QS7B_3UP series

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



DC-DC Converter 0.25 Watt

- Short circuit protection (SCP)
- 3kVDC Isolation
- Temperature range: -40°C ~ +105°C
- Efficiency up to 80%
- Power density up to 0.85W/cm³
- Single and dual output from a single input rail
- Industry standard pinout
- RoHS compliance
- CE certification

The QS7B_3UP series are miniature, isolated 0.25W DC-DC converters in a SIP package.

They offer the ideal solution in many space critical applications for board level power distribution. The internal SMD construction makes it possible to offer a product with high performance at low cost. The series offers smaller size, improved efficiency, lower output ripple noise and 3kVDC isolation.

Common specifications

Short circuit protection:	Continuous, self-recovery
Cooling:	Free air convection
Operation temperature range:	-40°C~+105°C
Storage temperature range:	-50°C ~+130°C
Lead temperature:	300°C MAX, 1.5mm from case for 10 sec
Storage humidity range:	< 95%
Power density:	< 0.85W/cm³
Case material:	Plastic [UL94-V0]
MTBF (MIL-HDFK-217F@25°C):	>3,500,000 hours
Weight:	2.1g (SIP)

Input specifications

Item	Test condition	Min	Typ	Max	Units
Input voltage range	• 3.3VDC input • 5VDC input • 12VDC input • 15VDC input	2.9 4.5 10.7 13.5	3.3 5 12 15	3.6 5.5 13.1 16.5	V V V V
Reflected ripple current			22	45	mA
Internal power dissipation				450	mW

Isolation specifications

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

Output specifications

Item	Test condition	Min	Typ	Max	Units
Output voltage accuracy	See tolerance envelope graph				
Line regulation	From high to low Vin		1	1.2	%
Load regulation (10% to 100% load)	5V & 12V input • 5V output • 9V output • 12V output • 15V output 15V input • 5V output • 12V/15V output		 10 9 7 6 6 3	 13 10 8 7 10 4	 % % % % % %
Ripple & Noise*	20MHz Bandwidth		50	75	mVp-p
Temperature drift	100% full load		±0.03		%/°C
Switching frequency	• 3.3VDC input • 5VDC input • 12VDC input • 15VDC input		95 110 130 90		kHz kHz kHz kHz

* Ripple and noise are measured by "parallel cable" method, please see DC-DC Converter Application Notes for specific operation.

Example:
QS7B_0505S3UP
Q = 0,25 Watt; S7 = SIP7; B = Pinning; 05 = 5 Vin; 05 = 5Vout;
S = Single Output; 3 = 3kVDC Isolation; 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, and that will reduce the life of product.
2. All specifications measured at Ta = 25°C, humidity <75%, nominal input voltage and rated output load unless otherwise specified.
3. Only typical models listed, other models may be different, please contact our technical person for more details.
4. In this datasheet, all the test methods of indications are based on corporate standards.

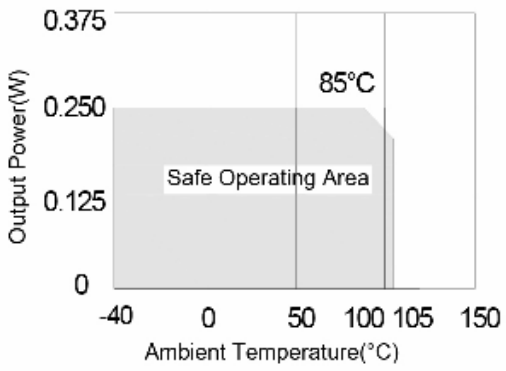
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Specifications subject to change without notice.

Product Selection Guide

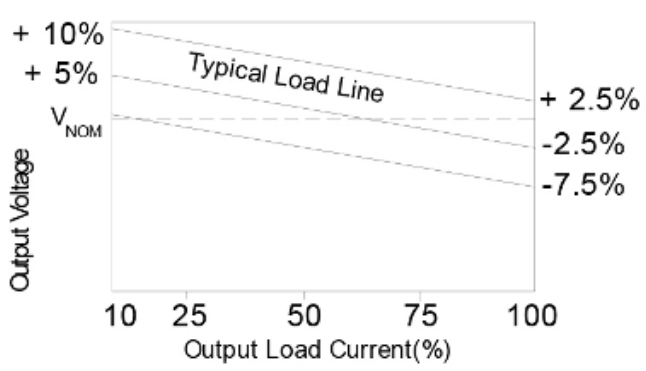
Part Number	Input Voltage [V]	Output Voltage [VDC]	Output Current [mA, max]	Efficiency [%, typ]	Package Style
QS7B_0505D3UP	5	±5	±25	67	SIP
QS7B_0509D3UP	5	±9	±14	76	SIP
QS7B_0512D3UP	5	±12	±10.5	79	SIP
QS7B_0515D3UP	5	±15	±8.5	78	SIP
QS7B_0524D3UP	5	±24	±5.25	81	SIP
QS7B_1205D3UP	12	±5	±25	68	SIP
QS7B_1209D3UP	12	±9	±14	74	SIP
QS7B_1212D3UP	12	±12	±10.5	77	SIP
QS7B_1215D3UP	12	±15	±8.5	75	SIP
QS7B_1505D3UP	15	±5	±25	71	SIP
QS7B_1512D3UP	15	±12	±14	77	SIP
QS7B_1515D3UP	15	±15	±10.5	80	SIP

Typical characteristics

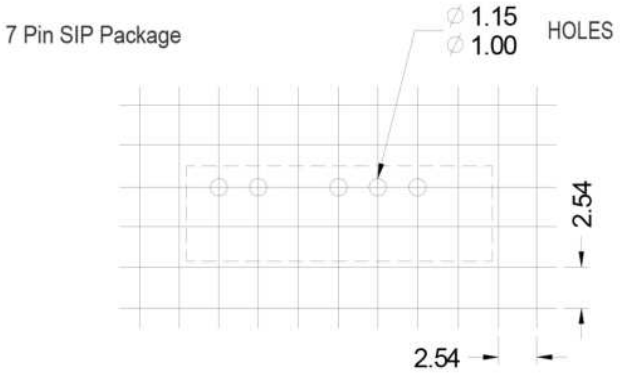
Temperature derating graph



Tolerance envelope graph

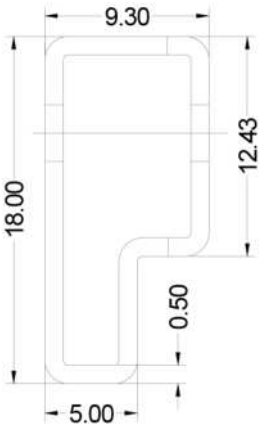


Recommended footprints



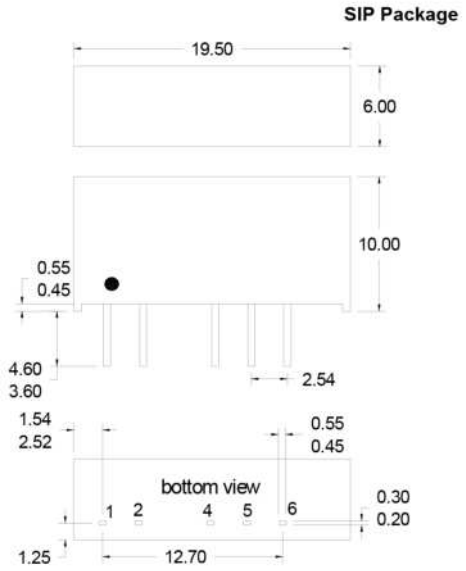
Tube outline

7Pin SIP Tube



Tube length:
520mm±2mm.
Tube Quantity : 25PCS

Mechanical dimensions



All dimensions in mm±0.25mm. All pins on a 2.54mm pitch and within ±0.25mm of true position.
Weight: 2.1g (SIP)

7 PIN SIP

Pin	Function
1	+Vin
2	-Vin
4	-Vout
5	OV
6	+Vout