GAPTEC®
GREEN TECHNOLOGY

0.1MD4A_1.5U Series

0.1W - Single Output DC-DC Converter - Fixed Input - Isolated & Unregulated

DC-DC Converter 0.1 Watt

- Efficiency up to 50%
- 1500VDC isolation
- Temperature Range: -40°C ~ +85°C
- Internal SMD Construction
- 100% burn in
- Industry standard pinout
- RoHS compliance
- MTBF >1,000,000 hours
- UL 94V-0 package material

The 0.1MD4A_1.5U series are specially designed for applications where a group of polar power supplies are isolated from the input power supply in a distributed power supply system on a circuit board.

They apply to:
1) Where the voltage of the input power supply is fixed (Voltage variation ≤ ±10%)
2) Where isolation is necessary between input and output (Isolation voltage ≤1500VDC)
3) Where the regulation of the output voltage and the output ripple noise are not demanding.

Such as: purely digital circuits, ordinary low frequency analog circuits, and IGBT power device driving circuits.

Common specifications	
Short circuit protection:	momentary
Case temperature rise above ambient:	+100°C max.
Cooling:	Free air convection
Operation temperature range:	-40°C~+85°C
Storage temperature range:	-55°C ~+125°C
Lead temperature:	300°C MAX, 1.5mm from case for 10 sec
Storage humidity range:	< 95%
Radiated emissions:	EN55022 Class B
Case material:	Non-conductive plastic [UL94-V0]
MTBF (MIL-HDBK-217F @25°C):	>1,000,000 hours
Weight:	1.5g
Dimensions:	9.4mm*8.8mm*6.35mm

Input specifications					
Item	Test condition	Min	Typ	Max	Units
Voltage range				±10	%
Internal filter	Capacitor				
Protection	Fuse recommended				

Isolation specifications					
Item	Test condition	Min	Typ	Max	Units
Isolation voltage	Tested for 10sec.	1500			VDC
Isolation resistance	Test at 500VDC	10^9			Ω
Isolation capacitance				80	pF

Output specifications					
Item	Test condition	Min	Typ	Max	Units
Minimum load	10% of full load				
Voltage set point accuracy				±2	W
Line regulation	for a 1% change in input voltage			±1.5	%
Load regulation	20% to 100% load			±12	%
Output voltage accuracy	See tolerance envelope graph				
Temperature drift	100% full load			±0.05	%/°C
Ripple & Noise*	20MHz Bandwidth			100	mVp-p
Switching frequency	Full load, nominal input		100		KHz

* Measured with 1uF ceramic capacitor connect to the output pins.

Example:
0.1MD4A_0505S1.5U
0.1 = 0.1 Watt; MD4 = Micro DIP4; A = Pinning; 05 = 5 Vin;
05 = 5Vout; S = Single Output; 1.5 = 1.5kVDC Isolation; U = Unregulated

Note:
1. Operation under minimum load will not damage the converter; However, they may not meet all specification listed, and that will reduce the life of product.
2. All specifications measured at Ta=25°C, humidity<75%, nominal input voltage and rated output load unless otherwise specified.
3. Only typical models listed, other models may be different, please contact our technical person for more details.
4. In this datasheet, all the test methods of indications are based on corporate standards.

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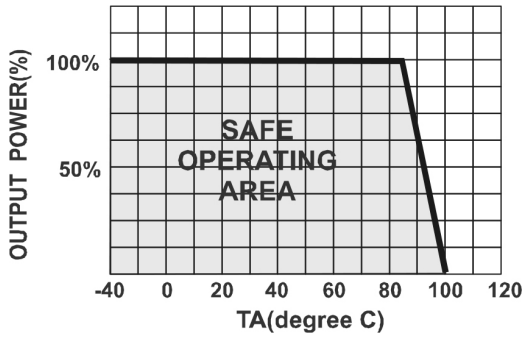
Part Number	Input Voltage [V]	Output Voltage [VDC]	Output Current [mA]	Input Current [mA]		Efficiency [%]
				full load	no load	
0.1MD4A_0303S1.5U	3.3	3.3	30	61	20	50
0.1MD4A_0503S1.5U	5	3.3	30	41	20	50
0.1MD4A_0505S1.5U	5	5	20	41	20	50

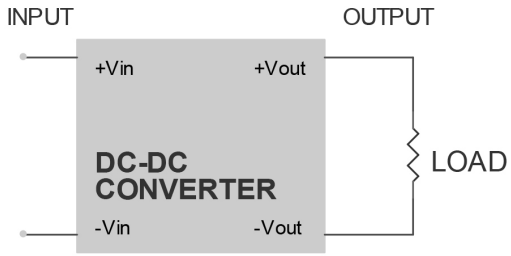
Typical characteristics

Derating graph:



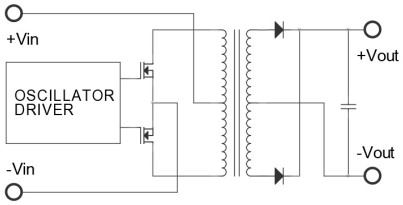
Typical application

SINGLE OUTPUT

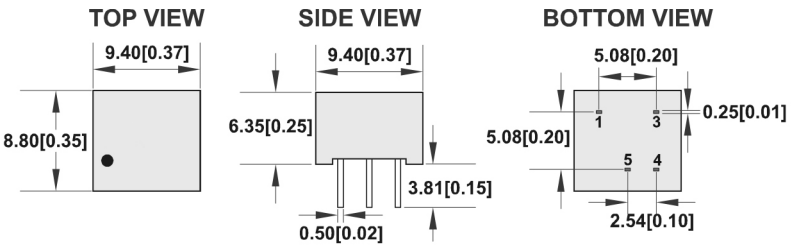


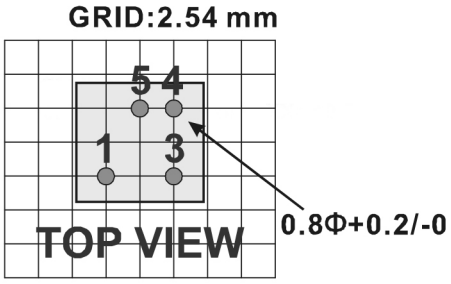
Simplified schematic

SINGLE OUTPUT



Mechanical dimensions





Note:
All dimensions are in mm [inches]
1. Pin Size is 0.50x0.30mm [0.02x0.01"]
2. Pin is Tolerance .XX = ±0.05mm
3. Tolerance .X or .XX = ±0.5mm

Application notes

External capacitance requirements
Output filtering is required for operation. A minimum of 10uF is needed. Output capacitance may be increased for additional filtering, not to exceed 220uF.

To meet the reflected ripple requirements of the converter, an input impedance of less than 0.5 ohm from DC to 250KHz is required.

We can offer EMC-Filter According To EN55011/22 Class B.

Negative Outputs
A negative output voltage may be obtained by connecting the +OUT to circuit ground and connecting –OUT as the negative output.