

### FEATURES:

- Unregulated
- High efficiency up to 86%
- 7 pin SIP package
- Operating temperature -40°C to + 105°C
- Continuous short circuit protection ‡
- Pin compatible with multiple manufacturers
- 1500 & 3000VDC Isolation

### Models Single output



Model	Input Voltage (V)	Output Voltage (V)	Output Current max (mA)	Isolation (VDC)	Max Cap Load (µF)	Efficiency (%)
AM2DS-0503S-NZ	4.5-5.5	3.3	400	1500	220	84
AM2DS-0505S-NZ	4.5-5.5	5	400	1500	220	84
AM2DS-0509S-NZ	4.5-5.5	9	222	1500	220	86
AM2DS-0512S-NZ	4.5-5.5	12	167	1500	220	84
AM2DS-0515S-NZ	4.5-5.5	15	133	1500	220	84
AM2DS-0524S-NZ ‡	4.5-5.5	24	83	1500	220	84
AM2DS-1203S-NZ	10.8-13.2	3.3	400	1500	220	80
AM2DS-1205S-NZ	10.8-13.2	5	400	1500	220	80
AM2DS-1209S-NZ	10.8-13.2	9	222	1500	220	86
AM2DS-1212S-NZ	10.8-13.2	12	167	1500	220	84
AM2DS-1215S-NZ	10.8-13.2	15	133	1500	220	84
AM2DS-1224S-NZ ‡	10.8-13.2	24	83	1500	220	83
AM2DS-2403S-NZ ‡	21.6-26.4	3.3	400	1500	220	80
AM2DS-2405S-NZ ‡	21.6-26.4	5	400	1500	220	84
AM2DS-2412S-NZ ‡	21.6-26.4	12	167	1500	220	86
AM2DS-2415S-NZ ‡	21.6-26.4	15	133	1500	220	84
AM2DS-2424S-NZ ‡	21.6-26.4	24	83	1500	220	85
AM2DS-0505SH30-NZ	4.5-5.5	5	400	3000	220	80
AM2DS-0512SH30-NZ	4.5-5.5	12	167	3000	220	84
AM2DS-0515SH30-NZ	4.5-5.5	15	133	3000	220	84
AM2DS-0524SH30-NZ ‡	4.5-5.5	24	83	3000	220	84
AM2DS-1205SH30-NZ	10.8-13.2	5	400	3000	220	80
AM2DS-1212SH30-NZ	10.8-13.2	12	167	3000	220	84
AM2DS-1215SH30-NZ	10.8-13.2	15	133	3000	220	84
AM2DS-2405SH30-NZ ‡	21.6-26.4	5	400	3000	220	80
AM2DS-2409SH30-NZ ‡	21.6-26.4	9	222	3000	220	86
AM2DS-2412SH30-NZ ‡	21.6-26.4	12	167	3000	220	86
AM2DS-2415SH30-NZ ‡	21.6-26.4	15	133	3000	220	84
AM2DS-2424SH30-NZ ‡	21.6-26.4	24	83	3000	220	85

### Models Dual output

Model	Input Voltage (V)	Output Voltage (V)	Output Current max (mA)	Isolation (VDC)	Max Cap Load (µF)	Efficiency (%)
AM2DS-0505D-NZ	4.5-5.5	±5	±200	1500	100	80
AM2DS-0509D-NZ	4.5-5.5	±9	±111	1500	100	82
AM2DS-0512D-NZ	4.5-5.5	±12	±83	1500	100	84
AM2DS-0515D-NZ	4.5-5.5	±15	±67	1500	100	84
AM2DS-0524D-NZ ‡	4.5-5.5	±24	±42	1500	100	84
AM2DS-1205D-NZ	10.8-13.2	±5	±200	1500	100	84
AM2DS-1209D-NZ	10.8-13.2	±9	±111	1500	100	84
AM2DS-1212D-NZ	10.8-13.2	±12	±83	1500	100	85
AM2DS-1215D-NZ	10.8-13.2	±15	±67	1500	100	84
AM2DS-1515D-NZ	13.5-16.5	±15	±67	1500	100	85
AM2DS-2405D-NZ ‡	21.6-26.4	±5	±200	1500	100	84
AM2DS-2409D-NZ ‡	21.6-26.4	±9	±111	1500	100	84

AM2DS-2412D-NZ ‡	21.6-26.4	±12	±83	1500	100	84
AM2DS-2415D-NZ ‡	21.6-26.4	±15	±67	1500	100	84
AM2DS-0505DH30-NZ	4.5-5.5	±5	±200	3000	100	80
AM2DS-0509DH30-NZ	4.5-5.5	±9	±111	3000	100	82
AM2DS-0512DH30-NZ	4.5-5.5	±12	±83	3000	100	84
AM2DS-0515DH30-NZ	4.5-5.5	±15	±67	3000	100	84
AM2DS-0524DH30-NZ ‡	4.5-5.5	±24	±42	3000	100	84
AM2DS-1205DH30-NZ	10.8-13.2	±5	±200	3000	100	84
AM2DS-1209DH30-NZ	10.8-13.2	±9	±111	3000	100	84
AM2DS-1212DH30-NZ	10.8-13.2	±12	±83	3000	100	85
AM2DS-1215DH30-NZ	10.8-13.2	±15	±67	3000	100	84
AM2DS-2405DH30-NZ ‡	21.6-26.4	±5	±200	3000	100	84
AM2DS-2409DH30-NZ ‡	21.6-26.4	±9	±111	3000	100	84
AM2DS-2412DH30-NZ ‡	21.6-26.4	±12	±83	3000	100	84
AM2DS-2415DH30-NZ ‡	21.6-26.4	±15	±67	3000	100	84

‡ With Momentary short circuit protection of 1 second

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		
Filter	Capacitor			
Absolute Maximum Rating (1 sec. max.)	5		9	VDC
	12		18	
	15		21	
	24		30	
Reflected Ripple Input Current			15	mA

## Isolation Specifications

Parameters	Conditions	Typical	Rated	Units
Tested I/O voltage	60 sec		1500, 3000	VDC
Resistance	500VDC	> 1000		MOhm
Capacitance	(100Khz/0.1V)	20		pF

## Output Specifications

Parameters	Conditions	Typical	Maximum	Units
Voltage accuracy	(see tolerance chart)	±5		%
Short Circuit protection	Continuous, unless marked with ‡			
Short circuit restart	Auto recovery			
Line voltage regulation	For ±1.0% change of Vin	3.3V models ±1.5 Others ±1.2		% of Vin
Load voltage regulation	load 10~100%	12		%
Temperature coefficient		±0.03		%/°C
Ripple & Noise	20MHz Bandwidth	75		mV p-p

## General Specifications

Parameters	Conditions	Typical	Maximum	Units
Switching frequency	100% load	100 - 300		KHz
Operating temperature	Derating Above 85°C	-40 to +105		°C
Storage temperature	-55 to +125			°C
Humidity			95	% RH
Case material	Non-conductive black plastic (UL94V-0 rated)			

Weight	2.4		g
Dimensions (L x W x H)	0.77 x 0.27 x 0.39inches		19.6 x 7.00 x 10.00mm
MTBF	>3,500,000 hrs (MIL-HDBK -217F, Ground Benign, t=+25°C)		
Maximum soldering temperature	1.5 mm from case for 10sec		300 °C
Maximum case temperature			125 °C
Cooling	Free air convection		

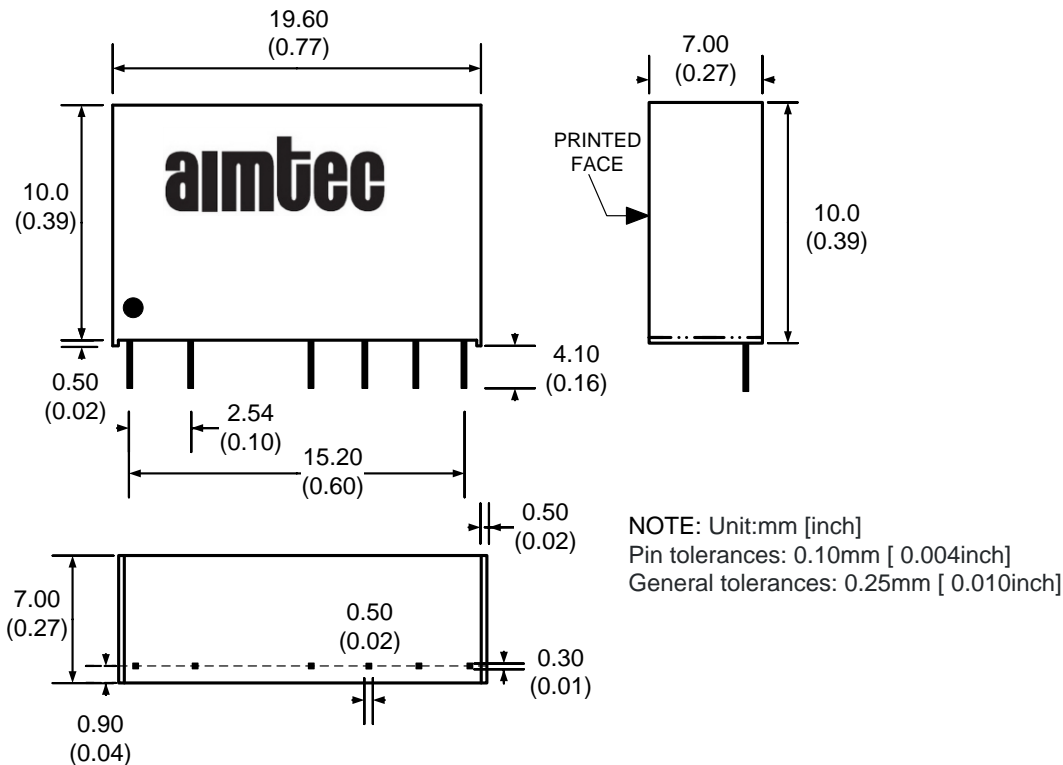
## Safety Specifications

Parameters	
Agency approvals	cULus (without 15V input and without 3.3V output models)
Standards	UL 60950-1

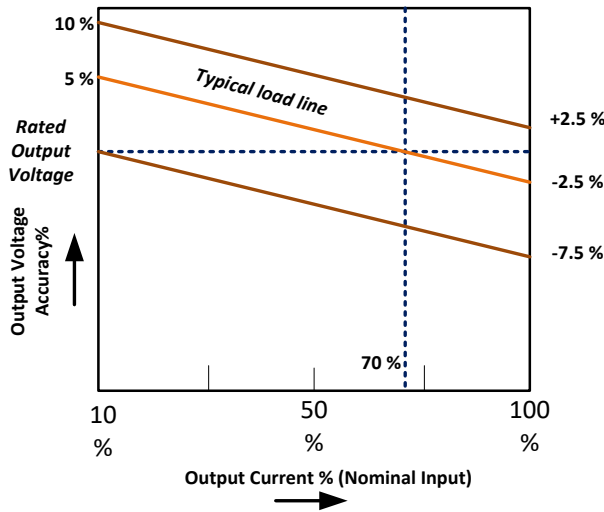
## Pin Out Specifications

Pin	1500 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

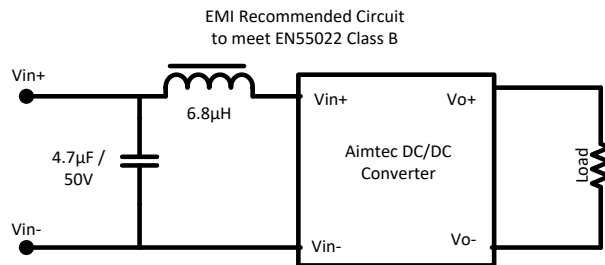
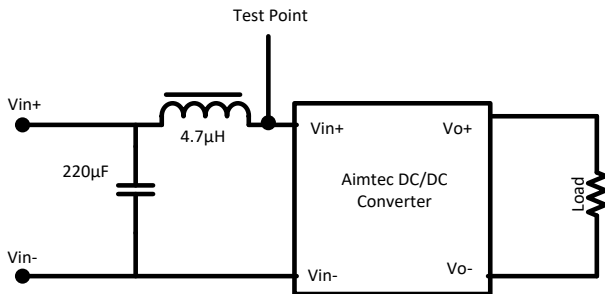
## Dimensions



### Typical characteristics



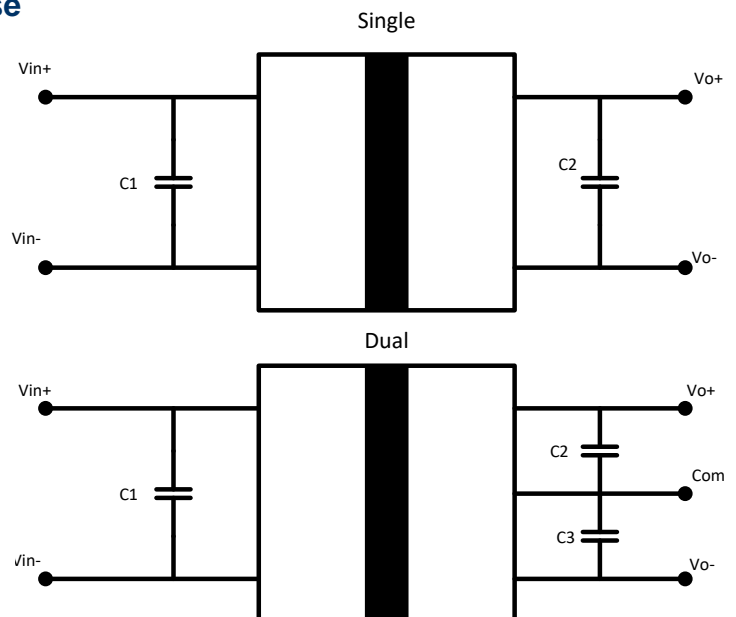
### Test Circuit Input Reflected Ripple Current & EMI Recommended Circuit



### Recommended Circuits to Lower Ripple & Noise

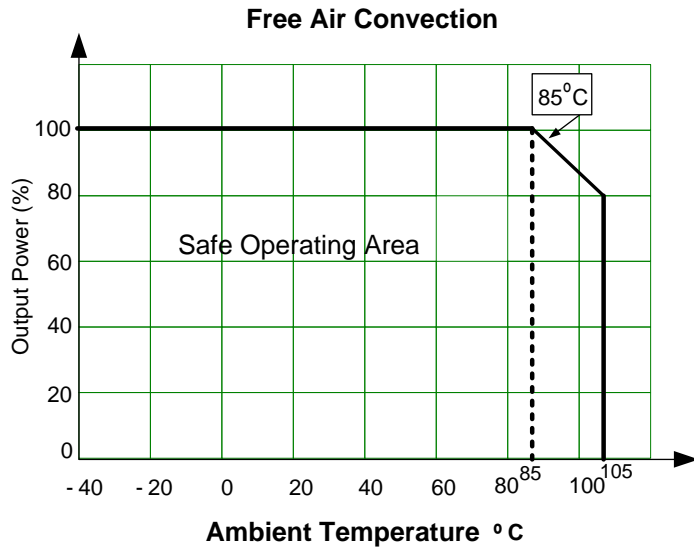
Capacitor selection Table

Vin	C1	Single VDC	C2	Dual VDC	C2/C3
5	4.7 µF	3.3 / 5V	10µF	±3.3 / ±5V	4.7 µF
12	2.2µF	12 V	2.2µF	±12 V	1 µF
15	2.2µF	15 V	1µF	±15 V	0.47 µF
24	1µF	24 V	1 µF	±24 V	0.47 µF



- 1) Ensure output load of Min 10%, or specifications may not be met
- 2) Under normal operation, there is no protection for overload condition
- 3) Converter may exhibit start up delay if capacitive load exceeds recommended
- 4) Ceramic or electrolytic type capacitors are recommended, tantalum type may damage converter
- 5) Parallel connections, or hot swapping is not recommended

**Derating**



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