aimtec
Your Power Partner

Series AM1D-RZ
1 Watt | DC-DC Converter

FEATURES:

- RoHS compliant
- High efficiency up to 89%
- Low profile plastic package
- 7 pin SIP package
- Operating temperature -40°C to + 85°C
- Short circuit protection
- Pin compatible with multiple manufacturers
- Input / Output Isolation 1000 and 3000VDC

RoHS CE

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 %
AM1D-0505S-RZ	4.5-5.5	5	200	1000	230	20	220	84
AM1D-0509S-RZ	4.5-5.5	9	111	1000	230	30	220	86
AM1D-0512S-RZ	4.5-5.5	12	83	1000	228	20	100	87
AM1D-0515S-RZ	4.5-5.5	15	66	1000	228	20	100	87
AM1D-1205S-RZ	10.8-13.2	5	200	1000	98	15	220	84
AM1D-1209S-RZ	10.8-13.2	9	111	1000	95	15	220	86
AM1D-1212S-RZ	10.8-13.2	12	83	1000	94	15	100	88
AM1D-1215S-RZ	10.8-13.2	15	66	1000	94	15	100	88
AM1D-1505S-RZ	13.6-16.5	5	200	1000	78	10	220	84
AM1D-1509S-RZ	13.6-16.5	9	111	1000	76	10	220	86
AM1D-1512S-RZ	13.6-16.5	12	83	1000	76	10	100	87
AM1D-1515S-RZ	13.6-16.5	15	66	1000	75	10	100	89
AM1D-2405S-RZ	21.6-26.4	5	200	1000	51	7	220	83
AM1D-2409S-RZ	21.6-26.4	9	111	1000	49	7	220	86
AM1D-2412S-RZ	21.6-26.4	12	83	1000	48	7	100	87
AM1D-2415S-RZ	21.6-26.4	15	66	1000	48	7	100	87
AM1D-4805S-RZ	43.6-52.8	5	200	1000	27	5	220	79
AM1D-4809S-RZ	43.6-52.8	9	111	1000	26	5	220	82
AM1D-4812S-RZ	43.6-52.8	12	83	1000	26	5	100	82
AM1D-4815S-RZ	43.6-52.8	15	66	1000	26	5	100	81
AM1D-0505SH30-RZ	4.5-5.5	5	200	3000	230	20	220	84
AM1D-0509SH30-RZ	4.5-5.5	9	111	3000	230	30	220	86
AM1D-0512SH30-RZ	4.5-5.5	12	83	3000	228	20	100	87
AM1D-0515SH30-RZ	4.5-5.5	15	66	3000	228	20	100	87
AM1D-1205SH30-RZ	10.8-13.2	5	200	3000	98	15	220	84
AM1D-1209SH30-RZ	10.8-13.2	9	111	3000	95	15	220	86
AM1D-1212SH30-RZ	10.8-13.2	12	83	3000	94	15	100	88
AM1D-1215SH30-RZ	10.8-13.2	15	66	3000	94	15	100	88
AM1D-1505SH30-RZ	13.6-16.5	5	200	3000	78	10	220	84
AM1D-1509SH30-RZ	13.6-16.5	9	111	3000	76	10	220	86
AM1D-1512SH30-RZ	13.6-16.5	12	83	3000	76	10	100	87
AM1D-1515SH30-RZ	13.6-16.5	15	66	3000	75	10	100	89
AM1D-2405SH30-RZ	21.6-26.4	5	200	3000	51	7	220	83
AM1D-2409SH30-RZ	21.6-26.4	9	111	3000	49	7	220	86
AM1D-2412SH30-RZ	21.6-26.4	12	83	3000	48	7	100	87
AM1D-2415SH30-RZ	21.6-26.4	15	66	3000	48	7	100	87
AM1D-4805SH30-RZ	43.6-52.8	5	200	3000	27	5	220	79
AM1D-4809SH30-RZ	43.6-52.8	9	111	3000	26	5	220	82
AM1D-4812SH30-RZ	43.6-52.8	12	83	3000	26	5	100	82
AM1D-4815SH30-RZ	43.6-52.8	15	66	3000	26	5	100	81

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 (%)
AM1D-0505D-RZ	4.5-5.5	±5	±100	1000	230	20	±100	84
AM1D-0509D-RZ	4.5-5.5	±9	±55	1000	230	30	±100	86
AM1D-0512D-RZ	4.5-5.5	±12	±41	1000	228	20	±47	87
AM1D-0515D-RZ	4.5-5.5	±15	±33	1000	228	20	±47	88
AM1D-1205D-RZ	10.8-13.2	±5	±100	1000	98	15	±100	85
AM1D-1209D-RZ	10.8-13.2	±9	±55	1000	95	15	±100	86
AM1D-1212D-RZ	10.8-13.2	±12	±41	1000	94	15	±47	89
AM1D-1215D-RZ	10.8-13.2	±15	±33	1000	94	15	±47	89
AM1D-1505D-RZ	13.6-16.5	±5	±100	1000	78	10	±100	85
AM1D-1509D-RZ	13.6-16.5	±9	±55	1000	76	10	±100	87
AM1D-1512D-RZ	13.6-16.5	±12	±41	1000	76	10	±47	87
AM1D-1515D-RZ	13.6-16.5	±15	±33	1000	75	10	±47	89
AM1D-2405D-RZ	21.6-26.4	±5	±100	1000	51	7	±100	84
AM1D-2409D-RZ	21.6-26.4	±9	±55	1000	49	7	±100	87
AM1D-2412D-RZ	21.6-26.4	±12	±41	1000	48	7	±47	87
AM1D-2415D-RZ	21.6-26.4	±15	±33	1000	48	7	±47	87
AM1D-4805D-RZ	43.6-52.8	±5	±100	1000	27	5	±100	80
AM1D-4809D-RZ	43.6-52.8	±9	±55	1000	26	5	±100	82
AM1D-4812D-RZ	43.6-52.8	±12	±41	1000	26	5	±47	82
AM1D-4815D-RZ	43.6-52.8	±15	±33	1000	26	5	±47	82
AM1D-0505DH30-RZ	4.5-5.5	±5	±100	3000	230	20	±100	84
AM1D-0509DH30-RZ	4.5-5.5	±9	±55	3000	230	30	±100	86
AM1D-0512DH30-RZ	4.5-5.5	±12	±41	3000	228	20	±47	87
AM1D-0515DH30-RZ	4.5-5.5	±15	±33	3000	228	20	±47	88
AM1D-1205DH30-RZ	10.8-13.2	±5	±100	3000	98	15	±100	85
AM1D-1209DH30-RZ	10.8-13.2	±9	±55	3000	95	15	±100	86
AM1D-1212DH30-RZ	10.8-13.2	±12	±41	3000	94	15	±47	89
AM1D-1215DH30-RZ	10.8-13.2	±15	±33	3000	94	15	±47	89
AM1D-1505DH30-RZ	13.6-16.5	±5	±100	3000	78	10	±100	85
AM1D-1509DH30-RZ	13.6-16.5	±9	±55	3000	76	10	±100	87
AM1D-1512DH30-RZ	13.6-16.5	±12	±41	3000	76	10	±47	87
AM1D-1515DH30-RZ	13.6-16.5	±15	±33	3000	75	10	±47	89
AM1D-2405DH30-RZ	21.6-26.4	±5	±100	3000	51	7	±100	84
AM1D-2409DH30-RZ	21.6-26.4	±9	±55	3000	49	7	±100	87
AM1D-2412DH30-RZ	21.6-26.4	±12	±41	3000	48	7	±47	87
AM1D-2415DH30-RZ	21.6-26.4	±15	±33	3000	48	7	±47	87
AM1D-4805DH30-RZ	43.6-52.8	±5	±100	3000	27	5	±100	80
AM1D-4809DH30-RZ	43.6-52.8	±9	±55	3000	26	5	±100	82
AM1D-4812DH30-RZ	43.6-52.8	±12	±41	3000	26	5	±47	82
AM1D-4815DH30-RZ	43.6-52.8	±15	±33	3000	26	5	±47	82

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		
	15	13.6-16.5		
	24	21.6-26.4		
	48	43.6-52.8		
Filter	Capacitor			

Input Specifications (continued)

Parameters	Nominal	Typical	Maximum	Units
Voltage range	5	4.5-5.5		VDC
	12	10.8-13.2		
	15	13.6-16.5		
	24	21.6-26.4		
	48	43.6-52.8		
Filter		Capacitor		
Absolute Maximum Rating	5 Vin	9		VDC
	12 Vin	18		
	15 Vin	20		
	24 Vin	30		
	48 Vin	54		
Peak Input Voltage time		100		ms
Input Reflected Ripple Current	5 & 12Vin	20		mA p-p
	15 Vin	30		
	24Vin	40		
	48	50		

Isolation Specifications

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

Output Specifications

Parameters	Conditions	Typical	Maximum	Units
Voltage accuracy		±3		%
Voltage balance (Dual Output model)	Balanced Load	±1		%
Short Circuit protection		Momentary (1 sec)		
Line voltage regulation	For 1.0% of Vin	±1.2		%
Load voltage regulation	load 10~100%	±6		%
Temperature coefficient		±0.02		%/°C
Ripple & Noise	At 20MHz Bandwidth	50		mV p-p

General Specifications

Parameters	Conditions	Typical	Maximum	Units
Switching frequency	100% load	70		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 (UL94V-0 rated)		
Weight		2.3		g
Dimensions (L x W x H)		0.76 x 0.24 x 0.37 inch 19.50 x 6.00 x 9.50 mm		
MTBF		>2 000 000 hrs (MIL-HDBK -217F, Ground Benign, t=+25°C)		

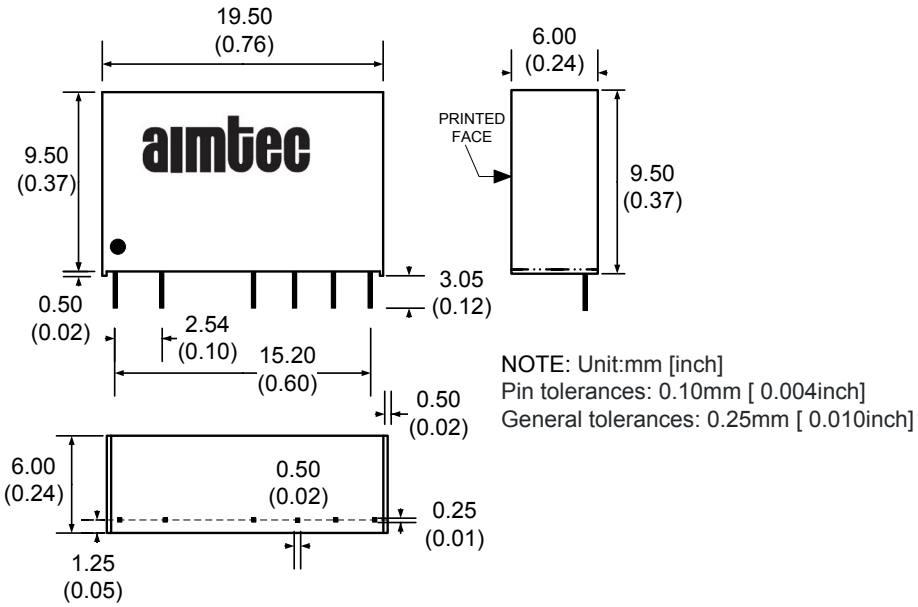
Safety Specifications

Parameters	
Agency Approval	CE
Standards	EN55022: 2006 + A1: 2007, Class B
	EN55024: 1998 + A1: 2001 + A2:2003
	IEC61000-4-2:2008
	IEC61000-4-3: 2006 + A1: 2007
	IEC61000-4-4, 2004
	IEC61000-4-6: 2008
	IEC61000-4-8: 1993 + A1:2000

Pin Out Specifications

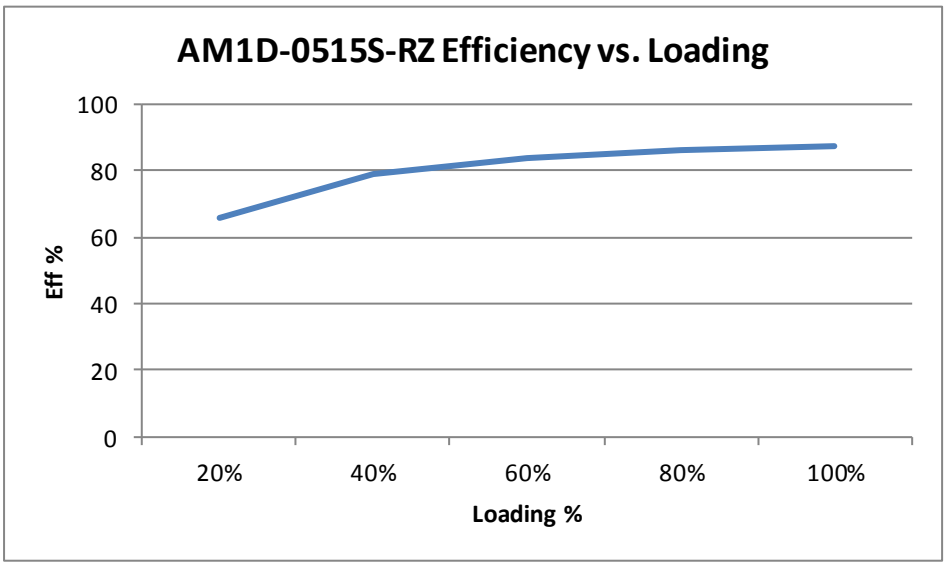
Pin	1000VDC		3000VDC	
	Single	Dual	Single	Dual
1	+ V Input	+ V Input	+ V Input	+ V Input
2	- V Input	- V Input	- V Input	- V Input
4	- V Output	- V Output	No pin	No pin
5	No pin	Common	- V Output	- V Output
6	+ V Output	+ V Output	No pin	Common
7	No pin	No pin	+ V Output	+ V Output

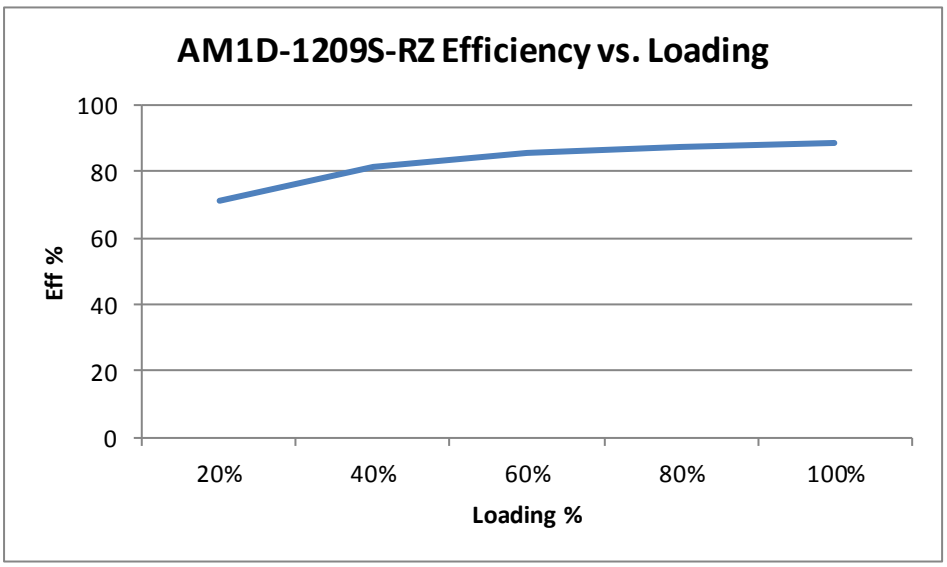
Dimensions:

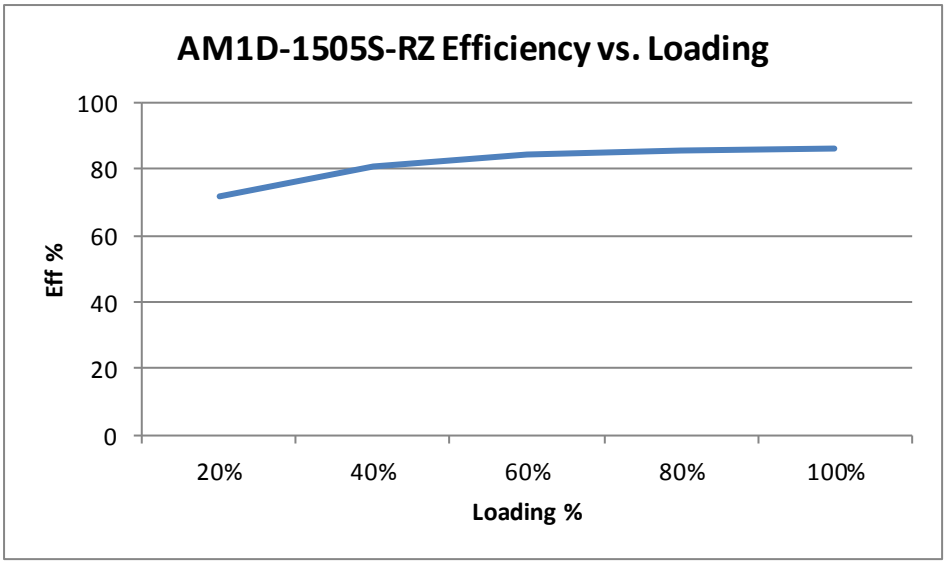


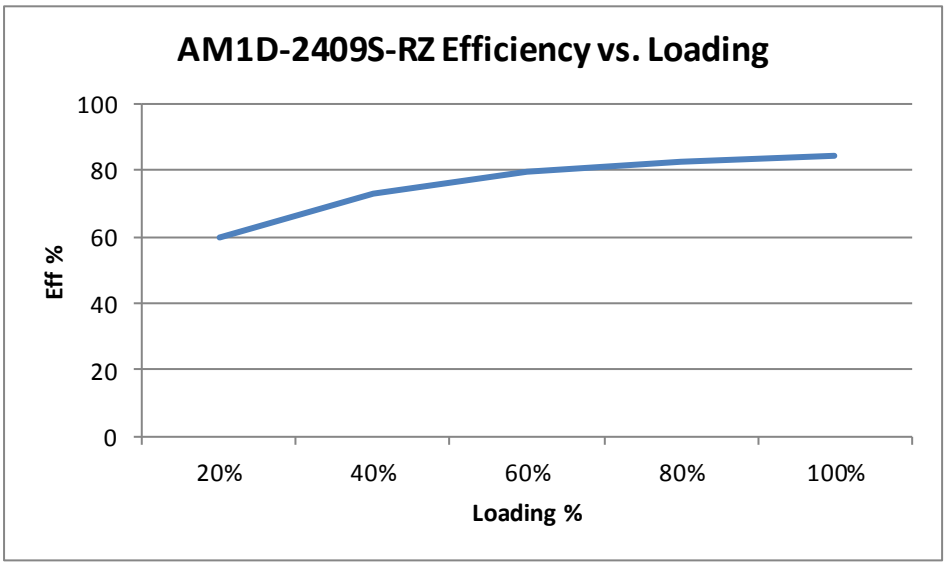
NOTE: Unit:mm [inch]
Pin tolerances: 0.10mm [0.004inch]
General tolerances: 0.25mm [0.010inch]

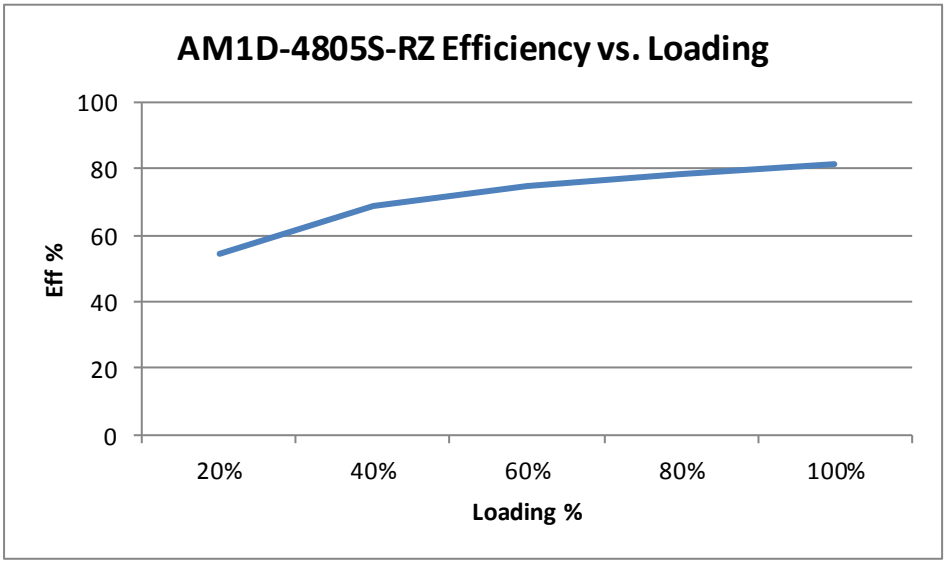
Typical Efficiency Chart Examples



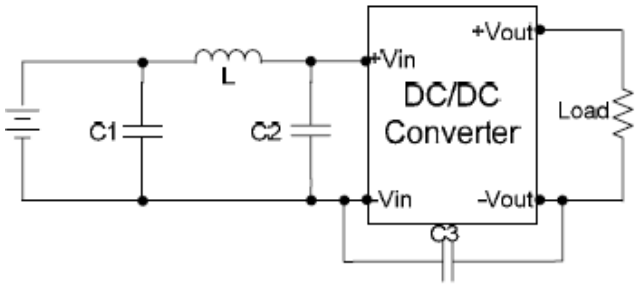



AM1D-1505S-RZ Efficiency vs. Loading
100
80
60
40
20
0
Eff %
20%
40%
60%
80%
100%
Loading %


AM1D-2409S-RZ Efficiency vs. Loading
100
80
60
40
20
0
Eff %
20%
40%
60%
80%
100%
Loading %

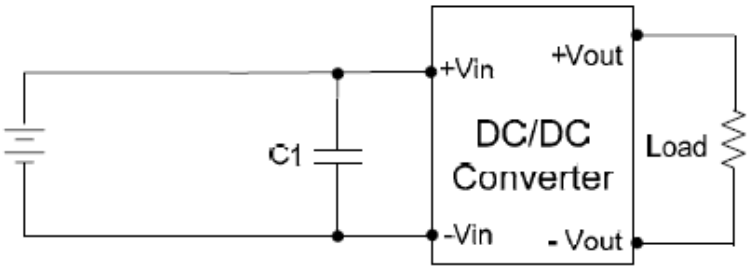

AM1D-4805S-RZ Efficiency vs. Loading
100
80
60
40
20
0
Eff %
20%
40%
60%
80%
100%
Loading %

Conducted Emissions



	C1	L	C2	C3
AMxD-05XXz-yZ	1210, 2.2uF/100V	18uH		
AMxD-12XXz-yZ	1210, 2.2uF/100V	18uH		
AMxD-15XXz-yZ	1210, 2.2uF/100V	18uH		
AMxD-24XXz-yZ	1210, 2.2uF/100V	18uH	1210, 2.2uF/100V	1206, 470pF/2KV
AMxD-48XXz-yZ	1210, 2.2uF/100V	18uH	1210, 2.2uF/100V	1206, 470pF/2KV

EFT



	C1
AMxD-05XXz-yZ	220uF,100V
AMxD-12XXz-yZ	
AMxD-15XXz-yZ	
AMxD-24XXz-yZ	
AMxD-48XXz-yZ	

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