GAPTEC®
GREEN TECHNOLOGY

QT8E_1U Series

0.25W - Single Output DC-DC Converter - Fixed Input - Isolated & Unregulated

DC-DC Converter 0.25 Watt

- 1000VDC isolation
- Efficiency up to 72%
- Operating temperature range: -40°C ~ +85°C
- Small footprint
- SMD package
- Industry standard pinout
- RoHS Compliance
- High Power Density
- External component required

The QT8E_1U series is specially designed for applications where an isolated voltage is required in a distributed power supply system.

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 ≤1000VDC)
3) Where the regulation of the output voltage and the output ripple noise are not demanding.

Such as: pure digital circuits, low frequency analog circuits, and relay-driven circuits.

Common specifications

Short circuit protection:	Short term, 1 sec.
Temperature rise at full load:	15°C TYP
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
Reflow Soldering Temperature:	Peak temp. ≤245°C, maximum duration time ≤60s at 217°C. For actual application, please refer to IPC/JEDEC J-STD-020D.1.
Storage humidity range:	< 95%
Case material:	DAP
MTBF (MIL-HDBK-217F@25°C):	>3,500,000 hours
Weight:	1g
Dimensions:	12.7x7.6x6.25mm

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	10% to 100% load • 3V output • 5V/9V output • 12V/15V output		 15	 15/9 7.5/7	 % % %
Temperature drift	100% full load			±0.03	%/°C
Ripple & Noise*	20MHz Bandwidth			100	mVp-p
Transient response setting time	50% load step charge		350		µs
Switching frequency	Full load, nominal input		100		KHz

* Test ripple and noise by "parallel cable" method. See detailed operation instructions at application notes.

Input specifications

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

Isolation specifications

Item	Test condition	Min	Typ	Max	Units
Isolation voltage	Tested for 1 minute and 1mA max	1000			VDC
Isolation resistance	Test at 500VDC	1000			MΩ
Isolation capacitance	Input-output, 100KHz/0.1V		20		pF

Example SIP4 Case:
QT8E_0505S1U
Q= 0,25 Watt; T8= SMT8; E= Pinning; 05= 5Vin; 05= 5Vout;
S= Single Output; 1= 1kVDC Isolation; U= Unregulated Output

Note:
1. Operation under minimum load will not damage the converter; However, they may not meet all specifications.
2. Max. Capacitive Load is tested at nominal input voltage and full load.
3. Unless otherwise noted, All specifications are measured at Ta=25°C, humidity<75%, nominal input voltage and rated output load.
4. In this datasheet, all test methods are based on our corporate standards.
5. All characteristics are for listed models, and non-standard models may perform differently. Please contact our technical support for more detail.
6. Please contact our technical support for any specific requirement.
7. Specifications of this product are subject to changes without prior notice.

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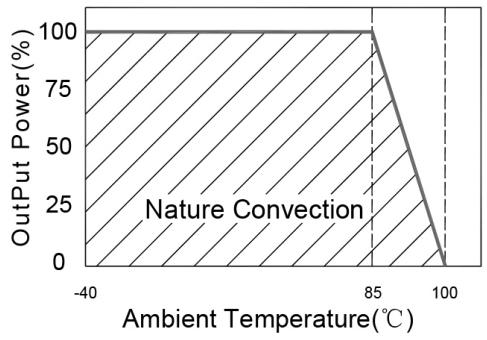
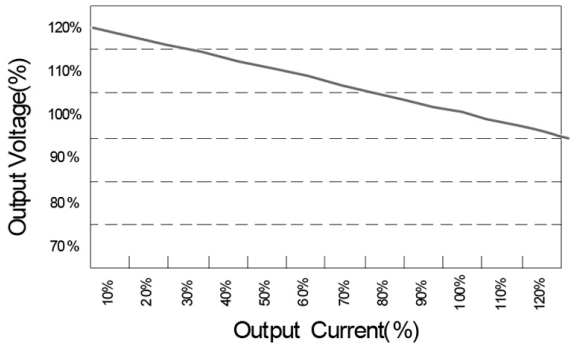
Part Number	Input Voltage Range [VDC]	Output Voltage [VDC]	Output Current [mA, max]	Efficiency [%, typ.]
QT8E_0303S1U	3.3	3.3	76	65
QT8E_0305S1U	3.3	5	50	65
QT8E_0309S1U	3.3	9	28	70
QT8E_0312S1U	3.3	12	21	72
QT8E_0315S1U	3.3	15	16	72
QT8E_0503S1U	5	3.3	76	65
QT8E_0505S1U	5	5	50	65
QT8E_0509S1U	5	9	28	70
QT8E_0512S1U	5	12	21	72
QT8E_0515S1U	5	15	16	72
QT8E_1203S1U	12	3.3	76	65
QT8E_1205S1U	12	5	50	65
QT8E_1209S1U	12	9	28	70
QT8E_1212S1U	12	12	21	72
QT8E_1215S1U	12	15	16	72
QT8E_1503S1U	15	3.3	76	65
QT8E_1505S1U	15	5	50	65
QT8E_1509S1U	15	9	28	70
QT8E_1512S1U	15	12	21	72
QT8E_1515S1U	15	15	16	72

Typical characteristics

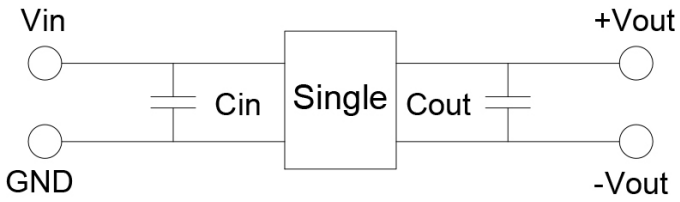
Temperature derating graph



Tolerance envelope graph

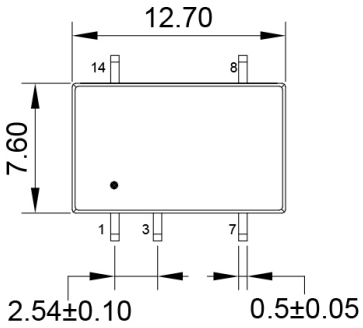


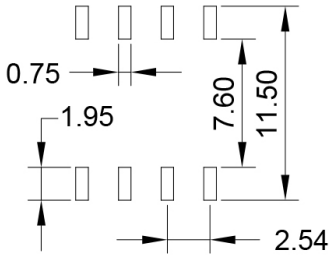
Recommended test circuit



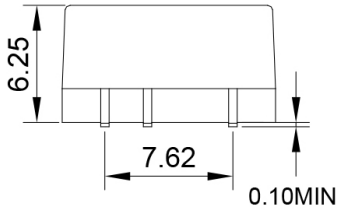
3.3V:Cin	4.7uF,25V	3.3V :Cout	22uF,16V
5V :Cin	4.7uF,25V	5V :Cout	10uF,25V
9V :Cin	4.7uF,25V	9V :Cout	4.7uF,25V
12V:Cin	2.2uF,25V	12V:Cout	2.2uF,25V
15V:Cin	1uF,50V	15V:Cout	1uF,50V

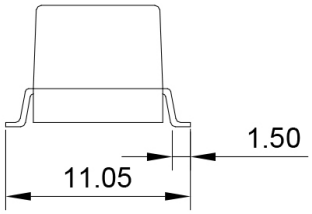
Mechanical dimensions





SUGGESTED PAD LAYOUT





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

Pin connection:

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

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