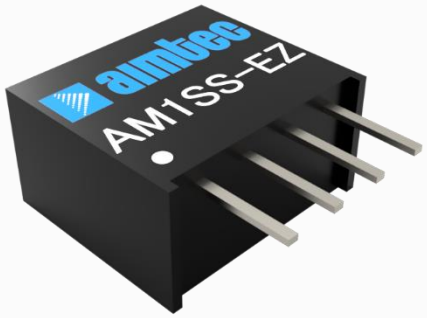
Click to ORDER samples

AM1SS-EZ



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.

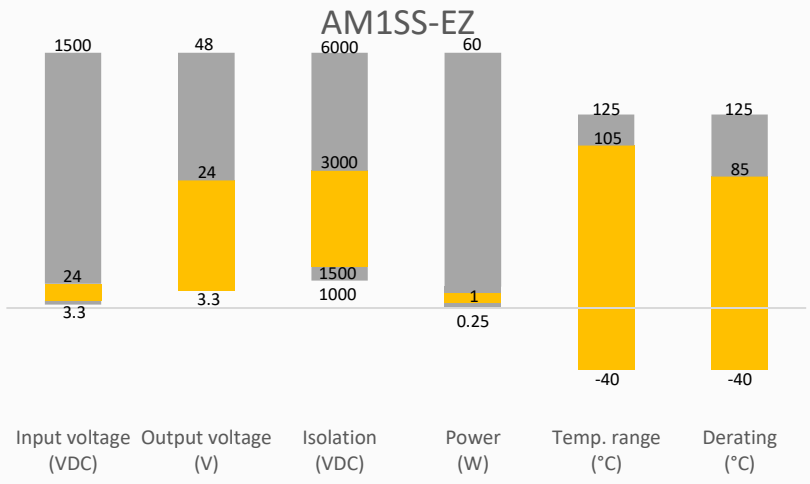
The AM1SS-EZ is suitable for instrumentation, industrial controls, industrial applications, communication and IoT applications.

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

RoHS · 3yr Warranty · CE · cULus

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
AM1SS-0903SH30EZ	9 (8.1-9.9)	3.3	303	3000	2400	76
AM1SS-0905SH30EZ	9 (8.1-9.9)	5	200	3000	2400	82
AM1SS-0909SH30EZ	9 (8.1-9.9)	9	112	3000	1000	83
AM1SS-0912SH30EZ	9 (8.1-9.9)	12	84	3000	470	84
AM1SS-0915SH30EZ	9 (8.1-9.9)	15	67	3000	330	84
AM1SS-0924SH30EZ	9 (8.1-9.9)	24	42	3000	100	85
AM1SS-1203SH30EZ	12 (9.6-14.4)	3.3	303	3000	2400	78
AM1SS-1205SH30EZ	12 (9.6-14.4)	5	200	3000	2400	82
AM1SS-1209SH30EZ	12 (9.6-14.4)	9	112	3000	1000	85
AM1SS-1212SH30EZ	12 (9.6-14.4)	12	84	3000	680	85
AM1SS-1215SH30EZ	12 (9.6-14.4)	15	67	3000	330	87
AM1SS-1224SH30EZ	12 (9.6-14.4)	24	42	3000	220	85
AM1SS-1503SH30EZ	15 (12-18)	3.3	303	3000	2400	78
AM1SS-1505SH30EZ	15 (12-18)	5	200	3000	2400	82
AM1SS-1509SH30EZ	15 (12-18)	9	112	3000	1000	85
AM1SS-1512SH30EZ	15 (12-18)	12	84	3000	680	85
AM1SS-1515SH30EZ	15 (12-18)	15	67	3000	330	87
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.				

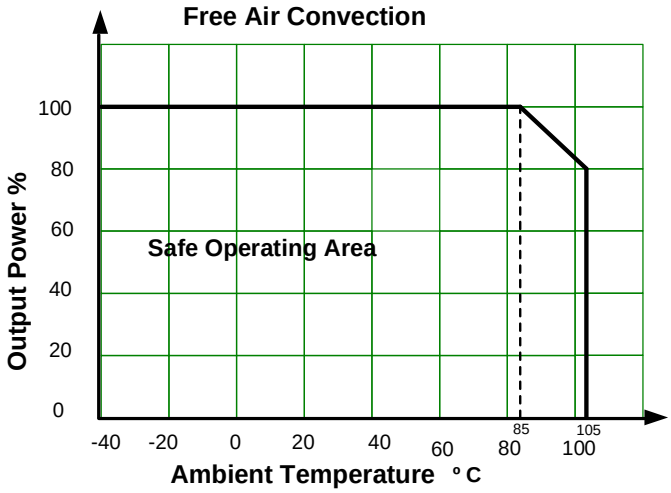
General Specifications

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.				

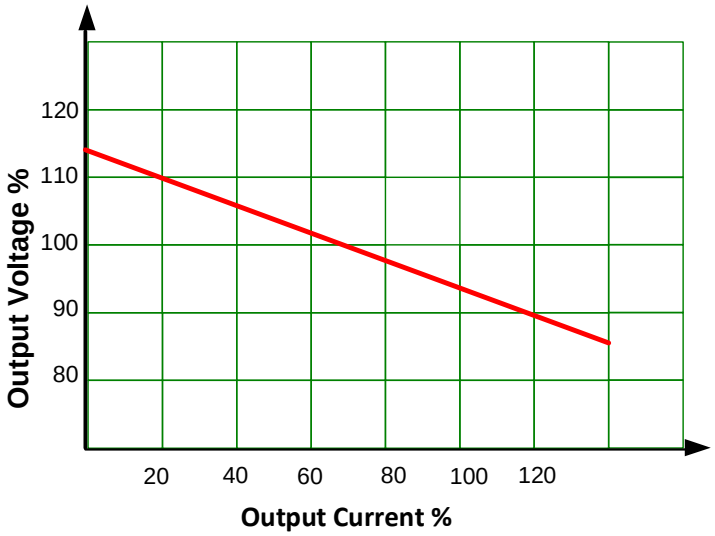
Safety Specifications

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

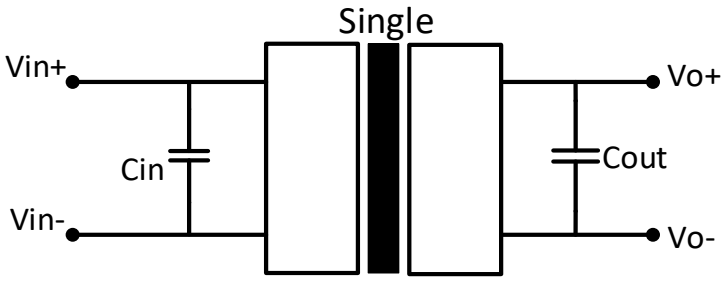
Derating



Tolerance Envelop Graph



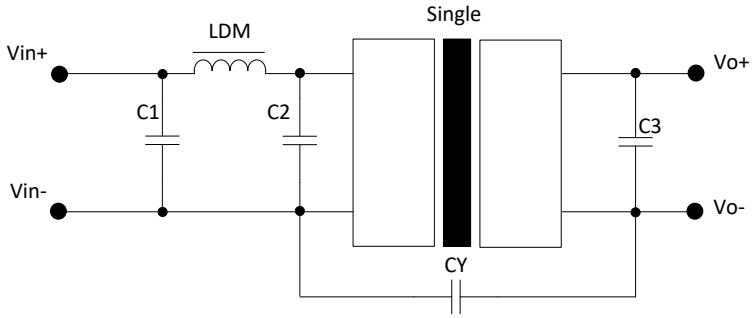
Typical test circuit



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

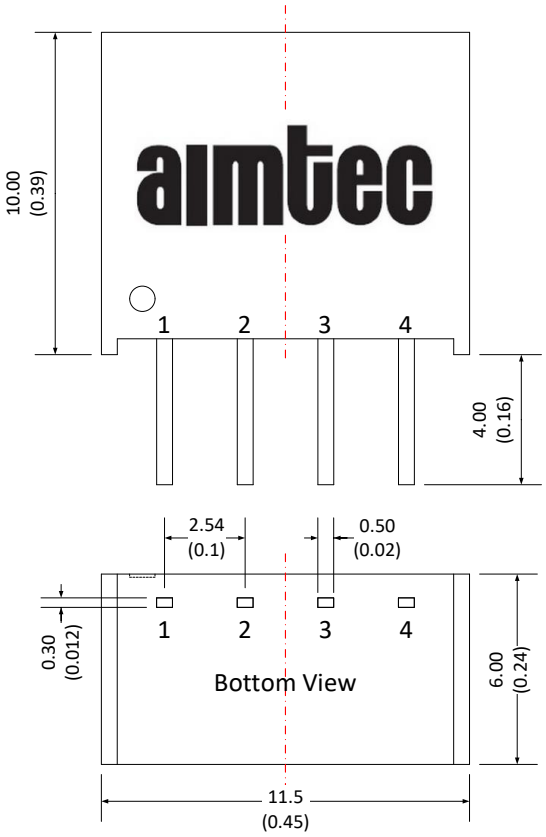
Vout	Cout
3.3VDC	10μF/16V
5VDC	10μF/16V
9VDC	2.2μF/16V
12VDC	2.2μF/25V
15VDC	1μF/25V
24VDC	1μF/50V

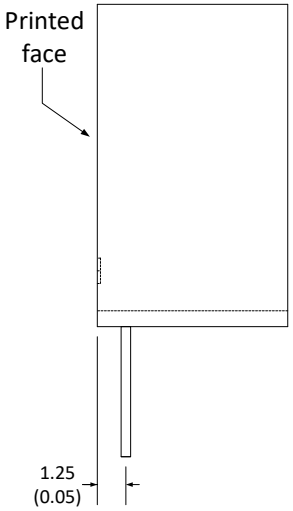
Recommended EMI circuit

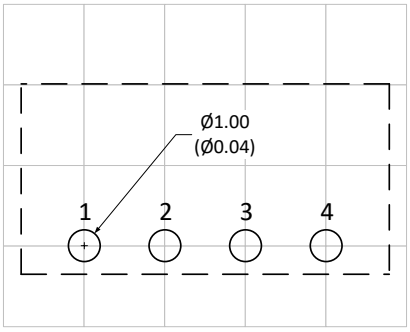


EMC recommended circuit value table	
C1	4.7μF/50V
C2	4.7μF/50V
C3	Refer Typical test circuit
LDM	6.8μH
CY	1nF/4kV

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

NOTE: 1. Datasheets are updated as needed and as such, specifications are subject to change without notice. Once printed or downloaded, datasheets are no longer controlled by Aimtec; refer to www.aimtec.com for the most current product specifications. **2.** Product labels shown, including safety agency certifications on labels, may vary based on the date manufactured. **3.** Mechanical drawings and specifications are for reference only. **4.** All specifications are measured at an ambient temperature of 25°C, humidity<75%, nominal input voltage and at rated output load unless otherwise specified. **5.** Aimtec may not have conducted destructive testing or chemical analysis on all internal components and chemicals at the time of publishing this document. CAS numbers and other limited information are considered proprietary and may not be available for release. **6.** This product is not designed for use in critical life support systems, equipment used in hazardous environments, nuclear control systems or other such applications which necessitate specific safety and regulatory standards other the ones listed in this datasheet. **7.** Warranty is in accordance with Aimtec's standard Terms of Sale available at www.aimtec.com.