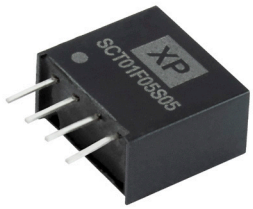
SCT01F series

1W

DC-DC converters

The SCT01F series of 1W DC-DC converters are an ideal solution for isolating voltage rails in a distributed power supply architecture such as analog, digital, data and relay circuits.

The SCT01F offers high efficiency, ITE safety approvals, short circuit protection and a wide operating temperature range in a compact SIP4 design, allowing easy integration into industrial, instrumentation and technology applications.



Features

- Single unregulated outputs from 3.3V to 15VDC
- ±10% input range
- Nominal inputs 3.3V to 24VDC
- Compact SIP4 package
- 1kVDC isolation, 2kVDC option
- UL62368-1 & IEC62368-1 safety approvals
- Continuous short circuit protection
- -40°C to +95°C operating temperature
- 3 year warranty

Applications

Robotics
Instrumentation
Technology
Industrial
Process control

Dimensions

11.6 x 6.0 x 10.2mm (0.46" x 0.24" x 0.40")

Models & ratings

Model number[1]	Input voltage	Output voltage	Output current	Efficiency[2]	Maximum capacitive load
SCT01F03S3V3	3V3 (3.0-3.6V)	3.3V	303mA	75%	1500µF
SCT01F03S05		5V	200mA	76%	1500µF
SCT01F03S12		12V	84mA	77%	470µF
SCT01F03S15		15V	67mA	78%	220µF
SCT01F05S3V3	5V (4.5-5.5V)	3.3V	303mA	74%	1500µF
SCT01F05S05		5V	200mA	78%	1500µF
SCT01F05S12		12V	84mA	78%	470µF
SCT01F05S15		15V	67mA	83%	220µF

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Notes:

1. Optional 2kVDC isolation add suffix '-H2'.
2. Typical value at nominal input voltage and full load.

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Models & ratings

Model number[1]	Input voltage	Output voltage	Output current	Efficiency[2]	Maximum capacitive load
SCT01F12S3V3	12V (10.8-13.2V)	3.3V	303mA	79%	1500μF
SCT01F12S05		5V	200mA	82%	1500μF
SCT01F12S12		12V	84mA	80%	470μF
SCT01F12S15		15V	67mA	81%	220μF
SCT01F24S3V3	24V (21.6-26.4V)	3.3V	303mA	78%	1500μF
SCT01F24S05		5V	200mA	79%	1500μF
SCT01F24S12		12V	84mA	80%	470μF
SCT01F24S15		15V	67mA	84%	220μF

Notes:

1. Optional 2kVDC isolation add suffix '-H2'.
2. Typical value at nominal input voltage and full load.

Input

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Input voltage range	3.0		3.6	VDC	3V nominal
	4.5		5.5		5V nominal
	10.8		13.2		12V nominal
	21.6		26.4		24V nominal
Input filter	Internal capacitors				

Output

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Output voltage	3.3		15	VDC	See Models & ratings table
Initial set accuracy	-5		+5	%	Nominal input and full load
Minimum load					No minimum load required
Line regulation		±1.2	±1.4	%	Per 1% change of input voltage
Load regulation			15/10	%	3.3V & 5V / 12V & 15V output from 10% to full load.
Ripple & noise			100	mV pk-pk	Measured with 20MHz bandwidth and 0.1μF ceramic capacitor at nominal input 25°C
Short circuit protection	Continuous, with autorecovery				
Maximum capacitive load	See Models & ratings table				
Temperature coefficient		±0.02		%/ °C	Full load

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General

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Efficiency	See models & ratings table				
Isolation: input to output	1000/2000			VDC	Add suffix -H2 for 2kV isolation
Isolation resistance	10^9			Ω	Input to output
Isolation capacitance		20		pF	Input to output
Switching frequency	50			kHz	Full load
Power density			22.6	W/in^3	
Mean time between failure		13		MHrs	MIL-HDBK-217F, +25°C GB
Weight		1.4 (0.003)		g (lb)	
Case material	Black plastic, flame retardant UL94V-0				
Pin material	Phospher bronze				
Solder profile	IPC/JEDEC J-STD-020D.1				
Water wash	Non-soaking water wash with de-ionised water. Dry thoroughly.				
Potting material	Epoxy UL94V-0 rated				

Environmental

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Operating temperature	-40		+95	°C	3.3V / 5V / 12VDC input, see derating curve
	-40		+90	°C	24VDC input, see derating curve
Storage temperature	-55		+125	°C	
Maximum case temperature			+115	°C	
Humidity			95	%RH	Non-condensing
Cooling	Natural convection				

Safety approvals

Safety Agency	Standard	Notes & Conditions
CB	IEC62368-1	
UL	UL/cUL62368-1	
CE	Meets all applicable directives	
UKCA	Meets all applicable legislation	

EMC: emissions

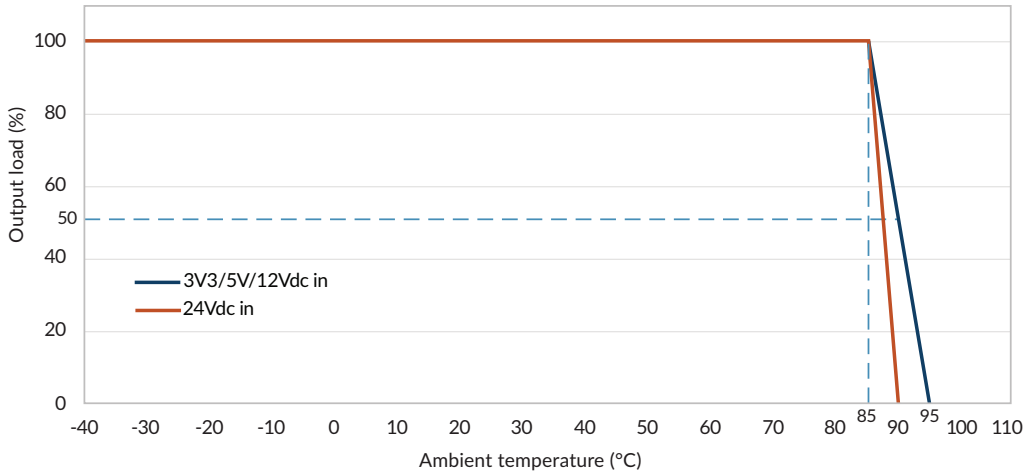
Phenomenon	Standard	Test level	Notes & conditions
Conducted	EN55032	Class A/B	See application notes
Radiated	EN55032	Class A/B	See application notes

EMC: immunity

Phenomenon	Standard	Test level	Criteria	Notes & conditions
ESD immunity	EN61000-4-2	3	A	±6kV contact, ±8kV air discharge
Radiated	EN61000-4-3	10V/m	A	
EFT/burst	EN61000-4-4	1	A	±0.5kV (Line to line)
Surges	EN61000-4-5	1	A	±0.5kV (Line to line)
Conducted	EN61000-4-6	10V	A	
Magnetic field	EN61000-4-8	1A/m	A	

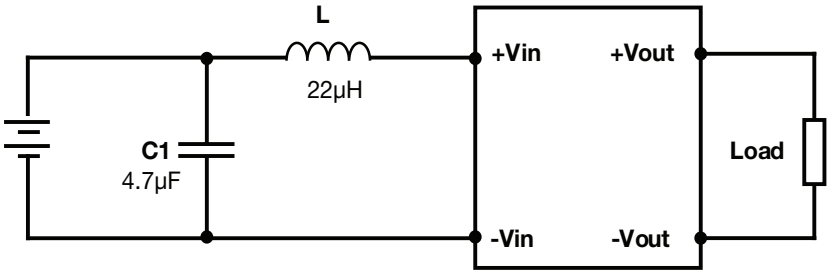
Application notes

Derating curve (nominal input voltage)



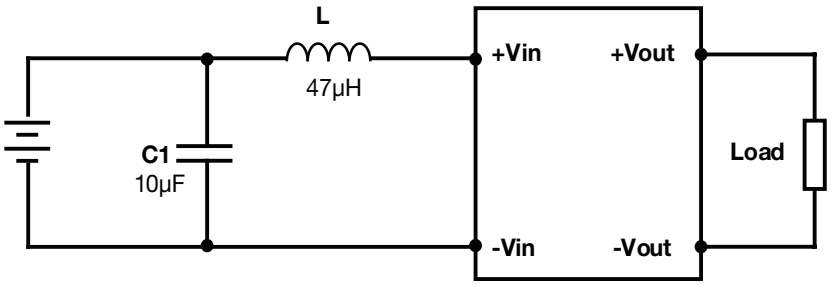
Application notes

EMI (Class A) filter

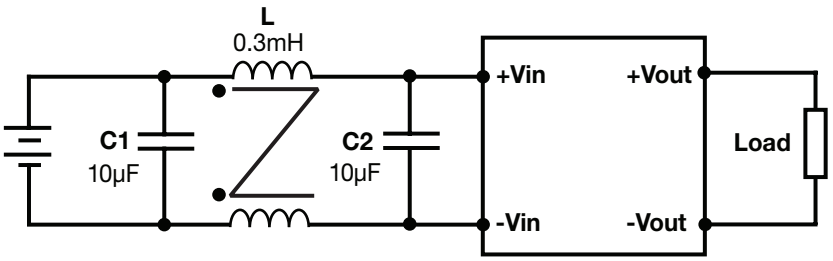


EMI (Class B) filter

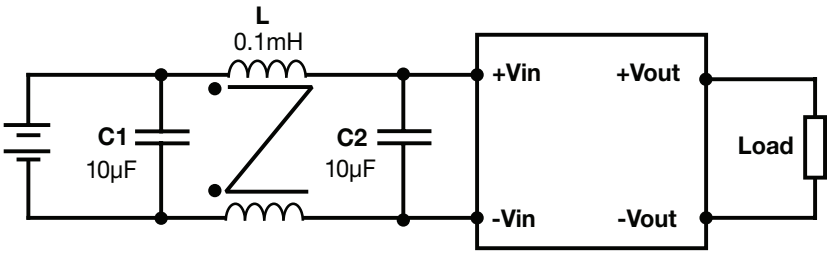
3.3VDC & 5VDC input



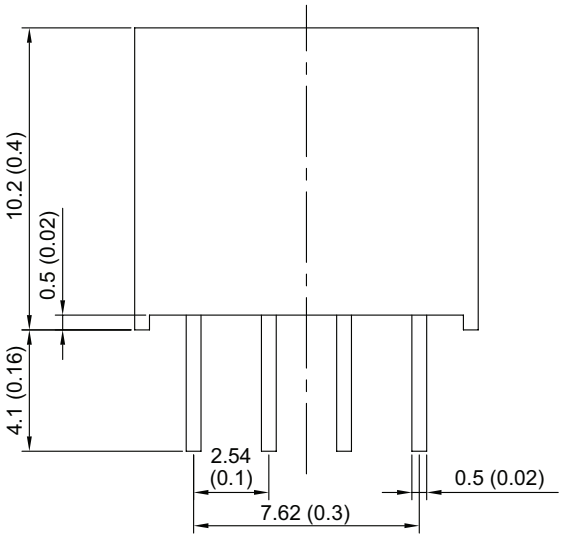
12VDC input (all outputs) & 24VDC input (5V output)

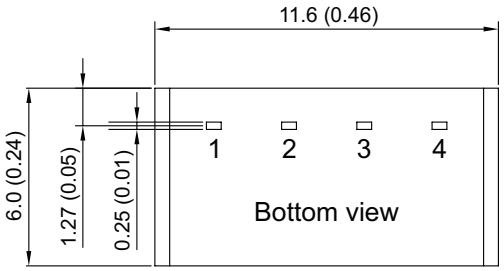


24VDC input (other outputs)



Mechanical details





Pin connections	
Pin	**Function**
1	-Vin
2	+Vin
3	-Vout
4	+Vout

Notes:

1. All dimensions are in mm (inches).
2. Weight: 1.4g (0.003lbs) typical.
3. Pin diameter tolerance: ±0.1 (±0.004).
4. Pin pitch tolerance: ±0.25 (±0.01).
5. Case tolerance: ±0.5 (±0.02).

Specifications subject to change without notice.