

## 1 watt dc-dc converters

- 8PIN DIL PACKAGE
- LOW RIPPLE AND NOISE
- HIGH EFFICIENCY UP TO 80%
- INPUT/OUTPUT ISOLATION: 1000 or 3000VDC
- OPERATING TEMPERATURE: -40°C ... +85°C
- PIN-COMPATIBLE WITH OTHER MANUFACTURERS

### GENERAL DESCRIPTION

The AM1P series is a family of cost effective 1W single, dual, dual separate output isolated DC-DC converters. These converters achieve low cost and ultra-miniature DIP8 pin size without compromising performance and reliability. Ninety six

models operate from input voltage 5, 12 and 24 VDC; producing output voltage levels of 3.3, 5, 7.2, 9, 12, 15, 18, 24,  $\pm 3.3$ ,  $\pm 5$ ,  $\pm 7.2$ ,  $\pm 9$ ,  $\pm 12$ ,  $\pm 15$ ,  $\pm 18$ . Full SMD-design and 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:

Voltage range	$\pm 10\%$
Filter	Capacitor

#### Isolation Specifications:

Rated voltage (60 sec)	1000VDC (all models) 3000VDC (single output)
Leakage current	1mA
Resistance	> 1000M $\Omega$
Capacitance	60pF, typ

#### Output Specifications:

Voltage accuracy	$\pm 5\%$ , max
Ripple and noise (at 20MHz BW)	100 mVp-p, max
Short circuit protection	Momentary
Line voltage regulation	$\pm 1.2\%$ / 1.0% of Vin
Load voltage regulation	$\pm 8\%$ , load=20~100%
Temperature coefficient	$\pm 0.02\%/^{\circ}\text{C}$

#### General Specifications:

Efficiency	71% to 80%
Switching frequency	80KHz, typ

#### Environmental Specifications:

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

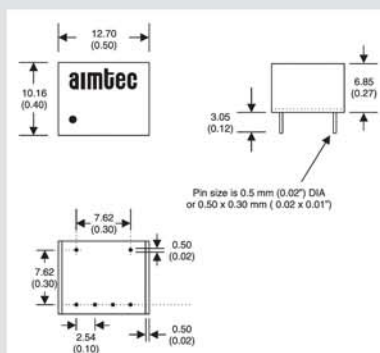
#### Physical Specifications

Dimensions	12.7 x 10.16 x 6.85mm 0.50x0.40x0.27inches
Weight	1.8g
Case material	Non-conductive black plastic

MTBF: >1 191 000 hrs (MIL-HDBK-217F, Ground Benign, t=+25°C)

Specifications are subject to change without notification

### OUTLINE DIMENSIONS & PIN CONNECTIONS



Pin	1000, 3000VDC		1000VDC
	Single	Dual	Dual separate
1	-V input	-V input	-V input
4	+V input	+V input	+V input
5	+V output	+V output	+V1 output
6	Omitted	Omitted	-V1 output
7	-V output	Common	+V2 output
8	Omitted	-V output	-V2 output

# MODELS

## Single output

Models		Input voltage	Output voltage	Output current max.
Isolation 1000VDC	Isolation 3000VDC			
AM1P-0503S	AM1P-0503SH30	5V±10%	3.3VDC	300mA
AM1P-0505S	AM1P-0505SH30		5VDC	200mA
AM1P-0507S	AM1P-0507SH30		7.2VDC	140mA
AM1P-0509S	AM1P-0509SH30		9VDC	110mA
AM1P-0512S	AM1P-0512SH30		12VDC	83mA
AM1P-0515S	AM1P-0515SH30		15VDC	67mA
AM1P-0518S	AM1P-0518SH30		18VDC	56mA
AM1P-0524S	AM1P-0524SH30		24VDC	42mA
AM1P-1203S	AM1P-1203SH30	12V±10%	3.3VDC	300mA
AM1P-1205S	AM1P-1205SH30		5VDC	200mA
AM1P-1207S	AM1P-1207SH30		7.2VDC	140mA
AM1P-1209S	AM1P-1209SH30		9VDC	110mA
AM1P-1212S	AM1P-1212SH30		12VDC	83mA
AM1P-1215S	AM1P-1215SH30		15VDC	67mA
AM1P-1218S	AM1P-1218SH30		18VDC	56mA
AM1P-1224S	AM1P-1224SH30		24VDC	42mA
AM1P-2403S	AM1P-2403SH30	24V±10%	3.3VDC	300mA
AM1P-2405S	AM1P-2405SH30		5VDC	200mA
AM1P-2407S	AM1P-2407SH30		7.2VDC	140mA
AM1P-2409S	AM1P-2409SH30		9VDC	110mA
AM1P-2412S	AM1P-2412SH30		12VDC	83mA
AM1P-2415S	AM1P-2415SH30		15VDC	67mA
AM1P-2418S	AM1P-2418SH30		18VDC	56mA
AM1P-2424S	AM1P-2424SH30		24VDC	42mA

## Dual output

Models		Input voltage	Output voltage	Output current max.
Isolation 1000VDC				
AM1P-0503D		5V±10%	±3.3VDC	±150mA
AM1P-0505D			±5VDC	±100mA
AM1P-0507D			±7.2VDC	±70mA
AM1P-0509D			±9VDC	±55mA
AM1P-0512D			±12VDC	±42mA
AM1P-0515D			±15VDC	±34mA
AM1P-0518D			±18VDC	±28mA
AM1P-0524D			±24VDC	±21mA
AM1P-1203D		12V±10%	±3.3VDC	±150mA
AM1P-1205D			±5VDC	±100mA
AM1P-1207D			±7.2VDC	±70mA
AM1P-1209D			±9VDC	±55mA
AM1P-1212D			±12VDC	±50mA
AM1P-1215D			±15VDC	±35mA
AM1P-1218D			±18VDC	±27mA



# MODELS

## Dual output (continued)

Models	Input voltage	Output voltage	Output current max.
<b>Isolation 1000VDC</b>			
AM1P-1224D	12V±10%	±24VDC	±21mA
AM1P-2403D	24V±10%	±3.3VDC	±150mA
AM1P-2405D		±5VDC	±100mA
AM1P-2407D		±7.2VDC	±70mA
AM1P-2409D		±9VDC	±55mA
AM1P-2412D		±12VDC	±42mA
AM1P-2415D		±15VDC	±34mA
AM1P-2418D		±18VDC	±28mA
AM1P-2424D		±24VDC	±21mA

## Dual separate output

Models	Input voltage	Output voltage	Output current max.
<b>Isolation 1000VDC</b>			
AM1P-050303D	5V±10%	3.3/3.3VDC	150/150mA
AM1P-050505D		5/5VDC	100/100mA
AM1P-050303D		7.2/7.2VDC	70/70mA
AM1P-050909D		9/9VDC	55/55mA
AM1P-051212D		12/12VDC	42/42mA
AM1P-051515D		15/15VDC	34/34mA
AM1P-051818D		18/18VDC	28/28mA
AM1P-052424D		24/24VDC	21/21mA
AM1P-120303D	12V±10%	3.3/3.3VDC	150/150mA
AM1P-120505D		5/5VDC	100/100mA
AM1P-120707D		7.2/7.2VDC	70/70mA
AM1P-120909D		9/9VDC	55/55mA
AM1P-121212D		12/12VDC	42/42mA
AM1P-121515D		15/15VDC	34/34mA
AM1P-121818D		18/18VDC	28/28mA
AM1P-122424D		24/24VDC	21/21mA
AM1P-240303D	24V±10%	3.3/3.3VDC	150/150mA
AM1P-240505D		5/5VDC	100/100mA
AM1P-240707D		7.2/7.2VDC	70/70mA
AM1P-240909D		9/9VDC	55/55mA
AM1P-241212D		12/12VDC	42/42mA
AM1P-241515D		15/15VDC	34/34mA
AM1P-241818D		18/18VDC	28/28mA
AM1P-242424D		24/24VDC	21/21mA

## INPUT CURRENT No Load / Full Load

5 Vin models	25 / 259mA, typ
12 Vin models	16 / 128mA, typ
24 Vin models	8 / 53mA, typ