

Series AM2D-RZ

2 Watt | DC-DC Converter



FEATURES:

- RoHS Compliant
- High Efficiency up to 89%
- Low Ripple and Noise
- 7 pin SIP Package
- Operating Temperature -40°C to +85°C
- Pin Compatible with Multiple Manufacturers
- Input / Output Isolation 1000, 3000 VDC
- Non-Conductive Plastic Case

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 (%)
AM2D-0505S-RZ	4.5-5.5	5	400	1000	494	50	220	81
AM2D-0509S-RZ	4.5-5.5	9	222	1000	471	50	220	85
AM2D-0512S-RZ	4.5-5.5	12	167	1000	471	50	100	85
AM2D-0515S-RZ	4.5-5.5	15	134	1000	465	50	100	86
AM2D-1205S-RZ	10.8-13.2	5	400	1000	198	40	220	84
AM2D-1209S-RZ	10.8-13.2	9	222	1000	194	40	220	86
AM2D-1212S-RZ	10.8-13.2	12	167	1000	189	40	100	88
AM2D-1215S-RZ	10.8-13.2	15	134	1000	189	40	100	88
AM2D-1505S-RZ	13.5-16.5	5	400	1000	157	30	220	85
AM2D-1509S-RZ	13.5-16.5	9	222	1000	153	30	220	87
AM2D-1512S-RZ	13.5-16.5	12	167	1000	153	30	100	87
AM2D-1515S-RZ	13.5-16.5	15	134	1000	152	30	100	88
AM2D-2405S-RZ	21.6-26.4	5	400	1000	102	20	220	82
AM2D-2409S-RZ	21.6-26.4	9	222	1000	99	20	220	84
AM2D-2412S-RZ	21.6-26.4	12	167	1000	97	20	100	86
AM2D-2415S-RZ	21.6-26.4	15	134	1000	96	20	100	87
AM2D-4805S-RZ	43.2-52.8	5	400	1000	51	10	220	82
AM2D-4809S-RZ	43.2-52.8	9	222	1000	50	10	220	84
AM2D-4812S-RZ	43.2-52.8	12	167	1000	48	10	100	86
AM2D-4815S-RZ	43.2-52.8	15	134	1000	47	10	100	87
AM2D-0505SH30-RZ	4.5-5.5	5	400	3000	494	50	220	81
AM2D-0509SH30-RZ	4.5-5.5	9	222	3000	471	50	220	85
AM2D-0512SH30-RZ	4.5-5.5	12	167	3000	471	50	100	85
AM2D-0515SH30-RZ	4.5-5.5	15	134	3000	465	50	100	86
AM2D-1205SH30-RZ	10.8-13.2	5	400	3000	198	40	220	84
AM2D-1209SH30-RZ	10.8-13.2	9	222	3000	194	40	220	86
AM2D-1212SH30-RZ	10.8-13.2	12	167	3000	189	40	100	88
AM2D-1215SH30-RZ	10.8-13.2	15	134	3000	189	40	100	88
AM2D-1505SH30-RZ	13.5-16.5	5	400	3000	157	30	220	85
AM2D-1509SH30-RZ	13.5-16.5	9	222	3000	153	30	220	87
AM2D-1512SH30-RZ	13.5-16.5	12	167	3000	153	30	100	87
AM2D-1515SH30-RZ	13.5-16.5	15	134	3000	152	30	100	88
AM2D-2405SH30-RZ	21.6-26.4	5	400	3000	102	20	220	82
AM2D-2409SH30-RZ	21.6-26.4	9	222	3000	99	20	220	84
AM2D-2412SH30-RZ	21.6-26.4	12	167	3000	97	20	100	86
AM2D-2415SH30-RZ	21.6-26.4	15	134	3000	96	20	100	87
AM2D-4805SH30-RZ	43.2-52.8	5	400	3000	51	10	220	82
AM2D-4809SH30-RZ	43.2-52.8	9	222	3000	50	10	220	84
AM2D-4812SH30-RZ	43.2-52.8	12	167	3000	48	10	100	86
AM2D-4815SH30-RZ	43.2-52.8	15	134	3000	47	10	100	87

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 (%)
AM2D-0505D-RZ	4.5-5.5	±5	±200	1000	494	50	±100	82
AM2D-0509D-RZ	4.5-5.5	±9	±111	1000	471	50	±100	85
AM2D-0512D-RZ	4.5-5.5	±12	±83	1000	471	50	±47	86
AM2D-0515D-RZ	4.5-5.5	±15	±67	1000	465	50	±47	87
AM2D-1205D-RZ	10.8-13.2	±5	±200	1000	198	40	±100	84
AM2D-1209D-RZ	10.8-13.2	±9	±111	1000	194	40	±100	88
AM2D-1212D-RZ	10.8-13.2	±12	±83	1000	189	40	±47	89
AM2D-1215D-RZ	10.8-13.2	±15	±67	1000	189	40	±47	89
AM2D-1505D-RZ	13.5-16.5	±5	±200	1000	157	30	±100	85
AM2D-1509D-RZ	13.5-16.5	±9	±111	1000	153	30	±100	88
AM2D-1512D-RZ	13.5-16.5	±12	±83	1000	153	30	±47	88
AM2D-1515D-RZ	13.5-16.5	±15	±67	1000	152	30	±47	88
AM2D-2405D-RZ	21.6-26.4	±5	±200	1000	102	20	±100	82
AM2D-2409D-RZ	21.6-26.4	±9	±111	1000	99	20	±100	85
AM2D-2412D-RZ	21.6-26.4	±12	±83	1000	97	20	±47	86
AM2D-2415D-RZ	21.6-26.4	±15	±67	1000	96	20	±47	87
AM2D-4805D-RZ	43.2-52.8	±5	400	1000	51	10	±100	82
AM2D-4809D-RZ	43.2-52.8	±9	222	1000	50	10	±100	84
AM2D-4812D-RZ	43.2-52.8	±12	167	1000	48	10	±47	86
AM2D-4815D-RZ	43.2-52.8	±15	134	1000	47	10	±47	87
AM2D-0505DH30-RZ	4.5-5.5	±5	±200	3000	494	50	±100	82
AM2D-0509DH30-RZ	4.5-5.5	±9	±111	3000	471	50	±100	85
AM2D-0512DH30-RZ	4.5-5.5	±12	±83	3000	471	50	±47	86
AM2D-0515DH30-RZ	4.5-5.5	±15	±67	3000	465	50	±47	87
AM2D-1205DH30-RZ	10.8-13.2	±5	±200	3000	198	40	±100	84
AM2D-1209DH30-RZ	10.8-13.2	±9	±111	3000	194	40	±100	88
AM2D-1212DH30-RZ	10.8-13.2	±12	±83	3000	189	40	±47	89
AM2D-1215DH30-RZ	10.8-13.2	±15	±67	3000	189	40	±47	89
AM2D-1505DH30-RZ	13.5-16.5	±5	±200	3000	157	30	±100	85
AM2D-1509DH30-RZ	13.5-16.5	±9	±111	3000	153	30	±100	88
AM2D-1512DH30-RZ	13.5-16.5	±12	±83	3000	153	30	±47	88
AM2D-1515DH30-RZ	13.5-16.5	±15	±67	3000	152	30	±47	88
AM2D-2405DH30-RZ	21.6-26.4	±5	±200	3000	102	20	±100	82
AM2D-2409DH30-RZ	21.6-26.4	±9	±111	3000	99	20	±100	85
AM2D-2412DH30-RZ	21.6-26.4	±12	±83	3000	97	20	±47	86
AM2D-2415DH30-RZ	21.6-26.4	±15	±67	3000	96	20	±47	87
AM2D-4805DH30-RZ	43.2-52.8	±5	400	3000	51	10	±100	82
AM2D-4809DH30-RZ	43.2-52.8	±9	222	3000	50	10	±100	84
AM2D-4812DH30-RZ	43.2-52.8	±12	167	3000	48	10	±47	86
AM2D-4815DH30-RZ	43.2-52.8	±15	134	3000	47	10	±47	87

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	13.5-16.5		
	24	21.6-26.4		
	48	43.2-52.8		
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
No Load Input Current		50		mA

Isolation Specifications

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

Output Specifications

Parameters	Conditions	Typical	Maximum	Units
Voltage accuracy		±3		%
Short Circuit protection		Momentary (1sec)		
Line voltage regulation	For 1.0% of Vin	1.2		% of Vin
Load voltage regulation	Load 10~100%	±5		%
Temperature coefficient		±0.02		%/°C
Ripple & Noise	20MHz Bandwidth	50		mVp-p
Minimum Load Current		10		% of Max

General Specifications

Parameters	Conditions	Typical	Maximum	Units
Switching frequency	100% load	70		KHz
Operating temperature		-40 to +85		°C
Storage temperature		-40 to +125		°C
Maximum case temperature			100	°C
Cooling		Free Air Convection		
Humidity			95	% RH
Case material		Plastic UL94V-0		
Weight		2.8		g
Dimensions (L x W x H)		0.76 x 0.28 x 0.39 inch	19.50 x 7.20 x 10.00 mm	
MTBF		>1.9 Mhrs (MIL-HDBK -217F, Ground Benign, t=+25°C)hours		
Maximum soldering temperature	1.5mm from case for 10 sec		260	°C

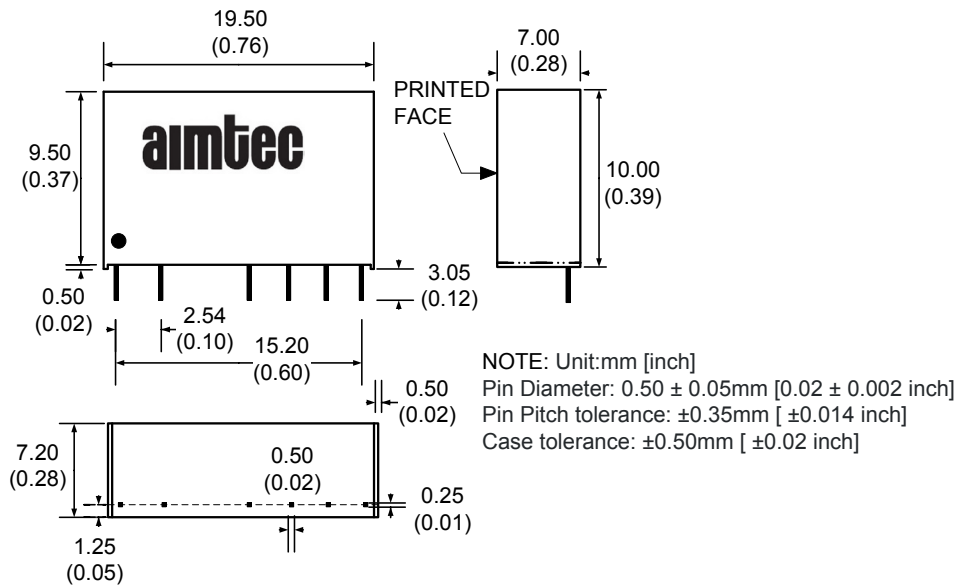
Safety Specifications

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

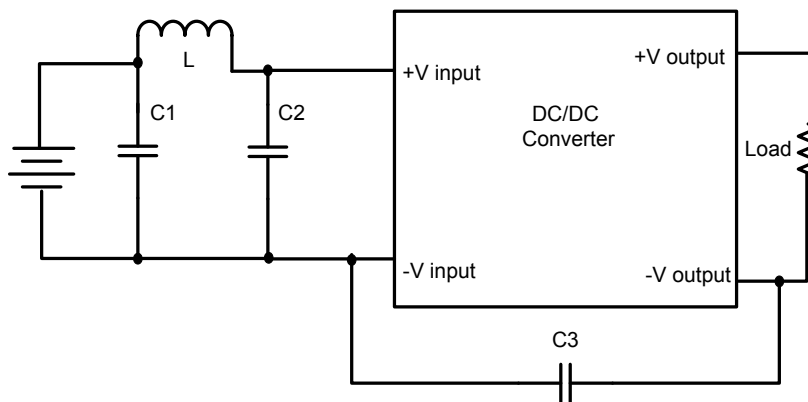
Pin Out Specifications

Pin	1000 VDC		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

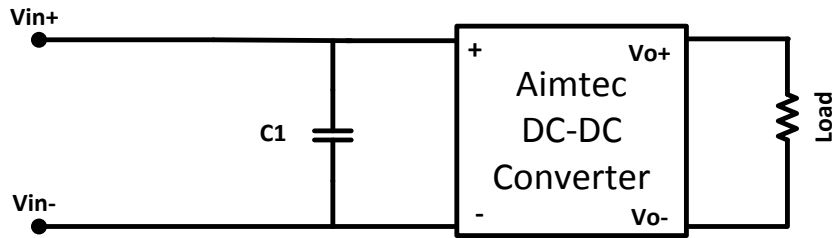


Application Circuit, & Conducted Emissions



Input Voltage (VDC)	C1	L	C2	C3
5	2.2uF/100V	18uH	N/A	N/A
12	2.2uF/100V	18uH	N/A	N/A
15	2.2uF/100V	18uH	N/A	N/A
24	2.2uF/100V	18uH	2.2uF/100V	470pF/2KV
48	2.2uF/100V	18uH	2.2uF/100V	470pF/2KV

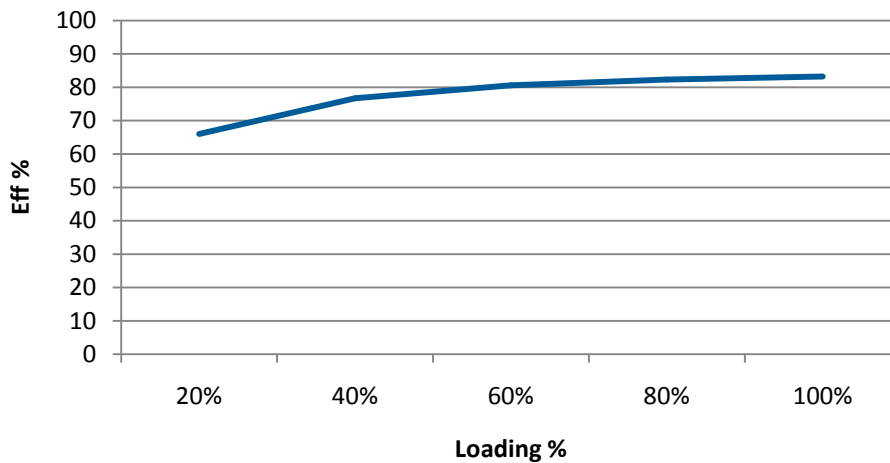
EFT



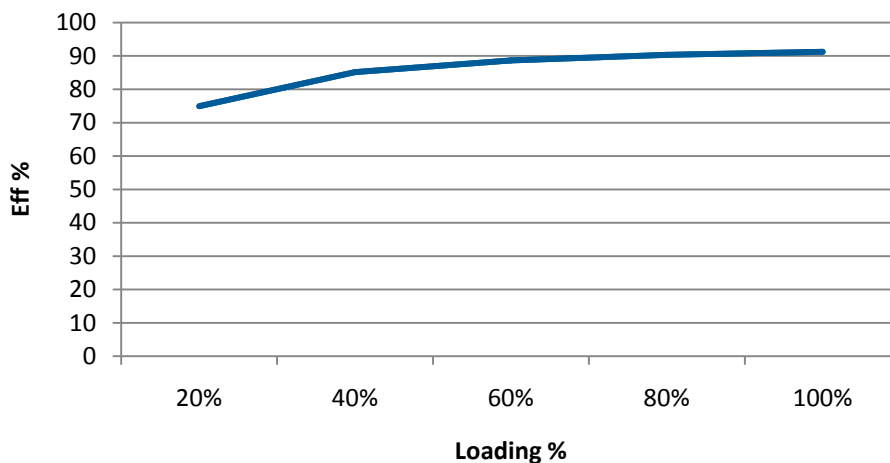
Input Voltage (VDC)	C1
5	220uF/100V
12	220uF/100V
15	220uF/100V
24	220uF/100V
48	220uF/100V

Typical Efficiency Chart Examples

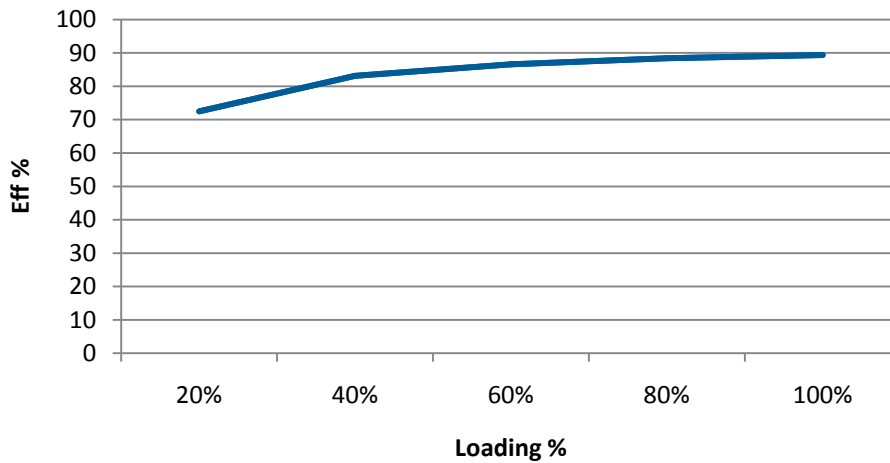
AM2D-0505S-RZ Efficiency vs. Loading



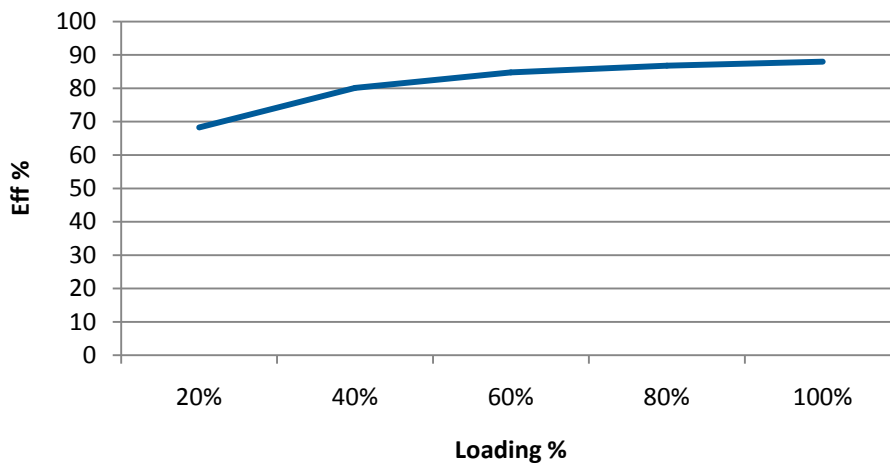
AM2D-1215S-RZ Efficiency vs. Loading



AM2D-1509S-RZ Efficiency vs. Loading



AM2D-2412S-RZ Efficiency vs. Loading



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