

## 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	27.77	1000	68	15	100	73
AM1/4S-0512SZ	4.5-5.5	12	20.83	1000	68	14	100	76
AM1/4S-0515SZ	4.5-5.5	15	16.67	1000	70	20	100	71
AM1/4S-0518SZ	4.5-5.5	18	13.88	1000	69	17	100	72
AM1/4S-0524SZ	4.5-5.5	24	10.41	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	58
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-4803SZ	43.2-52.8	3.3	75.7	1000	9	8	100	55
AM1/4S-4805SZ	43.2-52.8	5	50	1000	10	8	100	53
AM1/4S-4807SZ	43.2-52.8	7.2	34.7	1000	10	8	100	54
AM1/4S-4809SZ	43.2-52.8	9	27.7	1000	10	8	100	54
AM1/4S-4812SZ	43.2-52.8	12	20.8	1000	9	8	100	55
AM1/4S-4815SZ	43.2-52.8	15	16.6	1000	10	8	100	54
AM1/4S-4818SZ	43.2-52.8	18	13.88	1000	11	8	100	49
AM1/4S-4824SZ	43.2-52.8	24	10.4	1000	11	10	100	49
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	27.77	3000	68	15	100	73
AM1/4S-0512SH30Z	4.5-5.5	12	20.83	3000	68	14	100	76
AM1/4S-0515SH30Z	4.5-5.5	15	16.67	3000	70	20	100	71
AM1/4S-0518SH30Z	4.5-5.5	18	13.88	3000	69	17	100	72
AM1/4S-0524SH30Z	4.5-5.5	24	10.41	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

**Models**

**Single output (continued)**

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-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	58
AM1/4S-2407SH30Z	21.6-26.4	7.2	34.7	3000	18 8	100	57
AM1/4S-2409SH30Z	21.6-26.4	9	27.7	3000	17 8	100	62
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
AM1/4S-4803SH30Z	43.2-52.8	3.3	75.7	3000	9 8	100	55
AM1/4S-4805SH30Z	43.2-52.8	5	50	3000	10 8	100	53
AM1/4S-4807SH30Z	43.2-52.8	7.2	34.7	3000	10 8	100	54
AM1/4S-4809SH30Z	43.2-52.8	9	27.7	3000	10 8	100	54
AM1/4S-4812SH30Z	43.2-52.8	12	20.8	3000	9 8	100	55
AM1/4S-4815SH30Z	43.2-52.8	15	16.6	3000	10 8	100	54
AM1/4S-4818SH30Z	43.2-52.8	18	13.88	3000	11 8	100	49
AM1/4S-4824SH30Z	43.2-52.8	24	10.4	3000	11 10	100	49

**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		
	48	43.2-52.8		
Filter	Capacitor			
Turn on transient process time			25	ms
Start up time		200		ms
Absolute maximum rating	5 Vin	7		VDC
	12 Vin	15		
	15 Vin	17		
	24 Vin	28		
	48 Vin	54		
Peak input voltage time		100		ms

**Isolation Specifications**

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

**Output Specifications**

Parameters	Conditions	Typical	Maximum	Units
Voltage accuracy		±3		%
Short circuit protection	Momentary (1sec)			
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
Rising time		50		ms

**General Specifications**

Parameters	Conditions	Typical	Maximum	Units
Switching frequency	100% load	80		KHz
Operating temperature	Without derating	-40to +85		°C
Storage temperature		-40 to +125		°C
Maximumcase 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 10.16 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

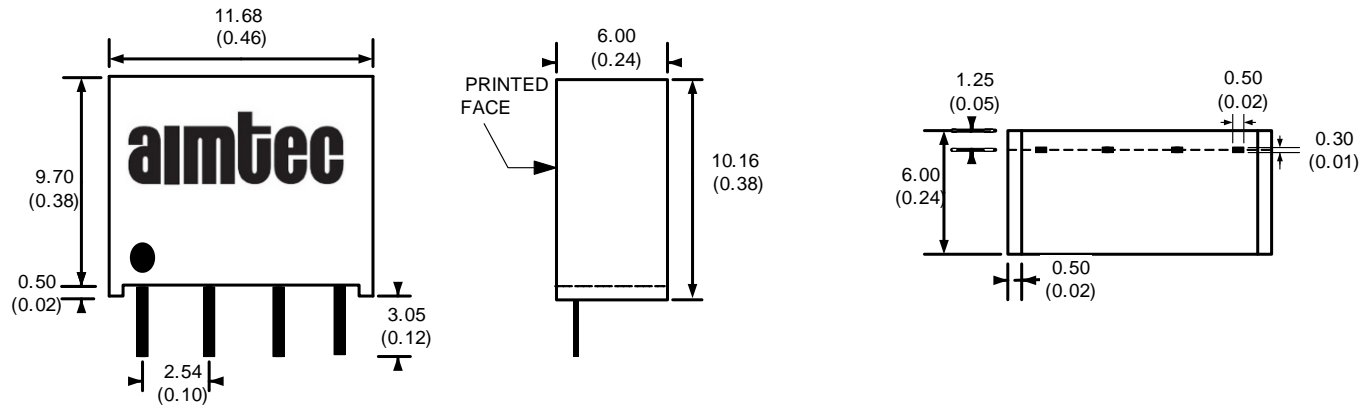
### Safety Specifications

Parameters	
Agency approvals	CE
Standards	EN55032 Class B (see recommended circuit)

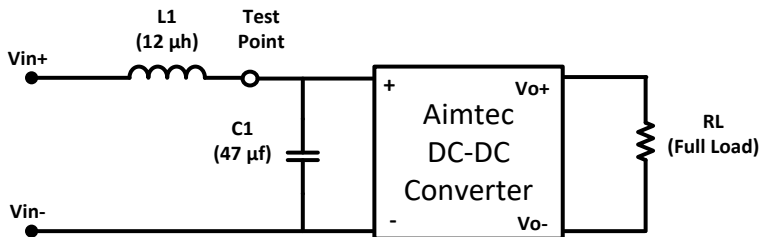
### Pin Out Specifications

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

### Dimensions



### Input Reflected Ripple Current Measurement

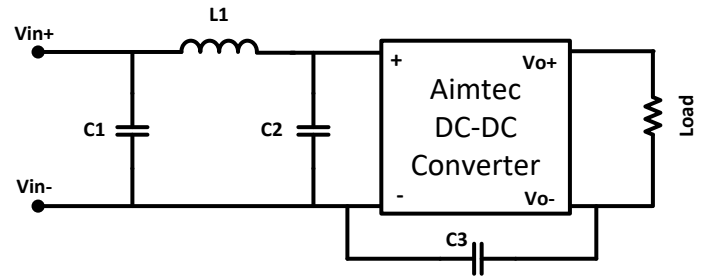


\* Tested at full load, and nominal input

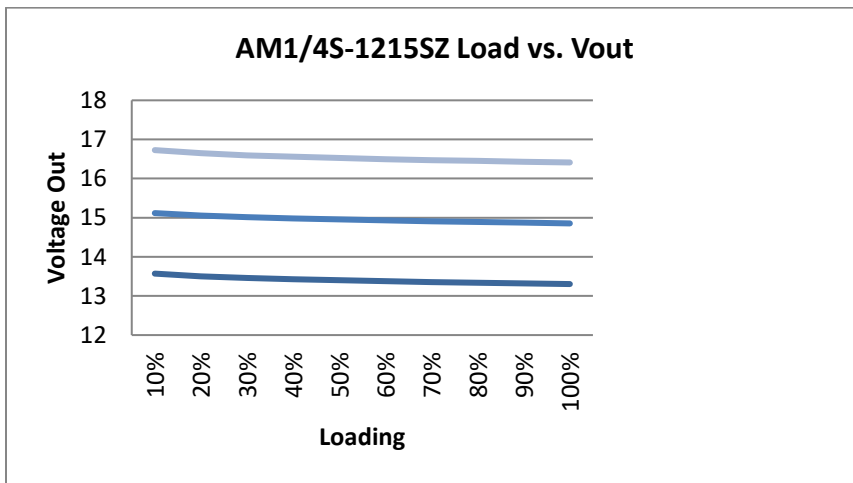
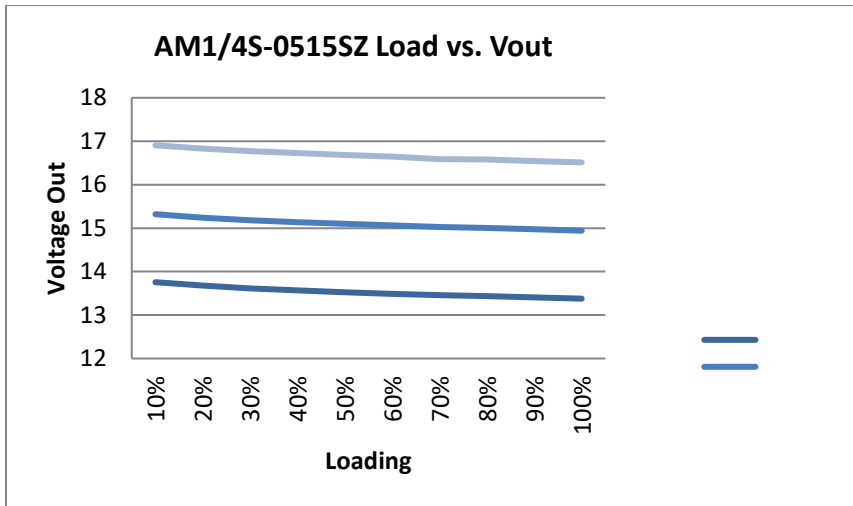
### EMI Filter Circuit Example

Vin	C1	L1	C2	C3
3.3V	2.2 $\mu$ F / 100V	18 $\mu$ H		
5 V	2.2 $\mu$ F / 100V	18 $\mu$ H		
12 V	2.2 $\mu$ F / 100V	18 $\mu$ H		
15 V	2.2 $\mu$ F / 100V	18 $\mu$ H		
24 V	2.2 $\mu$ F / 100V	18 $\mu$ H	2.2 $\mu$ F / 100V	470 pF / 2kV
48 V	*2.2 $\mu$ F / 100V	18 $\mu$ H	2.2 $\mu$ F / 100V	470 pF / 2kV

\* Electrolytic type



### Typical Performance Examples



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