

1T8CE_3UP series

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



DC-DC Converter

1 Watt

- 8PIN SMD Package
- No load input current as low as 5 mA
- Continuous short circuit protection
- High Efficiency up to 87%
- Unregulated Output Types

- 3kVDC Isolation
- Operating Temperature: -40°C to +105°C
- Industry Standard Pinout
- Design refer to IEC62368, UL62368, EN62368

Introducing our advanced 1T8CE_3UP series, a 8PIN SMD package converter, designed for superior performance and efficiency. With a no-load input current as low as 5 mA, it ensures minimal power consumption when idle. The converter boasts a high efficiency of up to 87%, delivering reliable power with unregulated output types. It features robust 3kVDC isolation and offers continuous short circuit protection, ensuring safe operation.

Operating within a wide temperature range of -40°C to +105°C, it is suitable for various demanding environments. The converter follows the industry standard pinout and is designed in accordance with IEC62368, UL62368, and EN62368 standards, guaranteeing compliance and safety.



Common specifications

Short circuit protection:	continuous
Operation temperature range:	-40°C ~ +105°C
Storage temperature range:	-55°C ~ +125°C
Storage humidity range:	< 95% (Non Condensing)
MTBF (MIL-HDBK-217F@25°C):	>3,500,000 hours
Case material:	DAP
Cooling:	Free air convection
Dimensions:	12.8 x 10.8 x 6.9 mm
Weight:	1.28g

Input specifications

Item	Test condition	Min	Typ	Max	Units
Voltage range (Vo,Io Nom)	Vin: 3.3V, 5V Vin: 9V, 12V, 15V, 24V			±10 ±20	% %
Filter	Capacitor				

Isolation specifications

Item	Test condition	Min	Typ	Max	Units
Isolation voltage	Input to output	3000			VDC
Isolation resistance	Test at 500VDC	500			MΩ
Isolation capacitance	Input-output, 100KHz/0.1V		20		pF

EMC specifications

Emissions	CE	CISPR32/EN55032 CLASS B (see Fig. 1 for recommended circuit)
Emissions	RE	CISPR25/EN55025 CLASS 4 (see Fig.3 for recommended circuit) CISPR32/EN55032 CLASS A (without external components)
Immunity	ESD	ISO10605 Contact ±6KV perf. Criteria B

Output specifications

Item	Test condition	Min	Typ	Max	Units
Voltage tolerance	100% full load			±5	%
Line regulation	For Vin change of 1%		±1.2		%
Load regulation	3.3V (10% to 100% F.L) 5V (10% to 100% F.L) 9V (10% to 100% F.L) 12V (10% to 100% F.L) 15V (10% to 100% F.L) 24V (10% to 100% F.L)	15 10 8 7 6 5	20 15 10 10 10 10		% % % % % %
Ripple & Noise* (BW = DC to 20MHz)	Vo: 3.3V, 5V, 9V, 12V, 15V Vo: 24V		30 50	75 100	mVp-p mVp-p
Switching frequency (Full load, nominal input)	3.3V, 5V Vin other Vin		100		KHz

* Ripple and noise tested with "parallel cable" method. See detailed operation

Example:

1T8CE_1205S3UP

1 = 1Watt; T8 = SMT8; CE = Series; 12 = 12Vin; 05 = 5Vout;
S = Single output; 3 = 3kVDC isolation; U = Unregulated output;
P = Short circuit protection (SCP)

Note:

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

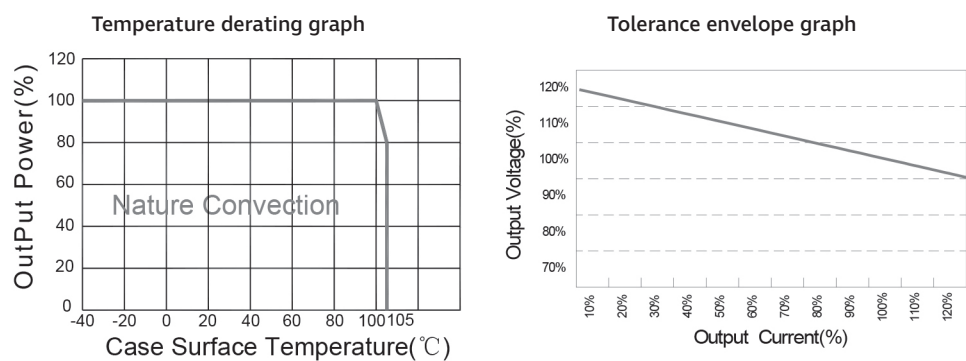
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Product Selection Guide

Part Number	Output Voltage [VDC]	Output Current [mA]	Efficiency [% , typ]	Capacitive Load [μF]
1T8CE_0303S3UP	3	303	76	2400
1T8CE_0305S3UP	5	200	82	2400
1T8CE_0309S3UP	9	112	83	1000
1T8CE_0312S3UP	12	84	84	470
1T8CE_0315S3UP	15	67	84	330
1T8CE_0324S3UP	24	42	85	100
1T8CE_0503S3UP	3	303	76	2400
1T8CE_0505S3UP	5	200	82	2400
1T8CE_0509S3UP	9	112	83	1000
1T8CE_0512S3UP	12	84	84	470
1T8CE_0515S3UP	15	67	84	330
1T8CE_0524S3UP	24	42	85	100
1T8CE_0903S3UP	3	303	76	2400
1T8CE_0905S3UP	5	200	82	2400
1T8CE_0909S3UP	9	112	83	1000
1T8CE_0912S3UP	12	84	84	470
1T8CE_0915S3UP	15	67	84	330
1T8CE_0924S3UP	24	42	85	100
1T8CE_1203S3UP	3	303	78	2400
1T8CE_1205S3UP	5	200	82	2400
1T8CE_1209S3UP	9	112	85	1000
1T8CE_1212S3UP	12	84	85	680
1T8CE_1215S3UP	15	67	87	330
1T8CE_1224S3UP	24	42	85	220
1T8CE_1503S3UP	3	303	78	2400
1T8CE_1505S3UP	5	200	82	2400
1T8CE_1509S3UP	9	112	85	1000
1T8CE_1512S3UP	12	84	85	680
1T8CE_1515S3UP	15	67	87	330
1T8CE_1524S3UP	24	42	85	220
1T8CE_2403S3UP	3	303	78	2400
1T8CE_2405S3UP	5	200	82	2400
1T8CE_2409S3UP	9	112	85	1000
1T8CE_2412S3UP	12	84	85	680
1T8CE_2415S3UP	15	67	87	330
1T8CE_2424S3UP	24	42	85	220

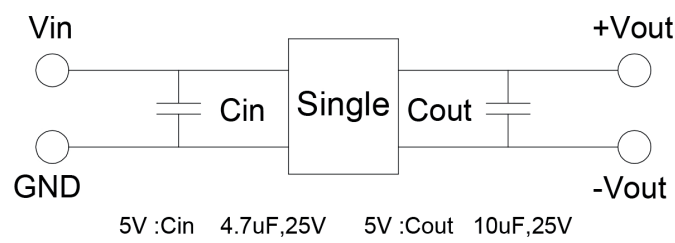
Typical characteristics



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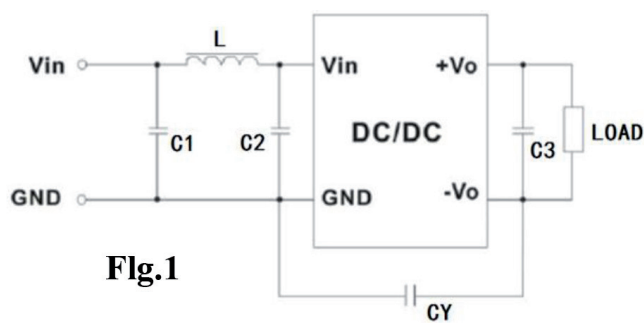
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Recommended test circuit



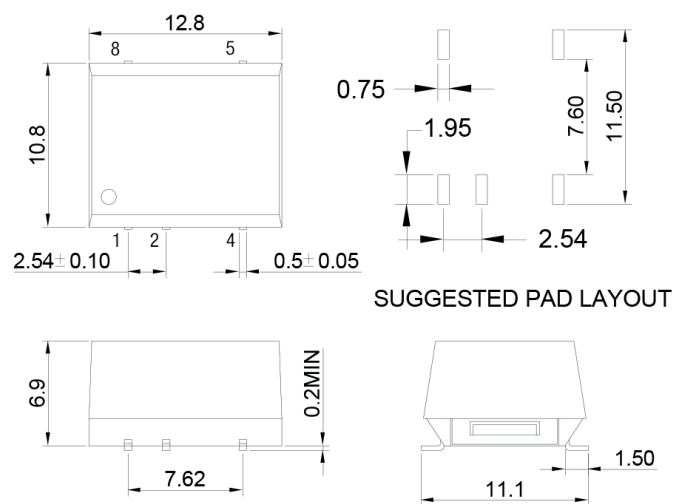
Vin	Cin	Single Vout	Cout
3.3VDC	4.7μF/25V	3.3VDC	10μF/16V
5VDC	4.7μF/25V	5VDC	10μF/16V
9VDC	4.7μF/25V	9VDC	2.2μF/16V
12VDC	2.2μF/25V	12VDC	2.2μF/25V
15VDC	2.2μF/25V	15VDC	1μF/25V
24VDC	1μF/50V	24VDC	1μF/50V

Recommended test circuit



EMC recommended circuit value table		
Emissions	C1	4.7μF /50V
Emissions	C2	4.7μF /50V
Emissions	CY	1nF/4kV
Emissions	C3	Recommended Test Circuit
Emissions	L	6.8μH

Mechanical dimensions



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

PIN	Single
1	-Vin
2	+Vin
4	-Vout
5	+Vout
8	NC
Other	NO PIN