

# AM1D-0309DH60Z Datasheet

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DiGi Electronics Part Number	AM1D-0309DH60Z-DG
Manufacturer	<a href="#">aimtec</a>
Manufacturer Product Number	AM1D-0309DH60Z
Description	DC DC CONVERTER +/-9V 1W
Detailed Description	Isolated Module DC DC Converter 2 Output -9 ~ 9V - 9V 56mA, 56mA 2.97V - 3.63V Input

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## Purchase and inquiry

Manufacturer Product Number:

AM1D-0309DH60Z

Series:

AM1D-Z (1W)

Type:

Isolated Module

Voltage - Input (Min):

2.97V

Voltage - Output 1:

-9 ~ 9V

Voltage - Output 3:

-

Current - Output (Max):

56mA, 56mA

Voltage - Isolation:

6 kV

Features:

-

Efficiency:

75%

Package / Case:

7-SIP Module

Supplier Device Package:

-

Approval Agency:

CE, cULus, cURus

Manufacturer:

aimtec

Product Status:

Active

Number of Outputs:

2

Voltage - Input (Max):

3.63V

Voltage - Output 2:

-9V

Voltage - Output 4:

-

Power (Watts):

1 W

Applications:

ITE (Commercial)

Operating Temperature:

-40°C ~ 85°C

Mounting Type:

Through Hole

Size / Dimension:

0.76" L x 0.24" W x 0.39" H (19.5mm x 6.0mm x 10.0mm)

Control Features:

-

Base Product Number:

AM1D

## Environmental & Export classification

RoHS Status:

ROHS3 Compliant

ECCN:

EAR99

Moisture Sensitivity Level (MSL):

1 (Unlimited)

HTSUS:

8504.40.9580

**FEATURES:**

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



### 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 12 $\mu$ H 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		$\pm 3$		%
Voltage balance (Dual Output model)	Balanced Load	$\pm 1$		%
Short Circuit protection		Continuous		
Short circuit restart		Auto-Recovery		
Line voltage regulation	For 1.0% of Vin	$\pm 1.2$		%
Load voltage regulation	load 20~100%	$\pm 10$		%
Temperature coefficient		$\pm 0.02$		%/°C
Ripple & Noise	At 20MHz Bandwidth	75		mV p-p
Rising time		50		ms

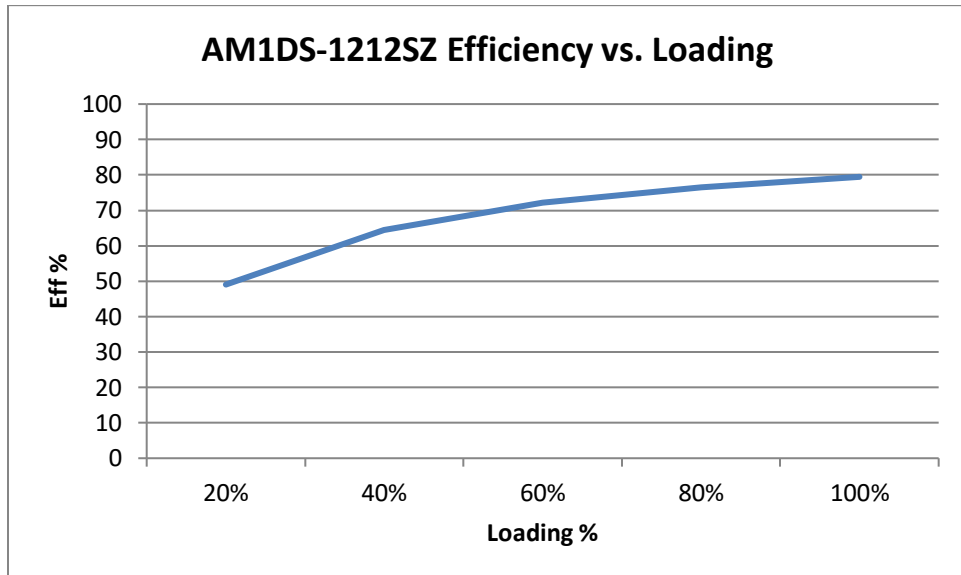
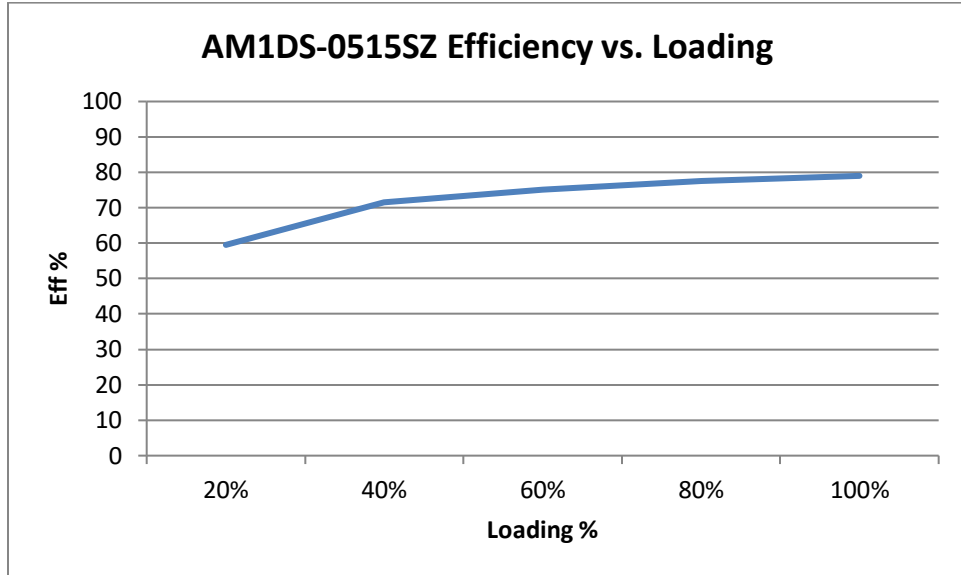
### General Specifications

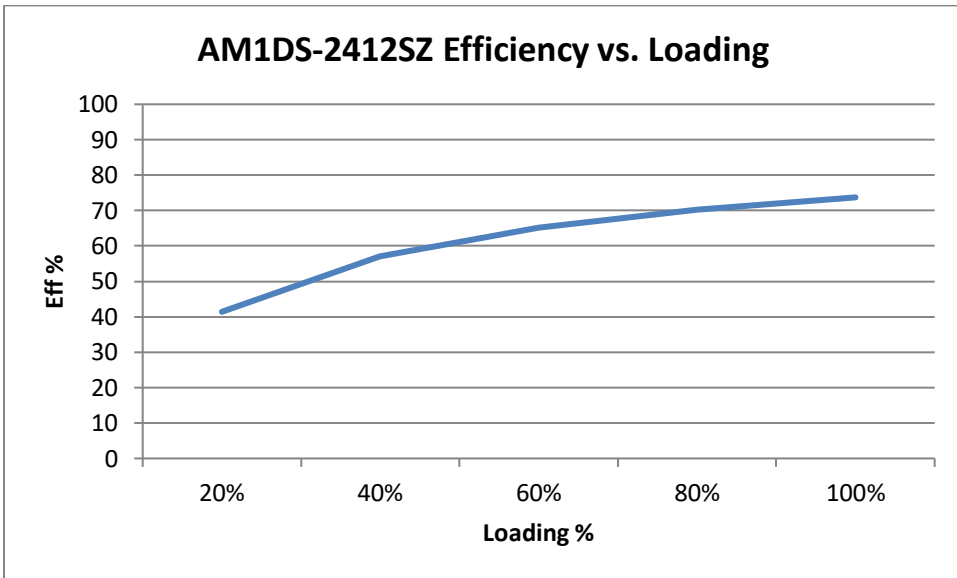
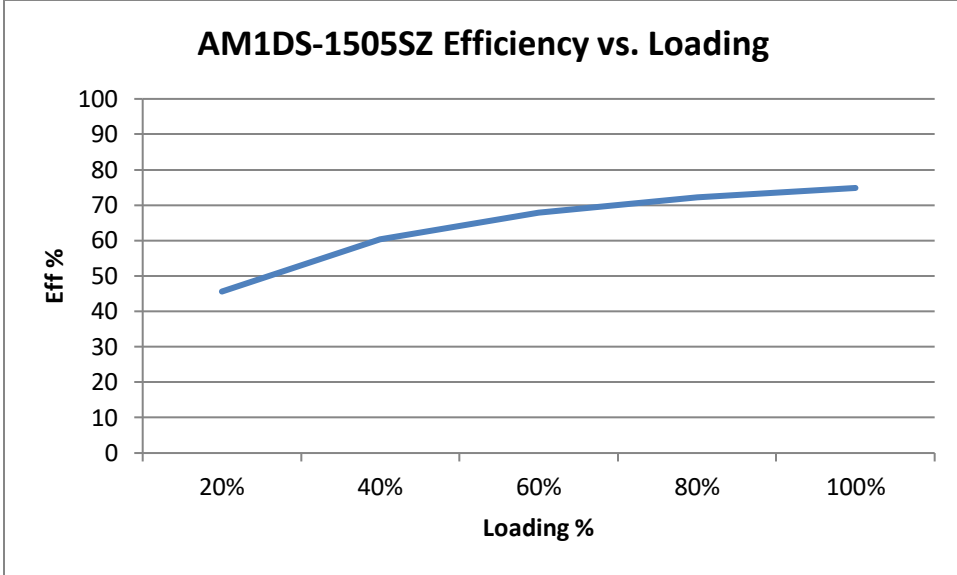
Parameters	Conditions	Typical	Maximum	Units
Switching frequency	100% load, variable	80		KHz
Operating temperature	Full load without derating	-40 to +85		°C
Storage temperature		-40 to +125		°C
Max Case temperature			+100	°C
Cooling		Free air convection		
Humidity			95	%
Case material		Non-conductive 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=+25°C)		

### Safety Specifications

Parameters	
Safety	Designed to meet IEC 60950-1

**Typical Efficiency Example Charts**

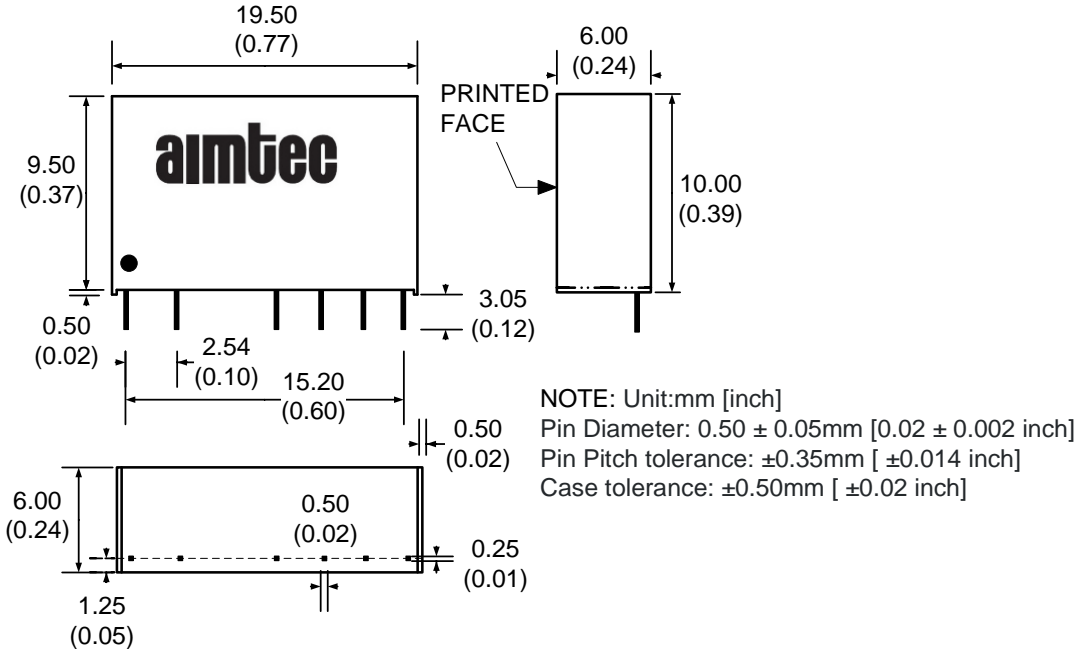




### Pin Out Specifications

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:



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