GAPTEC®
GREEN TECHNOLOGY

1MD8A_3UP Series

1W - Single Output DC-DC Converter - Fixed Input - Isolated & Unregulated

DC-DC Converter 1 Watt

- High Efficiency up to 81%
- 3000VDC Isolation
- Temperature Range: -40°C ~ +85°C
- No Heatsink Required
- No External Component Required
- Internal SMD Construction
- Industry Standard Pinout
- RoHS Compliance
- Short Circuit Protection

The 1MD8A_3UP 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 ≤3000VDC)
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*:	continuous
Case temperature rise above ambient:	All types 35°C MAX: 1MD8A_0505S3UP / 1MD8A_1205S3UP
Cooling:	Free air convection
Operation temperature range:	-40°C~+85°C
Storage temperature range:	-50°C ~+130°C
Lead temperature:	300°C MAX, 1.5mm from case for 10 sec
Storage humidity range:	< 95%
Case material:	Plastic [UL94-V0]
MTBF:	>3,500,000 hours
Weight:	1.25g

*Supply voltage must be discontinued at the end of short circuit duration.

Input specifications					
Item	Test condition	Min	Typ	Max	Units
Voltage range	• 3.3V input • 5V input • 12V input • 24V input	2.9 4.5 11 21.6	3.3 5 12 24	3.6 5.5 13.3 26.4	VDC VDC VDC VDC
Internal power dissipation				520	mW

Isolation specifications					
Item	Test condition	Min	Typ	Max	Units
Isolation voltage	Tested for 1 minute and 1mA max	3000			VDC
Isolation resistance	Test at 500VDC	1000			MΩ

Output specifications					
Item	Test condition	Min	Typ	Max	Units
Output power		0.1		1	W
Line regulation	High Vin to low Vin			1.2	%
Load regulation	10% to 100% load • 3.3V output & 0309 • 5V output • 9V output • 12V output • 15V output			 15 15 10 10 9	 % % % % %
Output voltage accuracy	See tolerance envelope graph				
Temperature drift	100% full load			±0.03	%/°C
Ripple & Noise*	20MHz Bandwidth		75	120	mVp-p
Switching frequency	Full load, nominal input		120		KHz

*Test ripple and noise by "parallel cable" method. See detailed operation instructions at Testing of Power Converter section, application notes.

Example:
1MD8A_0505S3UP
1 = 1 Watt; MD8 = Micro DIP8; A = Pinning; 05 = 5 Vin; 05 = 5Vout; S = Single Output; 3 = 3kVDC Isolation; U = Unregulated Output; P = Short Circuit Protection (SCP)

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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Specifications subject to change without notice.

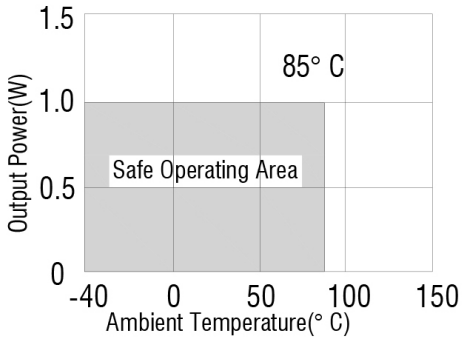
1MD8A_3UP Series

1W - Single Output DC-DC Converter - Fixed Input - Isolated & Unregulated

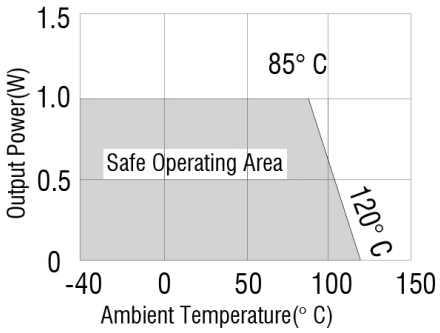
Part Number	Input Voltage [V]	Output Voltage [VDC]	Output Current [mA, min]	Output Current [mA, max]	Efficiency [%, max]
1MD8A_0303S3UP	3.3	3.3	30.3	303	71
1MD8A_0305S3UP	3.3	5	20	200	74
1MD8A_0309S3UP	3.3	9	11.1	111	75
1MD8A_0503S3UP	5	3.3	30.3	303	74
1MD8A_0505S3UP	5	5	20	200	69
1MD8A_0509S3UP	5	9	11.1	111	74
1MD8A_0512S3UP	5	12	8.3	83	78
1MD8A_0515S3UP	5	15	6.7	67	78
1MD8A_1205S3UP	12	5	20	200	72
1MD8A_1209S3UP	12	9	11.1	111	78
1MD8A_1212S3UP	12	12	8.3	83	80
1MD8A_1215S3UP	12	15	6.7	67	81
1MD8A_2403S3UP	24	3.3	30.3	303	73
1MD8A_2405S3UP	24	5	20	200	69
1MD8A_2412S3UP	24	12	20	83	78
1MD8A_2415S3UP	24	15	20	67	79

Typical characteristics

For types:
1MD8A_0303S3UP / 1MD8A_0305S3UP /
1MD8A_0309S3UP / 1MD8A_0503S3UP

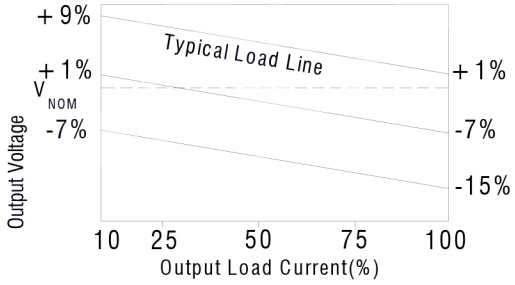


All other types:

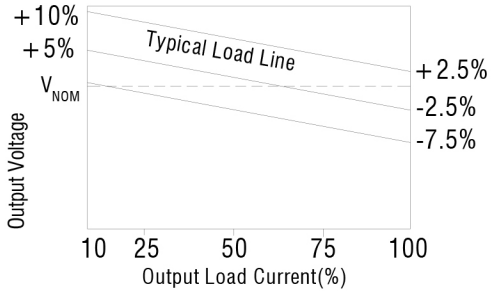


Tolerance envelope

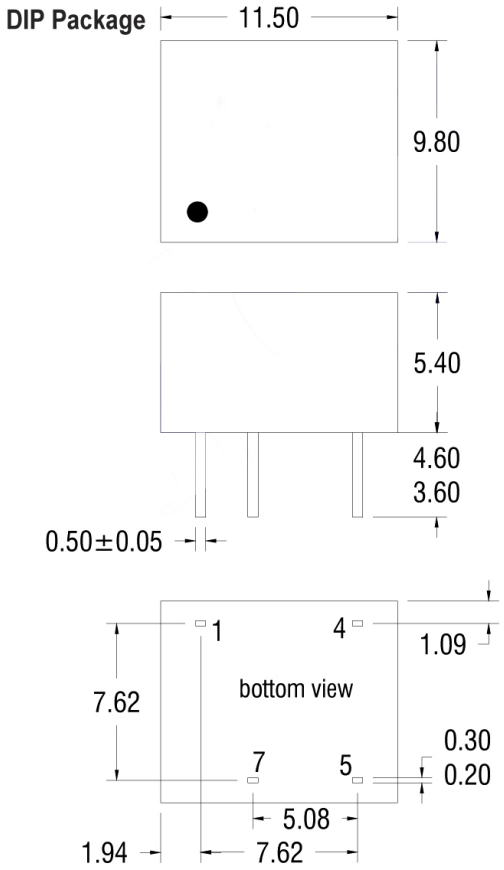
3.3V output types:



All other types:



Mechanical dimensions

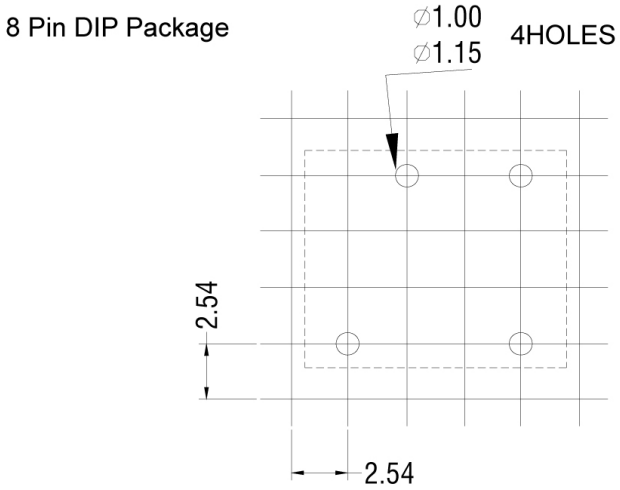


Pin connections

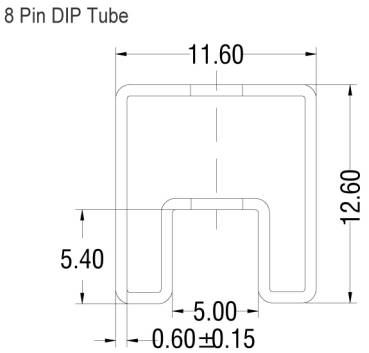
8 PIN DIP	
Pin	Function
1	-Vin
4	+Vin
5	+Vout
7	-Vout

Note:
All dimensions in mm ±0.25mm. All pins on a 2.54mm pitch and within ±0.25mm of true position.
Weight:1.25g(DIP)

Recommended footprint



Tube outline dimensions



Note:
Tube length: 520mm ±2mm
Tube quantity: 40pcs

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