5 and external capacitor is recommended (ex. Nippon KY series of size 470 μ F / 100V).

Typical Performance Examples



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