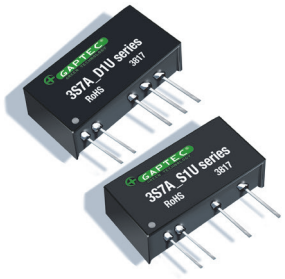
GAPTEC®
GREEN TECHNOLOGY



3S7A_1U Series

3W Single/Dual Output - Fixed Input - Isolated & Semi-regulated
SIP PACKAGE

DC-DC Converter 3 Watt

- Small Footprint
- 7 pin SIL package
- Low ripple and good EMC features
- Temperature range: -40°C ~ +85°C
- No heat sink required
- No external component required
- 1kVDC isolation
- Internal SMD construction
- Industry standard pinout
- RoHS compliance

The 3S7A_1U Series is specially designed for applications where a single power supply is highly 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 ≤±5%);
2) Where isolation is necessary between input and output (isolation voltage ≤1000VDC);
3) Where the regulation of the output voltage and the output ripple and noise are demanded.

Common specifications	
Short circuit protection:	1 second
Cooling:	Free air convection
Operation temperature range:	-40°C to +85°C
Storage temperature range:	-40°C to +125°C
Case temperature:	100°C MAX
Lead temperature:	260°C (1.5mm from case for 10 sec.)
Storage humidity range:	< 95%
Case material:	Non-conductive black plastic [UL94-V0]
Potting material:	Epoxy [UL94-V0]
MTBF:	>1,800,000 hours
Weight:	2.8g

Isolation specifications					
Item	Test condition	Min	Typ	Max	Units
Isolation voltage	Tested for 1 minute	1000			VDC
Isolation capacitance	Tested for 1 minute		60		pF
Isolation resistance	Test at 500VDC	1			GΩ

Example:
3S7A_0505S1U
3= 3Watt; S7= SIP7; A= Pinning; 5Vin; 5Vout; S= Single Output;
1= 1kVDC; U= Unregulated Output

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. In this datasheet, all the test methods of indications are based on corporate standards.
4. Only typical models listed, other models may be different, please contact our technical person for more details.

Output specifications					
Item	Test condition	Min	Typ	Max	Units
Line regulation	For Vin change of ±1%		±1.2		%
Load regulation	see table				
Output voltage accuracy	100% full load	±2		±4	%
Temperature drift	100% full load		±0.02		%/°C
Ripple&Noise*	20MHz Bandwidth		50		mVp-p
Switching frequency	Variable		70		KHz

*Test ripple and noise measured with 20MHz bandwidth and 1.0UF ceramic capacitor.

Input specifications					
Item	Test condition	Min	Typ	Max	Units
Voltage range			±10		%
Input filter	Capacitor				
Input reflected ripple current			25		mA pk-pk
Surge voltage	100ms • 5V • 12V			 9 18	 VDC VDC

EMC specifications		
CE*	EN55022 CLASS B	
RE	EN55022 CLASS B	
ESD	IEC 61000-4-2	perf. Criteria A
RS	IEC 61000-4-3	perf. Criteria A
EFT**	IEC 61000-4-4	perf. Criteria A
CS	IEC 61000-4-6	perf. Criteria A
PFMF	IEC 61000-4-8	perf. Criteria A

* Input filter components (C1, L) are used to help meet conducted emissions requirement for the module. Theses components should be mounted as close as possible to the module; all leads should be minimized to decrease radiated noise (see EMI filter, Test configuration).
** An external filter is required if the module has to meet IEC61000-4-4

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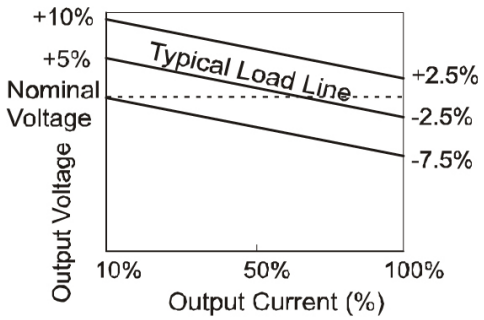
SIP PACKAGE

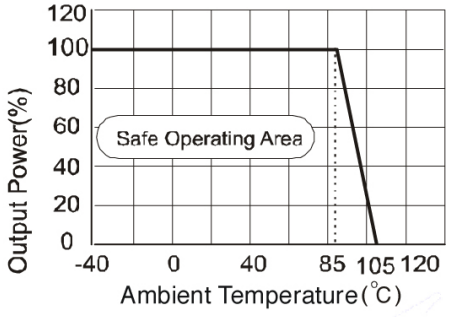
Part Number	Input Voltage [V]	Input Current [mA, max]	Output Voltage [VDC]	Current [mA, max]	Load regulation [%]	Efficiency [%, max]	Capacitor load [µF]
3S7A_0505S1U	5	769	5	600	8	78	220
3S7A_0509S1U	5	714	9	333	7	84	220
3S7A_0512S1U	5	714	12	250	6	84	100
3S7A_0515S1U	5	714	15	200	6	84	100
3S7A_1205S1U	12	298	5	600	6	84	220
3S7A_1209S1U	12	287	9	333	4	87	220
3S7A_1212S1U	12	284	12	250	4	88	100
3S7A_1215S1U	12	278	15	200	3	90	100
3S7A_0505D1U	5	741	±5	±300	7	81	±100
3S7A_0509D1U	5	706	±9	±166	6	85	±100
3S7A_0512D1U	5	706	±12	±125	6	85	±47
3S7A_0515D1U	5	714	±15	±100	5	84	±47
3S7A_1205D1U	12	294	±5	±300	5	85	±100
3S7A_1209D1U	12	284	±9	±166	4	88	±100
3S7A_1212D1U	12	281	±12	±125	3	89	±47
3S7A_1215D1U	12	278	±15	±100	3	90	±47

Typical characteristics

Tolerance Envelope Graph

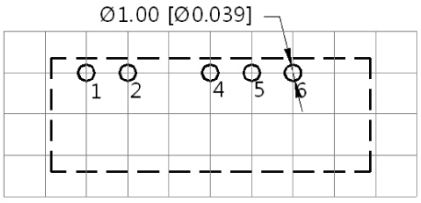


Temperature Derating Graph

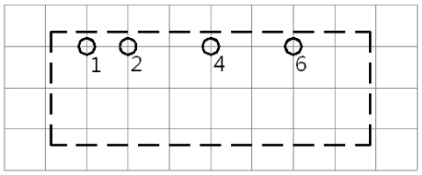


Recommended footprint

Dual



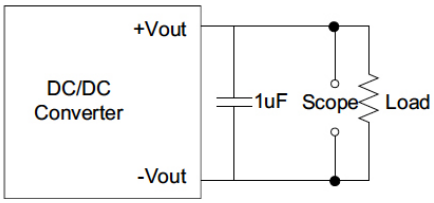
Single



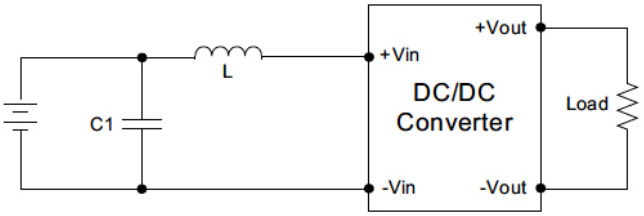
Note : Grid 2.54*2.54mm

Test configurations

Output Ripple & Noise measurement test
Use a capacitor (1.0uF) measurement. The scope measurement bandwidth is 0-20MHz.



EMI filter



	C1	L
3S7A_05yyS/D1U	1210, 2.2uF/100V	18uH
3S7A_12yyS/D1U	1210, 2.2uF/100V	18uH

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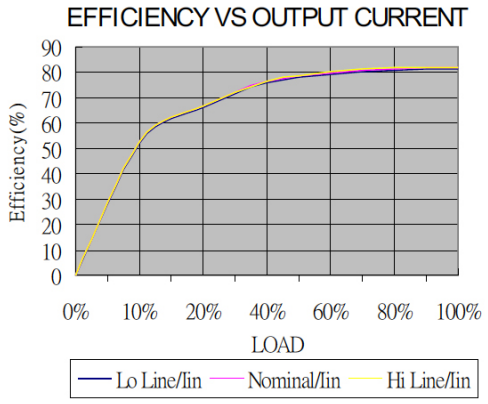
Efficiency



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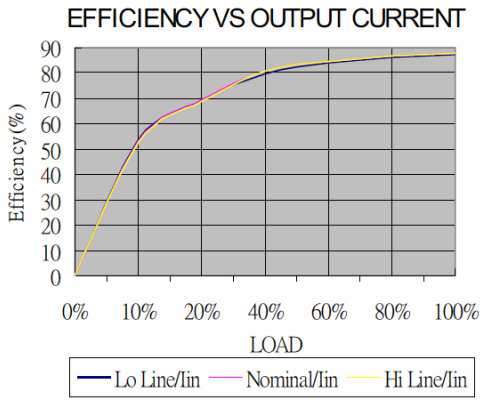
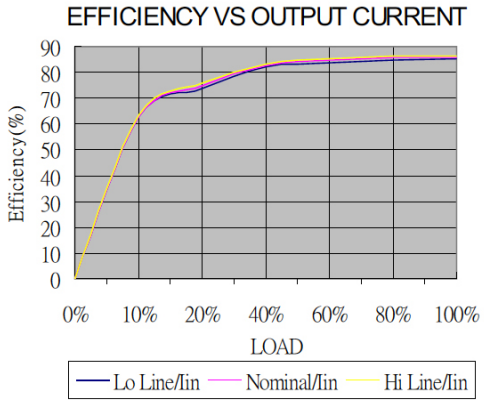
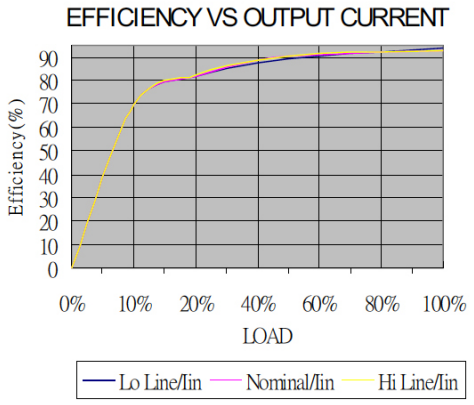


3S7A_0515D1U

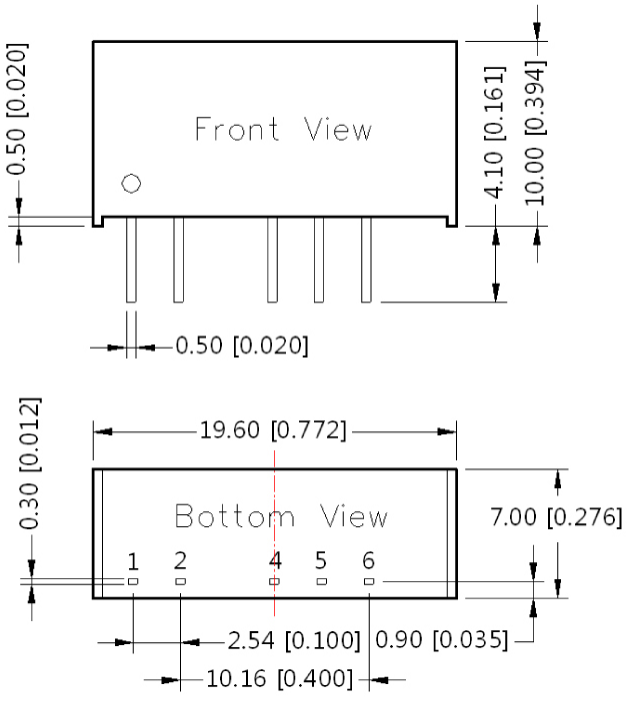


3S7A_1205S1U



3S7A_1215D1U

Mechanical Dimensions



PIN CONNECTION		
Pin	Single	Dual
1	Vin	Vin
2	GND	GND
4	0V	-Vo
5	No Pin	0V
6	+Vo	+Vo

Note:
Unit: mm[inch]
Pin diameter: ±0.10mm [±0.004inch]
Case tolerances: ±0.25mm [±0.010inch]