1T8CE_1.5UP series

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

DC-DC Converter 1 Watt

- Small footprint
- Miniature SMD package style
- High efficiency of 80%
- 1500VDC isolation
- Temperature range: -40°C ~ +100°C
- Industry standard pinout
- Low temperature rise
- Internal SMD construction
- No external component required
- RoHS compliance

The 1T8CE_1.5UP 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 (isolation voltage ≤1500VDC)
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:	continuous
Temperature rise at full load:	25°C TYP (Ta = 25°C)
Cooling:	Free air convection
Operation temperature range:	-40°C ~ +100°C
Storage temperature range:	-55°C ~ +125°C
Lead temperature	300°C MAX, 1.5mm from case for 10 sec
Storage humidity range:	< 95%
Case material:	DAP
MTBF (MIL-HDBK-217F@25°C):	>3,500,000 hours
Weight:	1.2g

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			±15	%
Temperature drift	100% full load			±0.03	%/°C
Ripple & Noise*	20MHz Bandwidth		60	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.

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

Isolation specifications					
Item	Test condition	Min	Typ	Max	Units
Isolation voltage	Input to output (60sec/0.5mA)	1500			VDC
Isolation resistance	Test at 500VDC	1000			MΩ

Example:
1T8CE_0505S1.5UP
1 = 1Watt; T8 = SMT8; CE = Series; 05 = 5Vin; 05 = 5Vout;
S = Single output; 1.5 = 1.5kVDC; 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.
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.

Product Selection Guide

Part Number	Input Voltage [V]	Output Voltage [VDC]	Output Current [mA]	Efficiency [%, typ]
1T8CE_0503S1.5UP	5	3	303	74
1T8CE_0505S1.5UP	5	5	200	82
1T8CE_0509S1.5UP	5	9	112	83
1T8CE_0512S1.5UP	5	12	84	83
1T8CE_0515S1.5UP	5	15	67	83
1T8CE_0524S1.5UP	5	24	42	85

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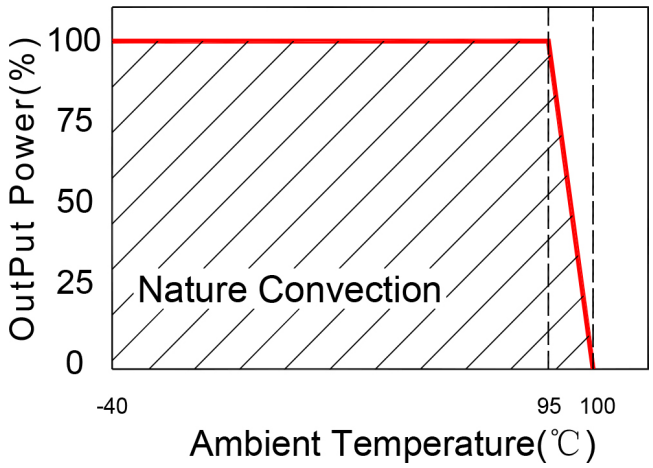
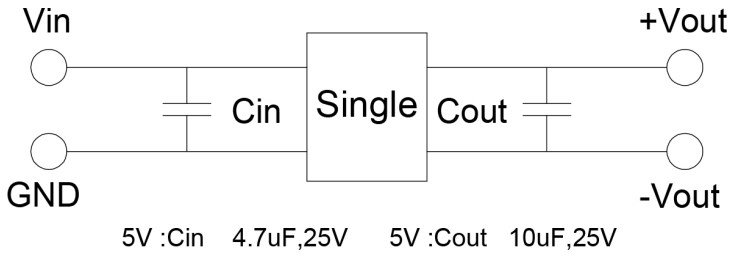
Typical characteristics

Temperature derating graph

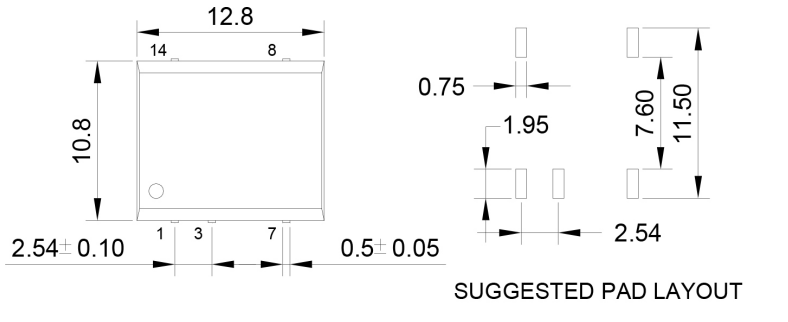


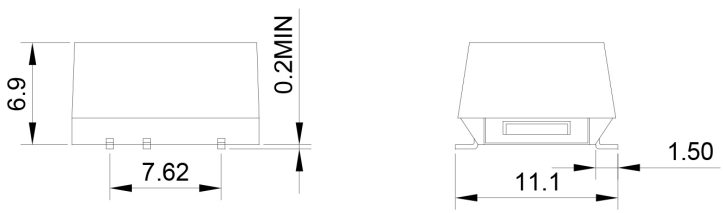
Recommended test circuit



To make sure the product work at perfect operation status with full loading external capacitor is necessary and it is recommended to use high frequency low resistance electrolytic capacitor.

Mechanical dimensions





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

UNIT：mm Unless otherwise specified, all tolerances are ±0.25

RoHS compliant type

Our RoHS parts just can withstand IR Reflow peak temperature: 240degC +/-5degC as the following profile:

Profile Feature	Pb-Free Assembly
Average Ramp-Up Rate (Ts max to Tp)	3°C /second max.
Preheat -Temperature Min (Ts min) -Temperature Max (Ts max) -Time (ts min to ts max)	 150°C 200°C 60-180 seconds
Time maintained above -Temperature (TL) -Time (tL)	 217°C 60-150 seconds
Peak/Classification Temperature (Tp)	240°C ±5°C
Time within 5°C of actual Peak Temperature (tp)	20-40 seconds
Ramp-Down Rate	6°C/seconds max.
Time 25°C to Peak Temperature	6 minutes max.