QT8A_3UP Series

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



DC-DC Converter 0.25 Watt

- 3000VDC isolation
- Efficiency up to 78%
- Operating temperature range: -40°C ~ +105°C
- Power density 1.8W/cm3
- Industry standard pinout
- RoHS Compliance
- Short circuit protection (SCP)
- Small footprint (over pins 1.37cm²)

The QT8A_3UP products are an ideal and economical solution for many applications where noise reduction, voltage isolation, voltage conversion in distributed power systems is required. these converters are qualified for the higher temperatures requested by lead-free reflow solder processes, especially for automated SMD production lines.

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 ≤3000VDC)
3) Where the regulation of the output voltage and the output ripple noise are not demanding.

Common specifications

Short circuit protection:	Continuos, automatic recovery
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
Internal power dissipation:	610mW
Storage humidity range:	< 95%
Case material:	UL 94V-0
MTBF (MIL-HDBK-217F@25°C):	>2,000,000 hours
Weight:	1.21g

Input specifications

Item	Test condition	Min	Typ	Max	Units
Voltage range	• 3.3V input variants	2.9	3.3	3.6	V
	• 5V input variants	4.5	5	5.5	V
	• 12V input variants	11	12	13.3	V
	• 15V input variants	13.4	15	16.4	V
	• 24V input variants	22	24	26.5	V

Isolation specifications

Item	Test condition	Min	Typ	Max	Units
Isolation voltage	Tested for 1 minute and 1mA max	3000			VDC
Isolation resistance	Viso= 1000VDC	1			GΩ

Output specifications

Item	Test condition	Min	Typ	Max	Units
Rated power	TA= 40°C to 85°C			1	W
Voltage set point accuracy	See tolerance envelope		1.2		%
Line regulation	High Vin to low Vin		1.0	1.2	%
Load regulation	10% to 100% load				
	• 3V output & QT8E_03xx		10	14	%
	• 5V output		13	15	%
	• 9V output		8	9	%
	• 12V output		6.5	7.5	%
	• 15V output		6	7	%
Temperature drift	100% full load			±0.03	%/°C
Ripple & Noise*	20MHz Bandwidth			100	mVp-p
Switching frequency	Full load, nominal input		120		KHz

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

Example SIP4 Case:
QT8A_0505S3UP
Q = 0,25 Watt; T8 = SMT8; A = Pinning; 05 = 5Vin; 05 = 5Vout;
S = Single Output; 3 = 3kVDC Isolation; U = Unregulated Output
P = Short circuit protection

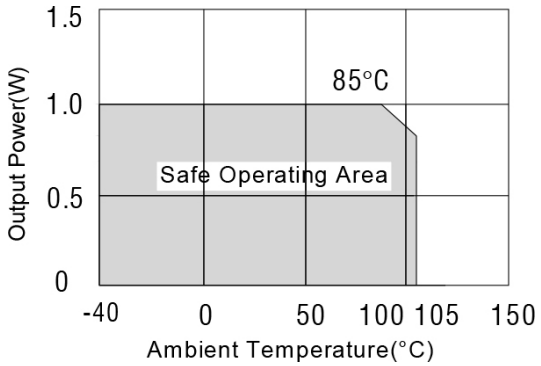
Note:
1. Operation under minimum load will not damage the converter; However, they may not meet all specifications.
2. Max. Capacitive Load is tested at nominal input voltage and full load.
3. Unless otherwise noted, All specifications are measured at Ta = 25°C, humidity <75%, nominal input voltage and 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.

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

Part Number	Input Voltage Range [VDC]	Output Voltage [VDC]	Output Current [mA, max]	Efficiency [%, typ.]
QT8A_0303S3UP	3.3	3.3	76	72
QT8A_0305S3UP	3.3	5	50	77
QT8A_0309S3UP	3.3	9	28	77
QT8A_0312S3UP	3.3	12	20.8	77
QT8A_0315S3UP	3.3	15	16.7	77
QT8A_0503S3UP	5	3.3	76	74
QT8A_0505S3UP	5	5	50	69
QT8A_0509S3UP	5	9	28	75
QT8A_0512S3UP	5	12	20.8	78
QT8A_0515S3UP	5	15	16.7	78
QT8A_1203S3UP	12	3.3	76	74
QT8A_1205S3UP	12	5	50	67
QT8A_1209S3UP	12	9	28	73
QT8A_1212S3UP	12	12	20.8	74
QT8A_1215S3UP	12	15	16.7	75
QT8A_1505S3UP	15	5	50	77
QT8A_1515S3UP	15	15	16.7	75
QT8A_2403S3UP	24	3.3	76	74
QT8A_2405S3UP	24	5	50	67
QT8A_2409S3UP	24	9	28	73
QT8A_2412S3UP	24	12	20.8	74
QT8A_2415S3UP	24	15	16.7	75

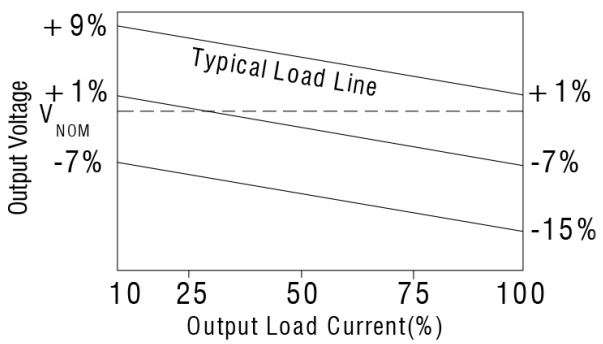
Typical characteristics

Temperature derating graph

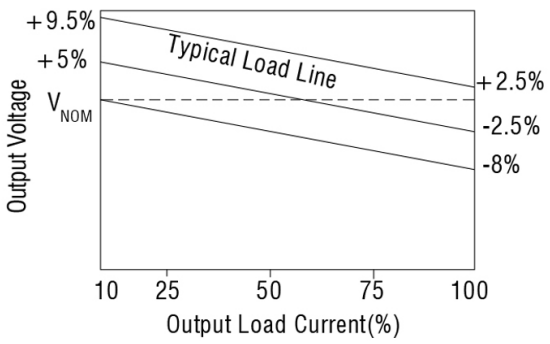


Tolerance envelope graph

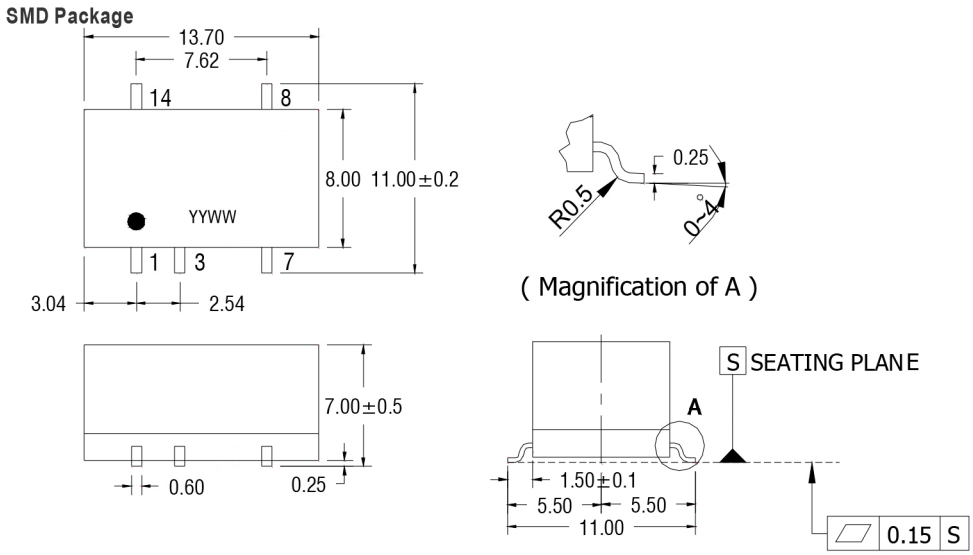
3.3V output types



All other types



Mechanical dimensions

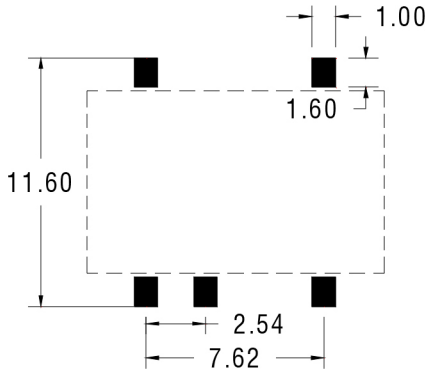


5 PIN SMD	
Pin	Function
1	-Vin
3	+Vin
5	No Pin
7	-Vout
8	+Vout
10	No Pin
12	No Pin
14	NA

NA - Not available
for electrical connection.

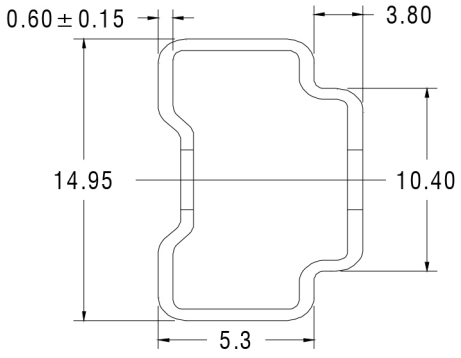
All dimensions in mm ±0.25mm. All pins on a 2.54mm pitch and within ±0.25mm of true position.

Footprint



All pins on a 2.54mm pitch.
Unless otherwise stated all dimensions in mm ± 0.5mm.

Tube outline dimensions

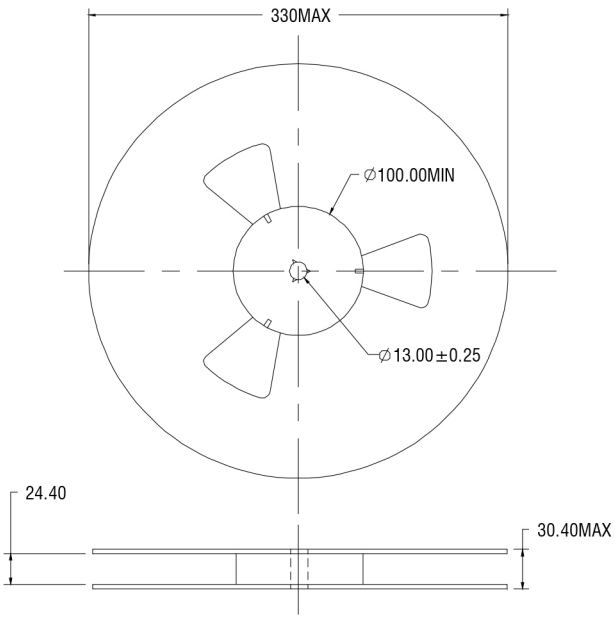


Unless otherwise stated all dimensions in mm ± 0.25mm.

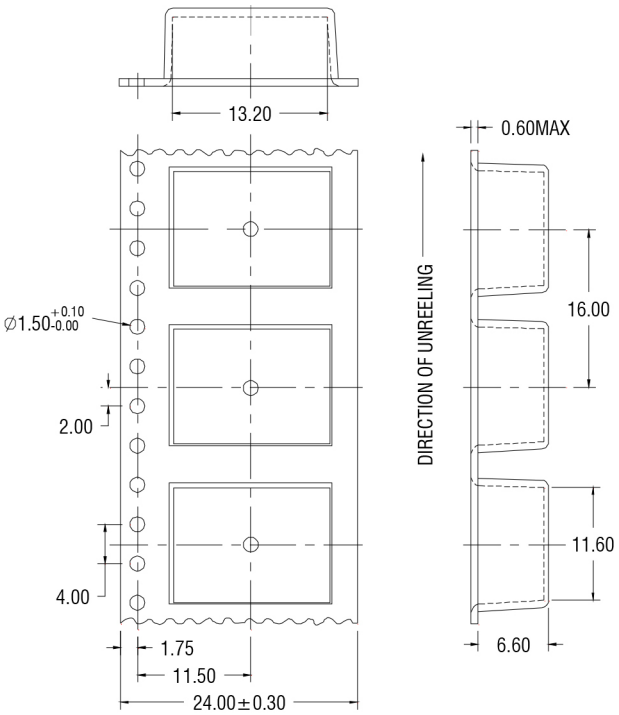
Tube length:475mm ± 2.0mm

Tube Quantity:35PCS

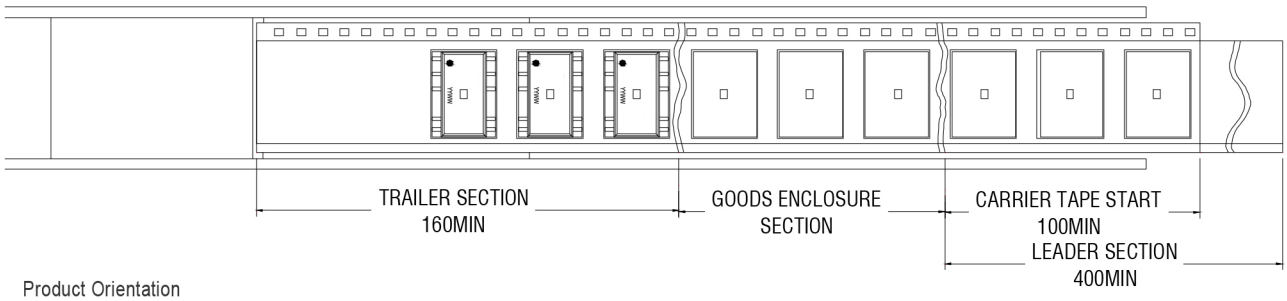
Reel outline dimensions



Tape outline dimensions



Reel packaging details



Product Orientation

Pin 1, located nearest to carrier drive sprocket

Reel Quantity : 500PCS

Less than 500pcs will be tube packing!