GAPTEC®
GREEN TECHNOLOGY

2T8E_1U Series

2W - Single Output DC-DC Converter - Fixed Input - Isolated & Unregulated

DC-DC Converter 2 Watt

- **Small footprint**
- **Miniature SMD package style**
- **High efficiency up to 74%**
- **1000VDC insulation**
- **Temperature range: -40°C ~ +85°C**
- **Industry standard pinout**
- **Low temperature rise**
- **Internal SMD construction**
- **No external component required**
- **RoHS compliance**

The 2T8E_1U series is 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.

These products 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 (insulation voltage ≤1000VDC)
3) Where the regulation of the output voltage and the output ripple noise are not demanding

Such as: digit circuit condition; normal low-frequency artificial circuit condition; relay drive circuit condition, etc.

Common specifications	
Short circuit protection:	1 second
Temperature rise at full load:	25°C TYP (Ta = 25°C)
Cooling:	Free air convection
Operation temperature range:	-40°C ~ +85°C
Storage temperature range:	-40°C ~ +100°C
Lead temperature	300°C MAX, 1.5mm from case for 10 sec
Storage humidity range:	< 95%
Package material:	Epoxy Resin [UL94-V0]
MTBF (MIL-HDBK-217F@25°C):	>3,500,000 hours
Weight:	1g
Dimensions:	12.7*7.6*6.25mm

Input specifications					
Item	Test condition	Min	Typ	Max	Units
Voltage tolerance			±10		%
Filter	Capacitor				

Isolation specifications					
Item	Test condition	Min	Typ	Max	Units
Isolation voltage	Input to Output (2sec/0.5mA)	1000			VDC
Isolation resistance	Test at 500VDC	1000			MΩ

Output specifications					
Item	Test condition	Min	Typ	Max	Units
Output voltage accuracy			±5		%
Line regulation	For Vin change of 1%		1.2		%
Load regulation	10% to 100% load • 3.3V • 5V • 9V • 12V		 15	 15 9 7.5	 % % % %
Transient response setting time	50% load step change		350		µs
Temperature drift	100% full load			±0.03	%/°C
Ripple & Noise*	20MHz Bandwidth			100	mVp-p
Switching frequency	Full load, nominal input		100		KHz

* Ripple and noise tested with "parallel cable" method. See detailed operation instructions at DC-DC Application Notes.

Example:
2T8E_0505S1U
2 = 2Watt; T8 = SMT8; E = Series; 5Vin; 5Vout; S = Single output; 1 = 1kVDC; U = Unregulated output

Note:
1. Operation under minimum load will not damage the converter; However, they may not meet all specification listed.
2. Max. capacitive load tested at input voltage range and full load.
3. All specifications measured at Ta = 25°C, humidity < 75%, nominal input voltage and rated output load unless otherwise specified.
4. In this datasheet, all the test methods of indications are based on our corporate standards.

GAPTEC-Electronic GmbH & Co. KG
sales@gaptec-electronic.com – www.gaptec-electronic.com

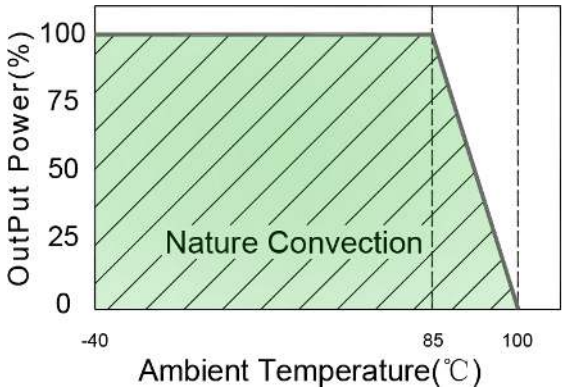
2T8E_1U Series

2W - Single Output DC-DC Converter - Fixed Input - Isolated & Unregulated

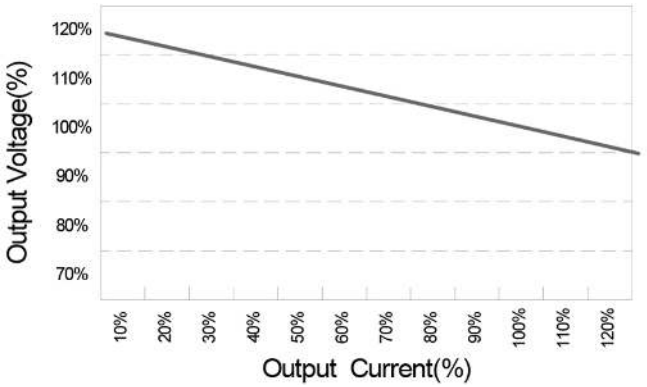
Part Number	Input Voltage [V]	Output Voltage [VDC]	Output Current [mA]	Efficiency [%, typ]
2T8E_0303S1U	3.3	3.3	606	67
2T8E_0305S1U	3.3	5	400	72
2T8E_0309S1U	3.3	9	222	72
2T8E_0312S1U	3.3	12	167	72
2T8E_0503S1U	5	3.3	606	70
2T8E_0505S1U	5	5	400	72
2T8E_0509S1U	5	9	222	74
2T8E_0512S1U	5	12	167	74
2T8E_0903S1U	9	3.3	606	72
2T8E_0905S1U	9	5	400	74
2T8E_0909S1U	9	9	222	74
2T8E_0912S1U	9	12	167	74
2T8E_1203S1U	12	3.3	606	72
2T8E_1205S1U	12	5	400	72
2T8E_1209S1U	12	9	222	74
2T8E_1212S1U	12	12	167	74

Typical characteristics

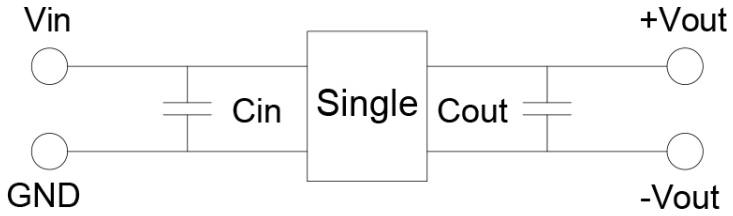
Temperature derating graph



Tolerance envelope graph



Recommended test circuit

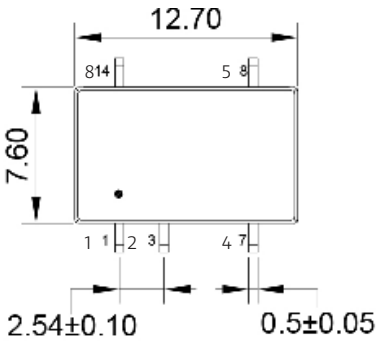


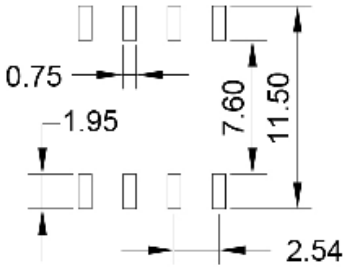
3.3V: Cin 4.7uF, 25V
5V: Cin 4.7uF, 25V
9V: Cin 4.7uF, 25V
12V: Cin 2.2uF, 25V

3.3V: Cout 22uF, 16V
5V: Cout 10uF, 25V
9V: Cout 4.7uF, 25V
12V: Cout 2.2uF, 25V

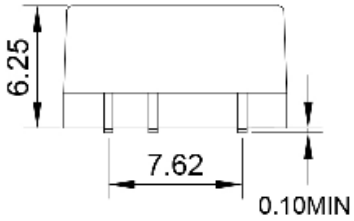
GAPTEC-Electronic GmbH & Co. KG
sales@gaptec-electronic.com – www.gaptec-electronic.com

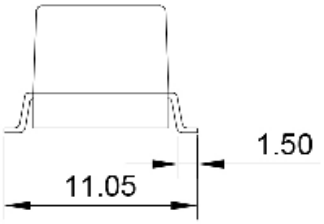
Mechanical dimensions





SUGGESTED PAD LAYOUT





PIN	Single
1	-Vin
3	+Vin
7	-Vout
8	+Vout
14	NC

Note:
Unit: mm[inch]
General tolerances: ±0.25mm[±0.010inch]

GAPTEC-Electronic GmbH & Co. KG
sales@gaptec-electronic.com – www.gaptec-electronic.com