AM1SS-EZ

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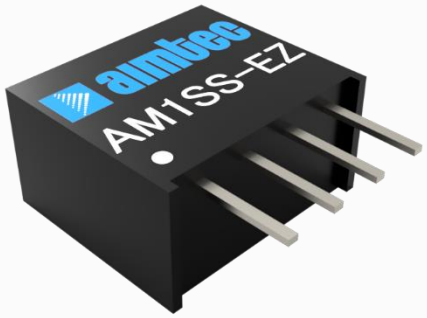


SIP4 Package

The AM1SS-EZ is a 1W SIP4 DC/DC converter that offers great cost savings thanks to an improved manufacturing process. It also features excellent reliability and performance while offering a standard input voltage range of 3.3-24VDC as well as an output voltage of 3.3-24V. This compact SIP4 design will surely benefit your new system design.

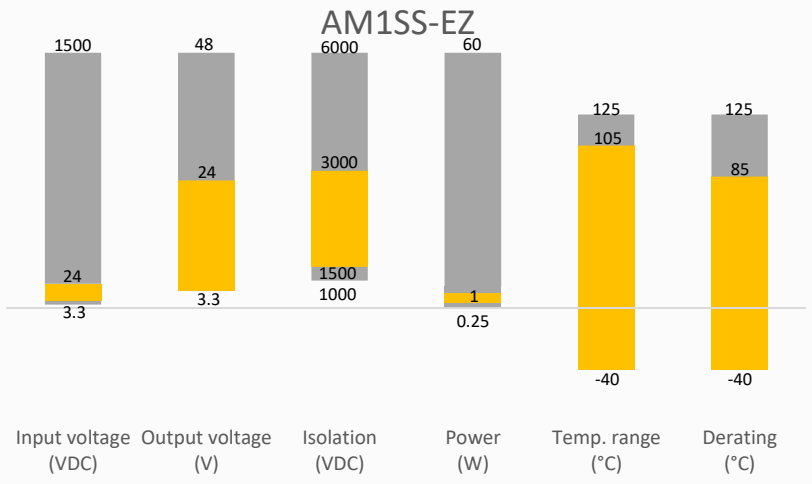
This new series offers great operating temperatures, from -40 to 105°C with full power up to 85°C. Also, an isolation of 1500VDC or 3000VDC for improved reliability and system safety as well as a great 3,500,000h MTBF come standard.

The AM1SS-EZ is suitable for instrumentation, industrial controls, industrial applications, communication and IoT applications.

Features

- High I/O Isolation of 1500VDC or 3000VDC
- Continuous Short circuit protection
- Operating Temp: -40 °C to +105 °C
- Industry standard SIP4 pin-out
- Efficiency up to 87%
- Unregulated output
- Certifed: UL/cUL/IEC/EN 62368-1
- Made in Taiwan

Summary



Training



Product Training Video (click to open)

Press Release

Coming Soon!

Application Notes

Applications

IoT | Industrial | Telecom | Portable Equipment

Models & Specifications

Single Output						
Model	Input Voltage (VDC)	Output Voltage (VDC)	Output Current max (mA)	Isolation (VDC)	Maximum capacitive Load (µF)	Efficiency Typ. (%)
AM1SS-0303SEZ	3.3 (2.97-3.63)	3.3	303	1500	2400	76
AM1SS-0305SEZ	3.3 (2.97-3.63)	5	200	1500	2400	82
AM1SS-0309SEZ	3.3 (2.97-3.63)	9	112	1500	1000	83
AM1SS-0312SEZ	3.3 (2.97-3.63)	12	84	1500	470	84
AM1SS-0315SEZ	3.3 (2.97-3.63)	15	67	1500	330	84
AM1SS-0324SEZ	3.3 (2.97-3.63)	24	42	1500	100	85
AM1SS-0503SEZ	5 (4.5-5.5)	3.3	303	1500	2400	76
AM1SS-0505SEZ	5 (4.5-5.5)	5	200	1500	2400	82
AM1SS-0509SEZ	5 (4.5-5.5)	9	112	1500	1000	83
AM1SS-0512SEZ	5 (4.5-5.5)	12	84	1500	470	84
AM1SS-0515SEZ	5 (4.5-5.5)	15	67	1500	330	84
AM1SS-0524SEZ	5 (4.5-5.5)	24	42	1500	100	85
AM1SS-0903SEZ	9 (8.1-9.9)	3.3	303	1500	2400	76
AM1SS-0905SEZ	9 (8.1-9.9)	5	200	1500	2400	82
AM1SS-0909SEZ	9 (8.1-9.9)	9	112	1500	1000	83
AM1SS-0912SEZ	9 (8.1-9.9)	12	84	1500	470	84
AM1SS-0915SEZ	9 (8.1-9.9)	15	67	1500	330	84
AM1SS-0924SEZ	9 (8.1-9.9)	24	42	1500	100	85
AM1SS-1203SEZ	12 (9.6-14.4)	3.3	303	1500	2400	78
AM1SS-1205SEZ	12 (9.6-14.4)	5	200	1500	2400	82
AM1SS-1209SEZ	12 (9.6-14.4)	9	112	1500	1000	85
AM1SS-1212SEZ	12 (9.6-14.4)	12	84	1500	680	85
AM1SS-1215SEZ	12 (9.6-14.4)	15	67	1500	330	87
AM1SS-1224SEZ	12 (9.6-14.4)	24	42	1500	220	85
AM1SS-1503SEZ	15 (12-18)	3.3	303	1500	2400	78
AM1SS-1505SEZ	15 (12-18)	5	200	1500	2400	82
AM1SS-1509SEZ	15 (12-18)	9	112	1500	1000	85
AM1SS-1512SEZ	15 (12-18)	12	84	1500	680	85
AM1SS-1515SEZ	15 (12-18)	15	67	1500	330	87
AM1SS-1524SEZ	15 (12-18)	24	42	1500	220	85
AM1SS-2403SEZ	24 (19.2-28.8)	3.3	303	1500	2400	78
AM1SS-2405SEZ	24 (19.2-28.8)	5	200	1500	2400	82
AM1SS-2409SEZ	24 (19.2-28.8)	9	112	1500	1000	85
AM1SS-2412SEZ	24 (19.2-28.8)	12	84	1500	680	85
AM1SS-2415SEZ	24 (19.2-28.8)	15	67	1500	330	87
AM1SS-2424SEZ	24 (19.2-28.8)	24	42	1500	220	85
AM1SS-0303SH30EZ	3.3 (2.97-3.63)	3.3	303	3000	2400	76
AM1SS-0305SH30EZ	3.3 (2.97-3.63)	5	200	3000	2400	82
AM1SS-0309SH30EZ	3.3 (2.97-3.63)	9	112	3000	1000	83
AM1SS-0312SH30EZ	3.3 (2.97-3.63)	12	84	3000	470	84
AM1SS-0315SH30EZ	3.3 (2.97-3.63)	15	67	3000	330	84
AM1SS-0324SH30EZ	3.3 (2.97-3.63)	24	42	3000	100	85
AM1SS-0503SH30EZ	5 (4.5-5.5)	3.3	303	3000	2400	76
AM1SS-0505SH30EZ	5 (4.5-5.5)	5	200	3000	2400	82
AM1SS-0509SH30EZ	5 (4.5-5.5)	9	112	3000	1000	83

AM1SS-0512SH30EZ	5 (4.5-5.5)	12	84	3000	470	84
AM1SS-0515SH30EZ	5 (4.5-5.5)	15	67	3000	330	84
AM1SS-0524SH30EZ	5 (4.5-5.5)	24	42	3000	100	85
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AM1SS-1524SH30EZ	15 (12-18)	24	42	3000	220	85
AM1SS-2403SH30EZ	24 (19.2-28.8)	3.3	303	3000	2400	78
AM1SS-2405SH30EZ	24 (19.2-28.8)	5	200	3000	2400	82
AM1SS-2409SH30EZ	24 (19.2-28.8)	9	112	3000	1000	85
AM1SS-2412SH30EZ	24 (19.2-28.8)	12	84	3000	680	85
AM1SS-2415SH30EZ	24 (19.2-28.8)	15	67	3000	330	87
AM1SS-2424SH30EZ	24 (19.2-28.8)	24	42	3000	220	85

Input Specification

Parameters	Conditions	Typical	Maximum	Units
Filter	Capacitor			
Voltage rating	Vo, Io Nom @Vin: 3.3V,5V,9V	±10		VDC
	Vo, Io Nom @ Vin:12V,15V,24V	±20		VDC

Isolation Specification

Parameters	Conditions	Typical	Maximum	Units
Tested I/O voltage	60 sec, SEZ models	1500		VDC
	60 sec, SH30EZ models	3000		VDC
Resistance	500VDC	>1000		MΩ
Capacitance	100kHz/0.1V	20		pF

Output Specification

Parameters	Conditions	Typical	Maximum	Units
Voltage accuracy	100% full load		±5	%
Line regulation	Per 1% Vin change	1.2		%
Load regulation	10-100% load, 3.3Vout model	15	20	%
	10-100% load, 5Vout model	10	15	%
	10-100% load, 9Vout model	8	10	%
	10-100% load, 12Vout model	7	10	%

	10-100% load, 15Vout model	6	10	%
	10-100% load, 24Vout model	5	10	%
Ripple & Noise*	3.3V, 5V, 9V, 12V, 15Vout models	30	75	mV pk-pk
	24Vout model	50	100	mV pk-pk
* Ripple and Noise are measured at 20MHz bandwidth. Please refer to Typical test circuit.				

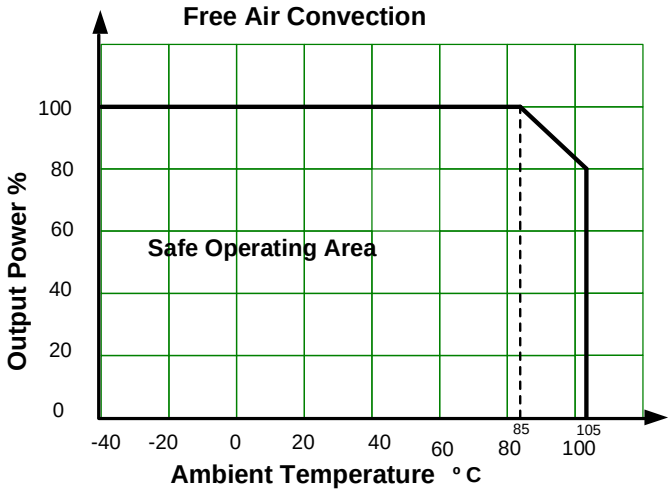
General Specifications

Parameters	Conditions	Typical	Maximum	Units
Switching frequency	Full load, nominal input, @3.3V 5V Vin models	215/370		KHz
	Full load, nominal input, other Vin models	250		KHz
Short circuit protection	Continuous			
Operating temperature	With derating	-40 to +105		°C
Storage temperature		-55 to +125		°C
Cooling	Free air convection			
Humidity	Non-condensing		95	% RH
Case material	DAP			
Weight		1.5		g
Dimensions (L x W x H)	0.45 x 0.24 x 0.39 inches (11.50 x 6.00 x 10 mm)			
MTBF	3 500 000 hrs (MIL-HDBK -217F, t=+25°C) / Full Load			
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.				

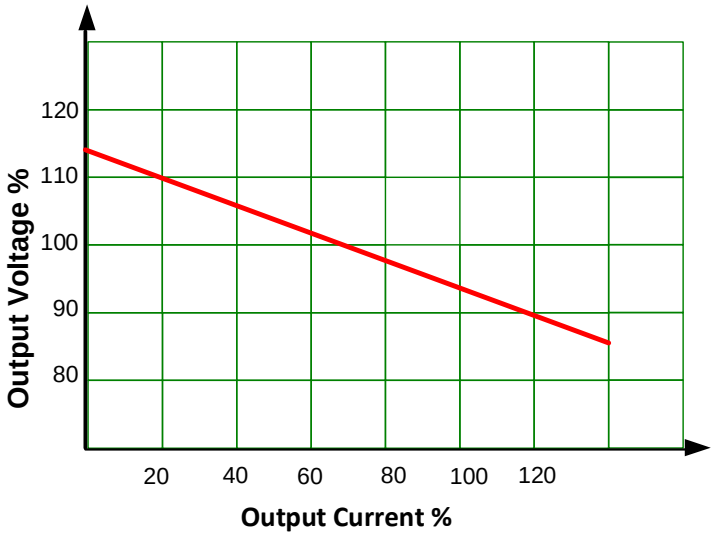
Safety Specifications

Parameters		
Agency approvals	UL/cUL/IEC/EN 62368-1	
Standards	EMC - Conducted and radiated emission	CISPR32 / EN55032, class B with the recommended EMI circuit
	Electrostatic Discharge Immunity	IEC 61000-4-2 Air ±8KV, Contact ±6KV, Criteria B

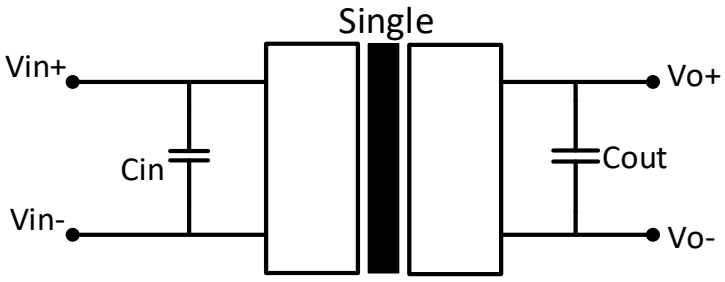
Derating



Tolerance Envelop Graph



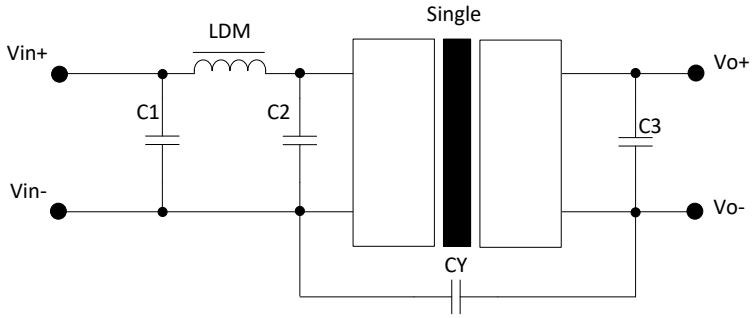
Typical test circuit



Vin	Cin
3.3VDC	4.7μF/25V
5VDC	4.7μF/25V
9VDC	4.7μF/25V
12VDC	2.2μF/25V
15VDC	2.2μF/25V
24VDC	1μF/50V

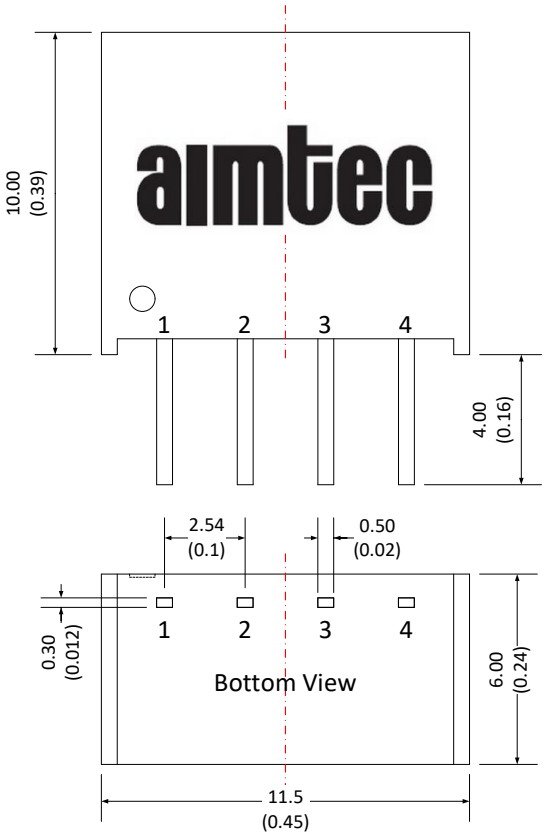
Vout	Cout
3.3VDC	10μF/16V
5VDC	10μF/16V
9VDC	2.2μF/16V
12VDC	2.2μF/25V
15VDC	1μF/25V
24VDC	1μF/50V

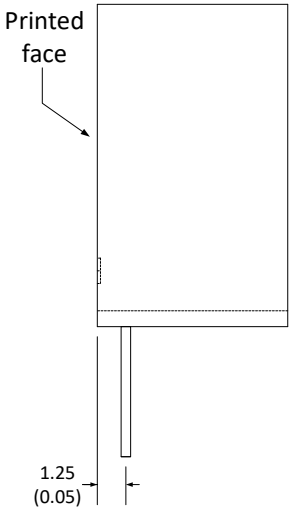
Recommended EMI circuit

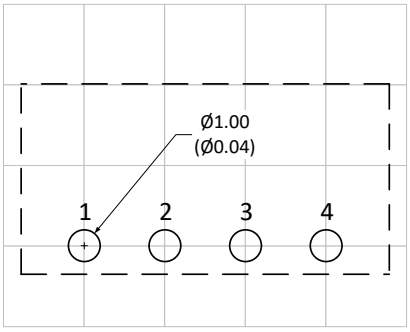


EMC recommended circuit value table	
C1	4.7μF/50V
C2	4.7μF/50V
C3	Refer Typical test circuit
LDM	6.8μH
CY	1nF/4kV

Dimensions







Grid size: 2.54*2.54mm

Note:
Unit: mm(inch)
General tolerance: ±0.25 (0.01)
Pin tolerance: ±0.1 (0.004)

Pin Out Specifications	
Pin	Single output
1	-V Input
2	+V Input
3	-V Output
4	+V Output

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