

## 2 watt dc-dc converters

- 7 PIN SIP PACKAGE
- LOW RIPPLE & NOISE
- HIGH EFFICIENCY UP TO 85%
- INPUT/OUTPUT ISOLATION : 1000, 3000, 4000 & 5200VDC
- OPERATING TEMPERATURE: -40°C ... +85°C
- PIN-COMPATIBLE WITH MULTIPLE MANUFACTURERS

### GENERAL DESCRIPTION

Our AM2D series is a family of cost effective 2W single, dual, dual separate output isolated DC-DC converters. These converters achieve low cost and ultra-miniature SIP7 pin size without compromising performance and reliability.

Two hundred sixteen models operate from input voltages of 5, 12 & 24VDC; producing output voltage levels of 3.3, 5, 7.2, 9, 12, 15, 18, 24,  $\pm 3.3$ ,  $\pm 5$ ,  $\pm 7.2$ ,  $\pm 9$ ,  $\pm 12$ ,  $\pm 15$ ,  $\pm 18$  or  $\pm 24$  VDC. Full SMD-design and a 100% production test of parameters ensures a high reliability in this product.

### ELECTRICAL SPECIFICATIONS

Specifications typical at +25°C, nominal input voltage, rated output current unless otherwise specified

#### Input Specifications:

Voltage range	$\pm 10\%$
Filter	Capacitor

#### Isolation Specifications:

Rated voltage (60 sec)	1000VDC (all models) 3000, 4000 & 5200VDC (single/dual output)
Resistance	> 1000M $\Omega$
Capacitance	60pF, typ.

#### Output Specifications:

Voltage accuracy	$\pm 5\%$ , max.
Voltage balance (Dual Output)	$\pm 1\%$
Ripple & noise (at 20MHz BW)	75mVp-p, max.
Short circuit protection	Momentary
Line voltage regulation	$\pm 1.2\%$ / 1.0% of $V_{in}$
Load voltage regulation	$\pm 8\%$ , load=20~100%
Temperature coefficient	$\pm 0.02\%/^{\circ}\text{C}$ , typ.

#### General Specifications:

Efficiency	72% to 85%
Switching frequency	85KHz, typ. 100% load

#### Environmental Specifications:

Operating temperature (ambient)	-40°C ... +85°C
Storage temperature	-55°C ... +125°C
Case temperature	+95°C, max.
Derating	None required
Humidity (non-condensing)	Up to 90%
Cooling	Free-air Convection

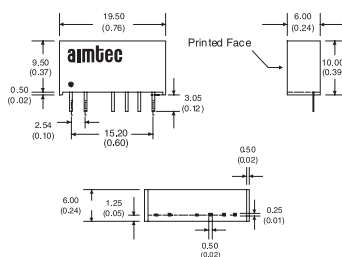
#### Physical Specifications:

Dimensions	19.50x6.00x10.00mm 0.76x0.24x0.39inches
Weight	2.5g
Case material	Non-conductive black plastic

MTBF: > 688,000 hrs (MIL-HDBK-217F, Ground Benign,  $t=+25^{\circ}\text{C}$ )

Specifications are subject to change without notification

### OUTLINE DIMENSIONS & PIN CONNECTIONS



Pin	1000VDC			3000, 4000 & 5200VDC	
	Single	Dual	Dual Separate	Single	Dual
1	+V Input	+V Input	+V Input	+V Input	+V Input
2	-V Input	-V Input	-V Input	-V Input	-V Input
4	-V Output	-V Output	+V1 Output	Omitted	Omitted
5	Omitted	Common	-V1 Output	-V Output	-V Output
6	+V Output	+V Output	+V2 Output	Omitted	Common
7	Omitted	Omitted	-V2 Output	+V Output	+V Output

# AM2D Series

## MODELS Single output

DC-DC CONVERTERS

Models				Input Voltage	Ouput Voltage	Ouput Current max.
Isolation 1000VDC	Isolation 3000VDC	Isolation 4000VDC	Isolation 5200VDC			
AM2D-0503S	AM2D-0503SH30	AM2D-0503SH40	AM2D-0503SH52	5V±10%	3.3VDC	400mA
AM2D-0505S	AM2D-0505SH30	AM2D-0505SH40	AM2D-0505SH52		5VDC	400mA
AM2D-0507S	AM2D-0507SH30	AM2D-0507SH40	AM2D-0507SH52		7.2VDC	278mA
AM2D-0509S	AM2D-0509SH30	AM2D-0509SH40	AM2D-0509SH52		9VDC	222mA
AM2D-0512S	AM2D-0512SH30	AM2D-0512SH40	AM2D-0512SH52		12VDC	167mA
AM2D-0515S	AM2D-0515SH30	AM2D-0515SH40	AM2D-0515SH52		15VDC	134mA
AM2D-0518S	AM2D-0518SH30	AM2D-0518SH40	AM2D-0518SH52		18VDC	111mA
AM2D-0524S	AM2D-0524SH30	AM2D-0524SH40	AM2D-0524SH52		24VDC	83mA
AM2D-1203S	AM2D-1203SH30	AM2D-1203SH40	AM2D-1203SH52	12V±10%	3.3VDC	400mA
AM2D-1205S	AM2D-1205SH30	AM2D-1205SH40	AM2D-1205SH52		5VDC	400mA
AM2D-1207S	AM2D-1207SH30	AM2D-1207SH40	AM2D-1207SH52		7.2VDC	278mA
AM2D-1209S	AM2D-1209SH30	AM2D-1209SH40	AM2D-1209SH52		9VDC	222mA
AM2D-1212S	AM2D-1212SH30	AM2D-1212SH40	AM2D-1212SH52		12VDC	167mA
AM2D-1215S	AM2D-1215SH30	AM2D-1215SH40	AM2D-1215SH52		15VDC	134mA
AM2D-1218S	AM2D-1218SH30	AM2D-1218SH40	AM2D-1218SH52		18VDC	111mA
AM2D-1224S	AM2D-1224SH30	AM2D-1224SH40	AM2D-1224SH52		24VDC	83mA
AM2D-2403S	AM2D-2403SH30	AM2D-2403SH40	AM2D-2403SH52	24V±10%	3.3VDC	400mA
AM2D-2405S	AM2D-2405SH30	AM2D-2405SH40	AM2D-2405SH52		5VDC	400mA
AM2D-2407S	AM2D-2407SH30	AM2D-2407SH40	AM2D-2407SH52		7.2VDC	278mA
AM2D-2409S	AM2D-2409SH30	AM2D-2409SH40	AM2D-2409SH52		9VDC	222mA
AM2D-2412S	AM2D-2412SH30	AM2D-2412SH40	AM2D-2412SH52		12VDC	167mA
AM2D-2415S	AM2D-2415SH30	AM2D-2415SH40	AM2D-2415SH52		15VDC	134mA
AM2D-2418S	AM2D-2418SH30	AM2D-2418SH40	AM2D-2418SH52		18VDC	111mA
AM2D-2424S	AM2D-2424SH30	AM2D-2424SH40	AM2D-2424SH52		24VDC	83mA

## Dual output

Models				Input Voltage	Ouput Voltage	Ouput Current max.
Isolation 1000VDC	Isolation 3000VDC	Isolation 4000VDC	Isolation 5200VDC			
AM2D-0503D	AM2D-0503DH30	AM2D-0503DH40	AM2D-0503DH52	5V±10%	±3.3VDC	±200mA
AM2D-0505D	AM2D-0505DH30	AM2D-0505DH40	AM2D-0505DH52		±5VDC	±200mA
AM2D-0507D	AM2D-0507DH30	AM2D-0507DH40	AM2D-0507DH52		±7.2VDC	±139mA
AM2D-0509D	AM2D-0509DH30	AM2D-0509DH40	AM2D-0509DH52		±9VDC	±111mA
AM2D-0512D	AM2D-0512DH30	AM2D-0512DH40	AM2D-0512DH52		±12VDC	±83mA
AM2D-0515D	AM2D-0515DH30	AM2D-0515DH40	AM2D-0515DH52		±15VDC	±67mA
AM2D-0518D	AM2D-0518DH30	AM2D-0518DH40	AM2D-0518DH52		±18VDC	±55mA
AM2D-0524D	AM2D-0524DH30	AM2D-0524DH40	AM2D-0524DH52		±24VDC	±42mA
AM2D-1203D	AM2D-1203DH30	AM2D-1203DH40	AM2D-1203DH52	12V±10%	±3.3VDC	±200mA
AM2D-1205D	AM2D-1205DH30	AM2D-1205DH40	AM2D-1205DH52		±5VDC	±200mA
AM2D-1207D	AM2D-1207DH30	AM2D-1207DH40	AM2D-1207DH52		±7.2VDC	±139mA
AM2D-1209D	AM2D-1209DH30	AM2D-1209DH40	AM2D-1209DH52		±9VDC	±111mA
AM2D-1212D	AM2D-1212DH30	AM2D-1212DH40	AM2D-1212DH52		±12VDC	±83mA

# AM2D Series

## MODELS

### Dual output (continued)

Models				Input Voltage	Ouput Voltage	Ouput Current max.
Isolation 1000VDC	Isolation 3000VDC	Isolation 4000VDC	Isolation 5200VDC			
AM2D-1215D	AM2D-1215DH30	AM2D-1215DH40	AM2D-1215DH52	12V±10%	±15VDC	±67mA
AM2D-1218D	AM2D-1218DH30	AM2D-1218DH40	AM2D-1218DH52		±18VDC	±55mA
AM2D-1224D	AM2D-1224DH30	AM2D-1224DH40	AM2D-1224DH52		±24VDC	±42mA
AM2D-2403D	AM2D-2403DH30	AM2D-2403DH40	AM2D-2403DH52	24V±10%	±3.3VDC	±200mA
AM2D-2405D	AM2D-2405DH30	AM2D-2405DH40	AM2D-2405DH52		±5VDC	±200mA
AM2D-2407D	AM2D-2407DH30	AM2D-2407DH40	AM2D-2407DH52		±7.2VDC	±139mA
AM2D-2409D	AM2D-2409DH30	AM2D-2409DH40	AM2D-2409DH52		±9VDC	±111mA
AM2D-2412D	AM2D-2412DH30	AM2D-2412DH40	AM2D-2412DH52		±12VDC	±83mA
AM2D-2415D	AM2D-2415DH30	AM2D-2415DH40	AM2D-2415DH52		±15VDC	±67mA
AM2D-2418D	AM2D-2418DH30	AM2D-2418DH40	AM2D-2418DH52		±18VDC	±55mA
AM2D-2424D	AM2D-2424DH30	AM2D-2424DH40	AM2D-2424DH52		±24VDC	±42mA

### Dual separate output

Models	Input Voltage	Ouput Voltage	Ouput Current max.
Isolation 1000VDC			
AM2D-050303D	5V±10%	3.3/3.3VDC	200/200mA
AM2D-050505D		5/5VDC	200/200mA
AM2D-050707D		7.2/7.2VDC	139/139mA
AM2D-050909D		9/9VDC	111/111mA
AM2D-051212D		12/12VDC	83/83mA
AM2D-051515D		15/15VDC	67/67mA
AM2D-051818D		18/18VDC	55/55mA
AM2D-052424D		24/24VDC	42/42mA
AM2D-120303D	12V±10%	3.3/3.3VDC	200/200mA
AM2D-120505D		5/5VDC	200/200mA
AM2D-120707D		7.2/7.2VDC	139/139mA
AM2D-120909D		9/9VDC	111/111mA
AM2D-121212D		12/12VDC	83/83mA
AM2D-121515D		15/15VDC	67/67mA
AM2D-121818D		18/18VDC	55/55mA
AM2D-122424D		24/24VDC	42/42mA
AM2D-240303D	24V±10%	3.3/3.3VDC	200/200mA
AM2D-240505D		5/5VDC	200/200mA
AM2D-240707D		7.2/7.2VDC	139/139mA
AM2D-240909D		9/9VDC	111/111mA
AM2D-241212D		12/12VDC	83/83mA
AM2D-241515D		15/15VDC	67/67mA
AM2D-241818D		18/18VDC	55/55mA
AM2D-242424D		24/24VDC	42/42mA