

1 watt dc-dc converters

- 7PIN SIL PACKAGE
- LOW RIPPLE AND NOISE
- HIGH EFFICIENCY UP TO 80%
- INPUT/OUTPUT ISOLATION: 1000, 3000, 4000 or 5200VDC
- OPERATING TEMPERATURE: -40°C ... +85°C
- PIN-COMPATIBLE WITH OTHER MANUFACTURERS

GENERAL DESCRIPTION

The AM1D series is a family of cost effective 1W single, dual, dual separate outputs isolated DC-DC converters. These converters achieve low cost and ultra-miniature SIL7 pin size without compromising performance and reliability.

Two hundred sixteen models operate from input bus voltage of 5, 12 and 24VDC; producing output voltage levels of 3.3, 5, 7.2, 9, 12, 15, 18, 24, ± 3.3 , ± 5 , ± 7.2 , ± 9 , ± 12 , ± 15 , ± 18 or ± 24 VDC.

Full SMD-design and a 100% production test of parameters ensure a high reliability of this product.

ELECTRICAL SPECIFICATIONS

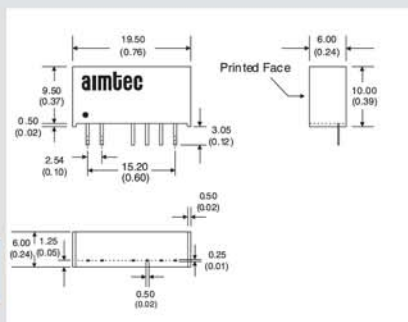
Specifications typical at +25°C, nominal input voltage, rated output current unless otherwise specified

Input Specifications:		General Specifications:	
Voltage range	$\pm 10\%$	Efficiency	65% to 80%
Filter	Capacitor	Switching frequency	125KHz, typ
Isolation Specifications:		Environmental Specifications:	
Rated voltage (60 sec)	1000VDC (all models) 3000, 4000, 5200VDC (single/dual output)	Operating temperature (ambient)	-40°C ... +85°C
Leakage current	1mA	Storage temperature	-55°C ... +125°C
Resistance	> 1000M Ω	Derating	None required
Capacitance	60pF, typ	Humidity (non-condensing)	Up to 90%
		Cooling	Free-air Convection
Output Specifications:		Physical Specifications	
Voltage balance (dual output)	$\pm 1\%$	Dimensions	19.50x6.00x10.00 mm 0.76x0.24x0.39 inches
Voltage accuracy	$\pm 5\%$, max	Weight	2g
Ripple and noise (at 20MHz BW)	75mVp-p, max	Case material	Non-conductive black plastic
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	$\pm 0.02\%/^{\circ}\text{C}$		

MTBF: >1191 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

MODELS

Single output

Models				Input voltage	Output voltage	Output current max.
Isolation 1000VDC	Isolation 3000VDC	Isolation 4000VDC	Isolation 5200VDC			
AM1D-0503S	AM1D-0503SH30	AM1D-0503SH40	AM1D-0503SH52	5V±10%	3.3VDC	300mA
AM1D-0505S	AM1D-0505SH30	AM1D-0505SH40	AM1D-0505SH52		5VDC	200mA
AM1D-0507S	AM1D-0507SH30	AM1D-0507SH40	AM1D-0507SH52		7.2VDC	140mA
AM1D-0509S	AM1D-0509SH30	AM1D-0509SH40	AM1D-0509SH52		9VDC	110mA
AM1D-0512S	AM1D-0512SH30	AM1D-0512SH40	AM1D-0512SH52		12VDC	83mA
AM1D-0515S	AM1D-0515SH30	AM1D-0515SH40	AM1D-0515SH52		15VDC	70mA
AM1D-0518S	AM1D-0518SH30	AM1D-0518SH40	AM1D-0518SH52		18VDC	55mA
AM1D-0524S	AM1D-0524SH30	AM1D-0524SH40	AM1D-0524SH52		24VDC	40mA
AM1D-1203S	AM1D-1203SH30	AM1D-1203SH40	AM1D-1203SH52	12V±10%	3.3VDC	300mA
AM1D-1205S	AM1D-1205SH30	AM1D-1205SH40	AM1D-1205SH52		5VDC	200mA
AM1D-1207S	AM1D-1207SH30	AM1D-1207SH40	AM1D-1207SH52		7.2VDC	140mA
AM1D-1209S	AM1D-1209SH30	AM1D-1209SH40	AM1D-1209SH52		9VDC	110mA
AM1D-1212S	AM1D-1212SH30	AM1D-1212SH40	AM1D-1212SH52		12VDC	83mA
AM1D-1215S	AM1D-1215SH30	AM1D-1215SH40	AM1D-1215SH52		15VDC	70mA
AM1D-1218S	AM1D-1218SH30	AM1D-1218SH40	AM1D-1218SH52		18VDC	55mA
AM1D-1224S	AM1D-1224SH30	AM1D-1224SH40	AM1D-1224SH52		24VDC	40mA
AM1D-2403S	AM1D-2403SH30	AM1D-2403SH40	AM1D-2403SH52	24V±10%	3.3VDC	300mA
AM1D-2405S	AM1D-2405SH30	AM1D-2405SH40	AM1D-2405SH52		5VDC	200mA
AM1D-2407S	AM1D-2407SH30	AM1D-2407SH40	AM1D-2407SH52		7.2VDC	140mA
AM1D-2409S	AM1D-2409SH30	AM1D-2409SH40	AM1D-2409SH52		9VDC	110mA
AM1D-2412S	AM1D-2412SH30	AM1D-2412SH40	AM1D-2412SH52		12VDC	83mA
AM1D-2415S	AM1D-2415SH30	AM1D-2415SH40	AM1D-2415SH52		15VDC	70mA
AM1D-2418S	AM1D-2418SH30	AM1D-2418SH40	AM1D-2418SH52		18VDC	55mA
AM1D-2424S	AM1D-2424SH30	AM1D-2424SH40	AM1D-2424SH52		24VDC	40mA

Dual output

Models				Input voltage	Output voltage	Output current max.
Isolation 1000VDC	Isolation 3000VDC	Isolation 4000VDC	Isolation 5200VDC			
AM1D-0503D	AM1D-0503DH30	AM1D-0503DH40	AM1D-0503DH52	5V±10%	±3.3VDC	±150mA
AM1D-0505D	AM1D-0505DH30	AM1D-0505DH40	AM1D-0505DH52		±5VDC	±100mA
AM1D-0507D	AM1D-0507DH30	AM1D-0507DH40	AM1D-0507DH52		±7.2VDC	±70mA
AM1D-0509D	AM1D-0509DH30	AM1D-0509DH40	AM1D-0509DH52		±9VDC	±55mA
AM1D-0512D	AM1D-0512DH30	AM1D-0512DH40	AM1D-0512DH52		±12VDC	±42mA
AM1D-0515D	AM1D-0515DH30	AM1D-0515DH40	AM1D-0515DH52		±15VDC	±35mA
AM1D-0518D	AM1D-0518DH30	AM1D-0518DH40	AM1D-0518DH52		±18VDC	±27mA
AM1D-0524D	AM1D-0524DH30	AM1D-0524DH40	AM1D-0524DH52		±24VDC	±20mA
AM1D-1203D	AM1D-1203DH30	AM1D-1203DH40	AM1D-1203DH52	12V±10%	±3.3VDC	±150mA
AM1D-1205D	AM1D-1205DH30	AM1D-1205DH40	AM1D-1205DH52		±5VDC	±100mA
AM1D-1207D	AM1D-1207DH30	AM1D-1207DH40	AM1D-1207DH52		±7.2VDC	±70mA
AM1D-1209D	AM1D-1209DH30	AM1D-1209DH40	AM1D-1209DH52		±9VDC	±55mA
AM1D-1212D	AM1D-1212DH30	AM1D-1212DH40	AM1D-1212DH52		±12VDC	±42mA

MODELS

Dual output (continued)

Models				Input voltage	Output voltage	Output current max.
Isolation 1000VDC	Isolation 3000VDC	Isolation 4000VDC	Isolation 5200VDC			
AM1D-1215D	AM1D-1215DH30	AM1D-1215DH40	AM1D-1215DH52	12V±10%	±15VDC	±35mA
AM1D-1218D	AM1D-1218DH30	AM1D-1218DH40	AM1D-1218DH52		±18VDC	±27mA
AM1D-1224D	AM1D-1224DH30	AM1D-1224DH40	AM1D-1224DH52		±24VDC	±20mA
AM1D-2403D	AM1D-2403DH30	AM1D-2403DH40	AM1D-2403DH52	24V±10%	±3.3VDC	±150mA
AM1D-2405D	AM1D-2405DH30	AM1D-2405DH40	AM1D-2405DH52		±5VDC	±100mA
AM1D-2407D	AM1D-2407DH30	AM1D-2407DH40	AM1D-2407DH52		±7.2VDC	±70mA
AM1D-2409D	AM1D-2409DH30	AM1D-2409DH40	AM1D-2409DH52		±9VDC	±55mA
AM1D-2412D	AM1D-2412DH30	AM1D-2412DH40	AM1D-2412DH52		±12VDC	±42mA
AM1D-2415D	AM1D-2415DH30	AM1D-2415DH40	AM1D-2415DH52		±15VDC	±35mA
AM1D-2418D	AM1D-2418DH30	AM1D-2418DH40	AM1D-2418DH52		±18VDC	±27mA
AM1D-2424D	AM1D-2424DH30	AM1D-2424DH40	AM1D-2424DH52		±24VDC	±20mA

Dual separate output

Models / Isolation 1000 VDC	Input voltage	Output voltage	Output current max.
AM1D-050303D	5V±10%	3.3/3.3VDC	150/150mA
AM1D-050505D		5/5VDC	100/100mA
AM1D-050707D		7.2/7.2VDC	70/70mA
AM1D-050909D		9/9VDC	55/55mA
AM1D-051212D		12/12VDC	42/42mA
AM1D-051515D		15/15VDC	35/35mA
AM1D-051818D		18/18VDC	27/27mA
AM1D-052424D		24/24VDC	20/20mA
AM1D-120303D	12V±10%	3.3/3.3VDC	150/150mA
AM1D-120505D		5/5VDC	100/100mA
AM1D-120707D		7.2/7.2VDC	70/70mA
AM1D-120909D		9/9VDC	55/55mA
AM1D-121212D		12/12VDC	42/42mA
AM1D-121515D		15/15VDC	35/35mA
AM1D-121818D		18/18VDC	27/27mA
AM1D-122424D		24/24VDC	20/20mA
AM1D-240303D	24V±10%	3.3/3.3VDC	150/150mA
AM1D-240505D		5/5VDC	100/100mA
AM1D-240707D		7.2/7.2VDC	70/70mA
AM1D-240909D		9/9VDC	55/55mA
AM1D-241212D		12/12VDC	42/42mA
AM1D-241515D		15/15VDC	35/35mA
AM1D-241818D		18/18VDC	27/27mA
AM1D-242424D		24/24VDC	20/20mA

5 Vin models	23 / 260 mA, typ
12 Vin models	15 / 110 mA, typ
24 Vin models	7 / 55 mA, typ