aimtec
Your Power Partner

Series AM1DS-Z

1 Watt | DC-DC Converter



FEATURES:

- RoHS compliant
- High efficiency up to 76%
- Low profile plastic package
- 7 pin SIP package
- Operating temperature -40ºC to +85ºC
- Continuous Short circuit protection
- Pin compatible with multiple manufacturers
- Input / Output Isolation 1000 to 6000 VDC

RoHS

Models
Single output

Model	Input Voltage (V)	Output Voltage (V)	Output Current Max (mA)	Isolation (VDC)	Input Current Full Load | No Load (mA)		Max Capacitive Load (uF)	Efficiency %
AM1DS-0505SZ	4.5-5.5	5	200	1000	278	60	220	72
AM1DS-0512SZ	4.5-5.5	12	83.3	1000	274	53	220	73
AM1DS-0515SZ	4.5-5.5	15	66.7	1000	270	60	220	74
AM1DS-1205SZ	10.8-13.2	5	200	1000	113	20	220	74
AM1DS-1212SZ	10.8-13.2	12	83.3	1000	110	25	220	76
AM1DS-1215SZ	10.8-13.2	15	66.7	1000	111	30	220	75
AM1DS-2405SZ	21.6-26.4	5	200	1000	57	15	220	73
AM1DS-2412SZ	21.6-26.4	12	83.3	1000	62	15	220	67
AM1DS-2415SZ	21.6-26.4	15	66.7	1000	55	10	220	75
AM1DS-0505SH30Z	4.5-5.5	5	200	3000	278	60	220	72
AM1DS-0512SH30Z	4.5-5.5	12	83.3	3000	274	53	220	73
AM1DS-0515SH30Z	4.5-5.5	15	66.7	3000	270	60	220	74
AM1DS-1205SH30Z	10.8-13.2	5	200	3000	113	20	220	74
AM1DS-1212SH30Z	10.8-13.2	12	83.3	3000	110	25	220	76
AM1DS-1215SH30Z	10.8-13.2	15	66.7	3000	111	30	220	75
AM1DS-2405SH30Z	21.6-26.4	5	200	3000	57	15	220	73
AM1DS-2412SH30Z	21.6-26.4	12	83.3	3000	62	15	220	67
AM1DS-2415SH30Z	21.6-26.4	15	66.7	3000	55	10	220	75
AM1DS-0505SH40Z	4.5-5.5	5	200	4000	278	60	220	72
AM1DS-0512SH40Z	4.5-5.5	12	83.3	4000	274	53	220	73
AM1DS-0515SH40Z	4.5-5.5	15	66.7	4000	270	60	220	74
AM1DS-1205SH40Z	10.8-13.2	5	200	4000	113	20	220	74
AM1DS-1212SH40Z	10.8-13.2	12	83.3	4000	110	25	220	76
AM1DS-1215SH40Z	10.8-13.2	15	66.7	4000	111	30	220	75
AM1DS-2405SH40Z	21.6-26.4	5	200	4000	57	15	220	73
AM1DS-2412SH40Z	21.6-26.4	12	83.3	4000	62	15	220	67
AM1DS-2415SH40Z	21.6-26.4	15	66.7	4000	55	10	220	75
AM1DS-0505SH52Z	4.5-5.5	5	200	5200	278	60	220	72
AM1DS-0512SH52Z	4.5-5.5	12	83.3	5200	274	53	220	73
AM1DS-0515SH52Z	4.5-5.5	15	66.7	5200	270	60	220	74
AM1DS-1205SH52Z	10.8-13.2	5	200	5200	113	20	220	74
AM1DS-1212SH52Z	10.8-13.2	12	83.3	5200	110	25	220	76
AM1DS-1215SH52Z	10.8-13.2	15	66.7	5200	111	30	220	75
AM1DS-2405SH52Z	21.6-26.4	5	200	5200	57	15	220	73
AM1DS-2412SH52Z	21.6-26.4	12	83.3	5200	62	15	220	67
AM1DS-2415SH52Z	21.6-26.4	15	66.7	5200	55	10	220	75
AM1DS-0505SH60Z	4.5-5.5	5	200	6000	278	60	220	72
AM1DS-0512SH60Z	4.5-5.5	12	83.3	6000	274	53	220	73
AM1DS-0515SH60Z	4.5-5.5	15	66.7	6000	270	60	220	74
AM1DS-1205SH60Z	10.8-13.2	5	200	6000	113	20	220	74
AM1DS-1212SH60Z	10.8-13.2	12	83.3	6000	110	25	220	76
AM1DS-1215SH60Z	10.8-13.2	15	66.7	6000	111	30	220	75
AM1DS-2405SH60Z	21.6-26.4	5	200	6000	57	15	220	73
AM1DS-2412SH60Z	21.6-26.4	12	83.3	6000	62	15	220	67
AM1DS-2415SH60Z	21.6-26.4	15	66.7	6000	55	10	220	75

Models

Dual output

Model	Input Voltage (V)	Output Voltage (V)	Output Current Max (mA)	Isolation (VDC)	Input Current Full Load | No Load (mA)		Max Capacitive Load (uF)	Efficiency (%)
AM1DS-0505DZ	4.5-5.5	±5	±100	1000	308	55	±100	65
AM1DS-0512DZ	4.5-5.5	±12	±41.67	1000	281	60	±100	71
AM1DS-0515DZ	4.5-5.5	±15	±33.33	1000	281	60	±100	71
AM1DS-1205DZ	10.8-13.2	±5	±100	1000	114	30	±100	73
AM1DS-1212DZ	10.8-13.2	±12	±41.67	1000	109	20	±100	76
AM1DS-1215DZ	10.8-13.2	±15	±33.33	1000	109	30	±100	76
AM1DS-2405DZ	21.6-26.4	±5	±100	1000	59	13	±100	71
AM1DS-2412DZ	21.6-26.4	±12	±41.67	1000	58	17	±100	72
AM1DS-2415DZ	21.6-26.4	±15	±33.33	1000	54	10	±100	76
AM1DS-0505DH30Z	4.5-5.5	±5	±100	3000	308	55	±100	65
AM1DS-0512DH30Z	4.5-5.5	±12	±41.67	3000	281	60	±100	71
AM1DS-0515DH30Z	4.5-5.5	±15	±33.33	3000	281	60	±100	71
AM1DS-1205DH30Z	10.8-13.2	±5	±100	3000	114	30	±100	73
AM1DS-1212DH30Z	10.8-13.2	±12	±41.67	3000	109	20	±100	76
AM1DS-1215DH30Z	10.8-13.2	±15	±33.33	3000	109	30	±100	76
AM1DS-2405DH30Z	21.6-26.4	±5	±100	3000	59	13	±100	71
AM1DS-2412DH30Z	21.6-26.4	±12	±41.67	3000	58	17	±100	72
AM1DS-2415DH30Z	21.6-26.4	±15	±33.33	3000	54	10	±100	76
AM1DS-0505DH40Z	4.5-5.5	±5	±100	4000	308	55	±100	65
AM1DS-0512DH40Z	4.5-5.5	±12	±41.67	4000	281	60	±100	71
AM1DS-0515DH40Z	4.5-5.5	±15	±33.33	4000	281	60	±100	71
AM1DS-1205DH40Z	10.8-13.2	±5	±100	4000	114	30	±100	73
AM1DS-1212DH40Z	10.8-13.2	±12	±41.67	4000	109	20	±100	76
AM1DS-1215DH40Z	10.8-13.2	±15	±33.33	4000	109	30	±100	76
AM1DS-2405DH40Z	21.6-26.4	±5	±100	4000	59	13	±100	71
AM1DS-2412DH40Z	21.6-26.4	±12	±41.67	4000	58	17	±100	72
AM1DS-2415DH40Z	21.6-26.4	±15	±33.33	4000	54	10	±100	76
AM1DS-0505DH52Z	4.5-5.5	±5	±100	5200	308	55	±100	65
AM1DS-0512DH52Z	4.5-5.5	±12	±41.67	5200	281	60	±100	71
AM1DS-0515DH52Z	4.5-5.5	±15	±33.33	5200	281	60	±100	71
AM1DS-1205DH52Z	10.8-13.2	±5	±100	5200	114	30	±100	73
AM1DS-1212DH52Z	10.8-13.2	±12	±41.67	5200	109	20	±100	76
AM1DS-1215DH52Z	10.8-13.2	±15	±33.33	5200	109	30	±100	76
AM1DS-2405DH52Z	21.6-26.4	±5	±100	5200	59	13	±100	71
AM1DS-2412DH52Z	21.6-26.4	±12	±41.67	5200	58	17	±100	72
AM1DS-2415DH52Z	21.6-26.4	±15	±33.33	5200	54	10	±100	76
AM1DS-0505DH60Z	4.5-5.5	±5	±100	6000	308	55	±100	65
AM1DS-0512DH60Z	4.5-5.5	±12	±41.67	6000	281	60	±100	71
AM1DS-0515DH60Z	4.5-5.5	±15	±33.33	6000	281	60	±100	71
AM1DS-1205DH60Z	10.8-13.2	±5	±100	6000	114	30	±100	73
AM1DS-1212DH60Z	10.8-13.2	±12	±41.67	6000	109	20	±100	76
AM1DS-1215DH60Z	10.8-13.2	±15	±33.33	6000	109	30	±100	76
AM1DS-2405DH60Z	21.6-26.4	±5	±100	6000	59	13	±100	71
AM1DS-2412DH60Z	21.6-26.4	±12	±41.67	6000	58	17	±100	72
AM1DS-2415DH60Z	21.6-26.4	±15	±33.33	6000	54	10	±100	76

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.

Input Specifications

Parameters	Nominal	Typical	Maximum	Units
Voltage range	5	4.5-5.5		VDC
	12	10.8-13.2		
	24	21.6-26.4		
Filter		Capacitor		
Turn on Transient process time			25	ms
Start up time		200		ms
Absolute Maximum Rating	5 Vin	0-7		VDC
	12 Vin	0-15		
	24 Vin	0-28		
Peak Input Voltage time		100		ms
Input reflected Ripple current	With 12µH inductance	20		mA p-p

Isolation Specifications

Parameters	Conditions	Typical	Rated	Units
Tested I/O voltage	60 sec		1000, 3000, 4000, 5200 & 6000	VDC
Resistance		> 1000		MOhm
Capacitance		10		pF

Output Specifications

Parameters	Conditions	Typical	Maximum	Units
Voltage accuracy		±3		%
Voltage balance (Dual Output model)	Balanced Load	±1		%
Short Circuit protection		Continuous		
Short circuit restart		Auto-Recovery		
Line voltage regulation	For 1.0% of Vin	±1.2		%
Load voltage regulation	load 20~100%	±10		%
Temperature coefficient		±0.02		%/ºC
Ripple & Noise	At 20MHz Bandwidth	75		mV p-p
Rising time		50		ms

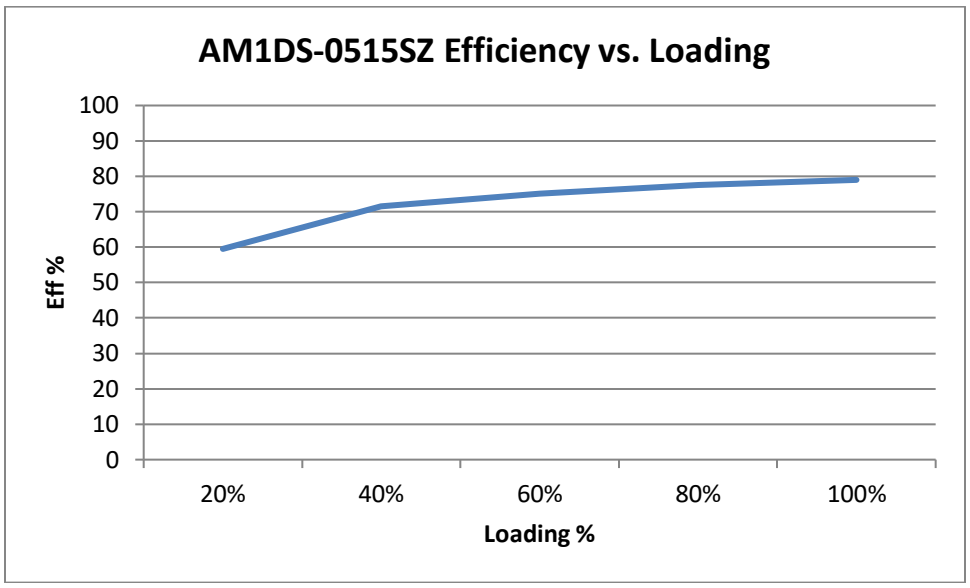
General Specifications

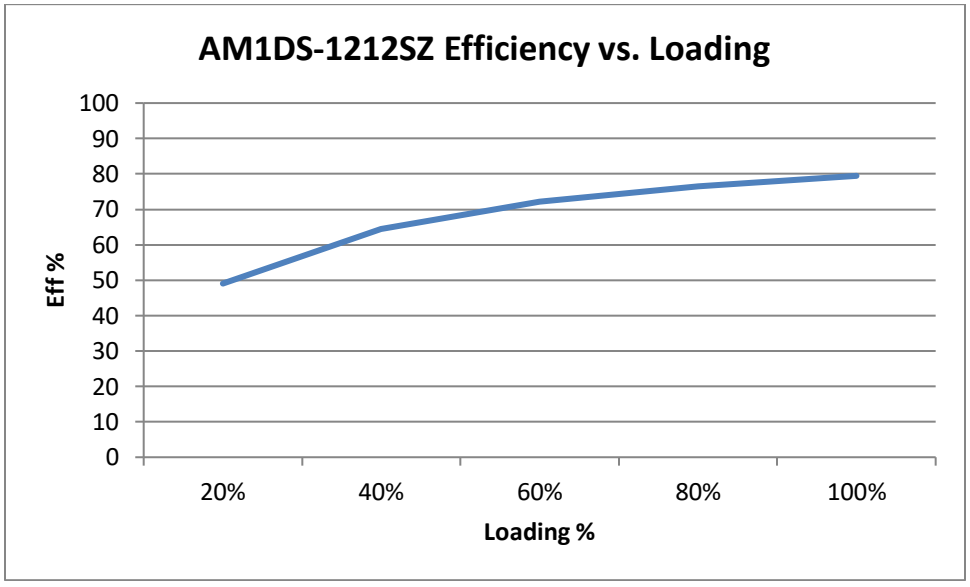
Parameters	Conditions	Typical	Maximum	Units
Switching frequency	100% load, variable	80		KHz
Operating temperature	Full load without derating	-40 to +85		ºC
Storage temperature		-40 to +125		ºC
Max Case temperature			+100	ºC
Cooling		Free air convection		
Humidity			95	%
Case material		Non-conductive black plastic UL 94 V-0		
Weight		2.3		g
Dimensions (L x W x H)		0.77 x 0.24 x 0.39 inch 19.50 x 6.00 x 10.00 mm		
MTBF		>1 121 000 hrs (MIL-HDBK -217F, Ground Benign, t=+25ºC)		

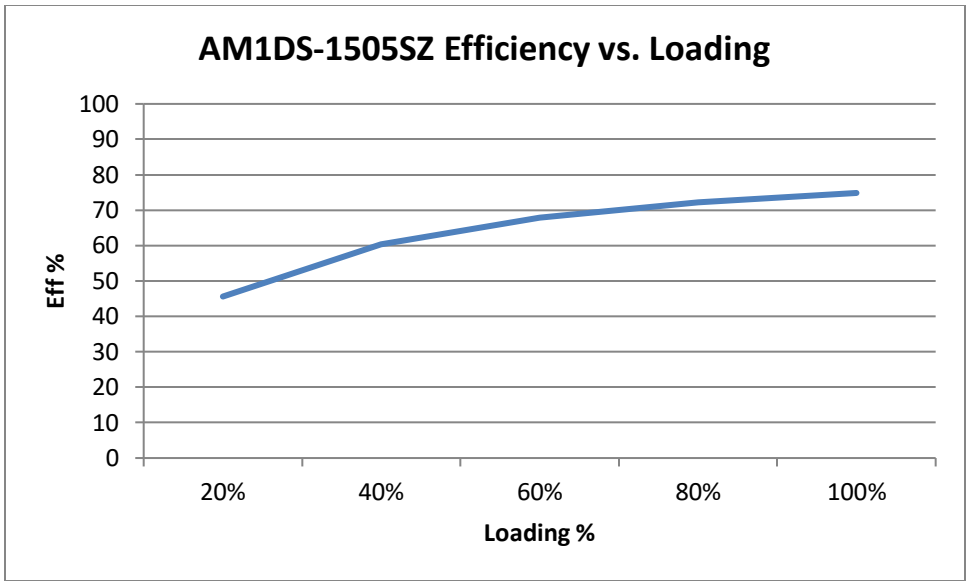
Safety Specifications

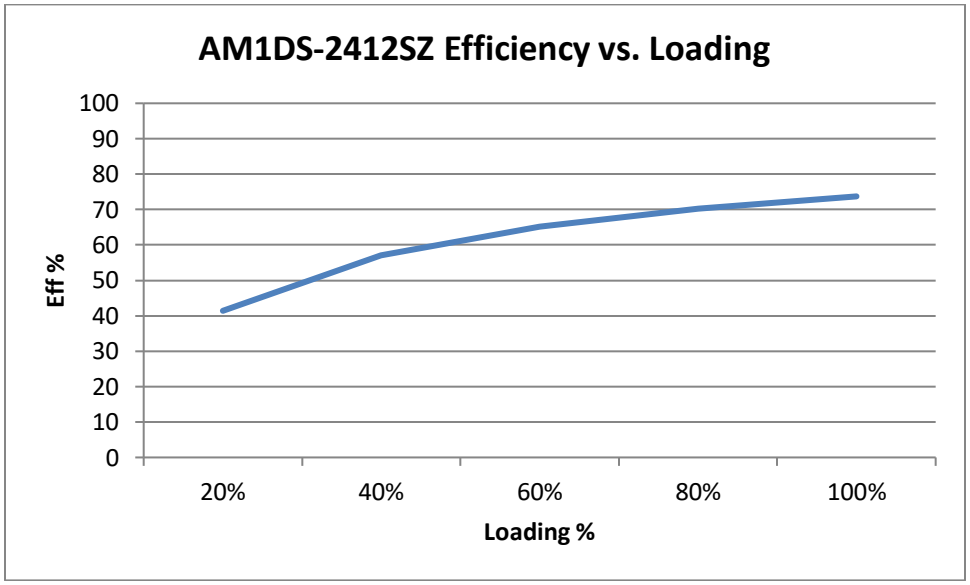
Parameters	
Safety	Designed to meet IEC 60950-1

Typical Efficiency Example Charts





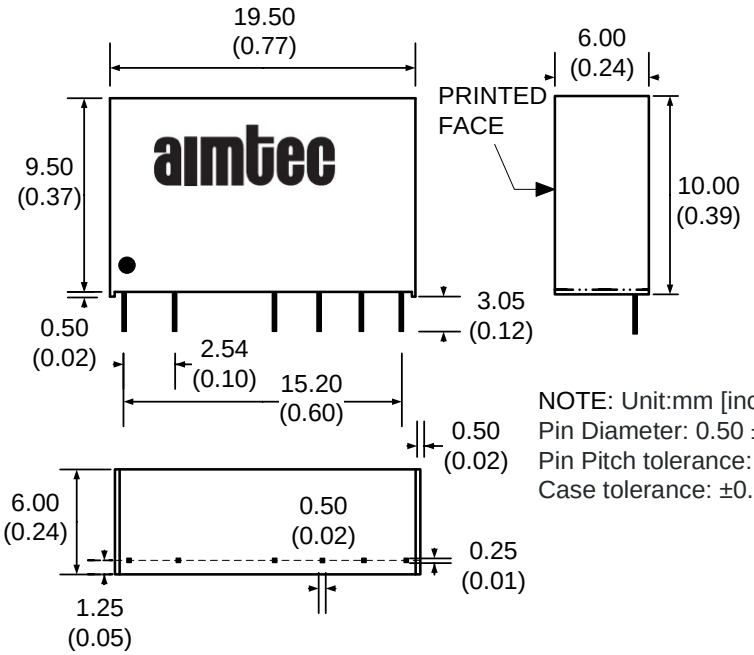

AM1DS-1505SZ Efficiency vs. Loading
100
90
80
70
60
50
40
30
20
10
0
Eff %
20%
40%
60%
80%
100%
Loading %


AM1DS-2412SZ Efficiency vs. Loading
100
90
80
70
60
50
40
30
20
10
0
Eff %
20%
40%
60%
80%
100%
Loading %

Pin Out Specifications

Pin	Single 1000 VDC	Dual 1000 VDC	Single 3000, 4000, 5200 & 6000 VDC	Dual 3000, 4000, 5200 & 6000 VDC
1	+ V Input	+ V Input	+ V Input	+ V Input
2	- V Input	- V Input	- V Input	- V Input
4	- V Output	- V Output	No pin	No pin
5	No pin	Common	- V Output	- V Output
6	+ V Output	+ V Output	No pin	Common
7	No pin	No pin	+ V Output	+ V Output

Dimensions:



NOTE: Unit:mm [inch]
Pin Diameter: 0.50 ± 0.05mm [0.02 ± 0.002 inch]
Pin Pitch tolerance: ±0.35mm [±0.014 inch]
Case tolerance: ±0.50mm [±0.02 inch]

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.