SFT03C/T series

3W

DC-DC converters

The SFT03C/T series of single and dual output 3W 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 SFT03C/T offers high efficiency, ITE safety approvals, remote on/off, short circuit protection and a wide operating temperature range in a compact SIP8 design, allowing easy integration into industrial, instrumentation and technology applications.

Features

- Single & dual regulated outputs from 3.3V to 15VDC
- 2:1 & 4:1 input ranges
- SIP8 package
- 2kVDC isolation
- UL62368-1 & IEC62368-1 safety approvals
- Continuous short circuit protection
- Remote on/off
- -40°C to +100°C operating temperature
- 3 year warranty

Applications

Robotics
Instrumentation
Technology
Industrial
Process control

Dimensions

22.3 x 10.0 x 11.3mm (0.88" x 0.39" x 0.44")

Models & ratings

Model number	Input voltage	Output voltage	Output current	Efficiency[1]	Maximum capacitive load
SFT03C05S3V3	5V (4.5V-9.0V)	3.3V	700mA	73%	2200µF
SFT03C05S05		5V	600mA	77%	2200µF
SFT03C05S12		12V	250mA	80%	1000µF
SFT03C05S15		15V	200mA	80%	820µF
SFT03C05D12		±12V	±125mA	80%	±220µF
SFT03C05D15		±15V	±100mA	80%	±330µF
SFT03T24S3V3	24V (9.0V-36.0V)	3.3V	700mA	75%	4400µF
SFT03T24S05		5V	600mA	79%	2200µF
SFT03T24S12		12V	250mA	81%	1000µF
SFT03T24S15		15V	200mA	81%	680µF
SFT03T24D05		±5V	±300mA	77%	±330µF
SFT03T24D12		±12V	±125mA	79%	±330µF
SFT03T24D15		±15V	±100mA	79%	±220µF

Notes:

1. Typical value at nominal input voltage and full load.

Input

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Input voltage range	4.5		9.0	VDC	5V nominal
	9.0		36.0		24V nominal
No load input current			100	mA	5V model
			10		24V model
Input filter	Internal capacitors				
Input surge voltage			15	VDC	5V model for 100ms
			50		24V model for 100ms
Under voltage lockout		2.7		VDC	5V model
		7.5			24V model

Output

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Output voltage	3.3		30	VDC	See Models & ratings table
Initial set accuracy			±1/±3	%	5V/24V models, full load
Minimum load					No minimum load required
Start up time			30	ms	Nominal input, full load
Line regulation		±0.1	±0.2	%	5V models, min. input to max. input, full load
		±0.2/±0.5	±0.5/±1.0		24V models, single/dual outputs, min. input to max. input, full load
Load regulation			±1/±1.5	%	5V models single & dual and 24V models single/24V dual outputs from 0% to full load.
Cross regulation			±5	%	On dual output models with one output set to 50% load and the other varied from 10% to 100% load
Ripple & noise			100	mV pk-pk	Measured with 20MHz bandwidth and 22μF ceramic capacitor at nominal input 25°C
Overload protection		180/200		%	5V/24V models
Short circuit protection	Continuous, with autorecovery				
Maximum capacitive load	See Models & ratings table				
Temperature coefficient		±0.05		%/ °C	Full load
Remote ON/OFF	Output is ON if pin 3 is open or 3.5-15VDC and output is OFF if pin 3 is short to -Vin or 0-1.2VDC				

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General

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Efficiency	See models & ratings table				
Isolation: input to output	2000			VDC	
Isolation resistance	10^9			Ω	Input to output
Isolation capacitance			50	pF	Input to output
Switching frequency	100			kHz	5V models, full load
		300/270/400			24V models, 3V3/15V/5V & 12V output, full load
Power density			20	W/in^3	
Mean time between failure		3200		kHrs	5V/24V models, MIL-HDBK-217F, +25°C GB
Weight		4.5 (0.01)		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		+100	°C	5VDC models, see derating curve
	-40		+105	°C	24VDC input, see derating curve
Storage temperature	-55		+125	°C	
Maximum case temperature			+110	°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(1)

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	±1kV/±2kV	A	5V/24V models (Line to line)
Surges	EN61000-4-5	±1kV/±2kV	A	5V/24V models (Line to line)
Conducted	EN61000-4-6	10V	A	
Magnetic field	EN61000-4-8	100A/m	A	

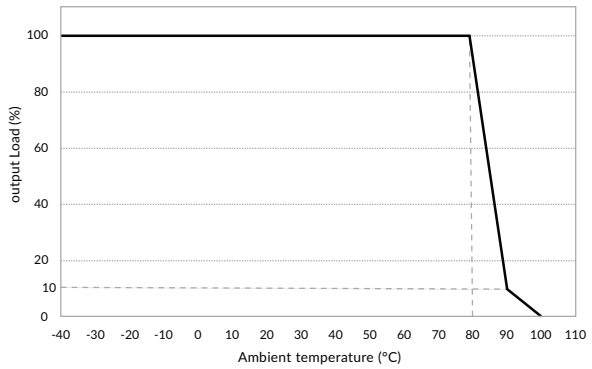
Notes:

1. External components required. 5V models with 1800μF/25V & 24V models with 1500μF/50V input capacitors.

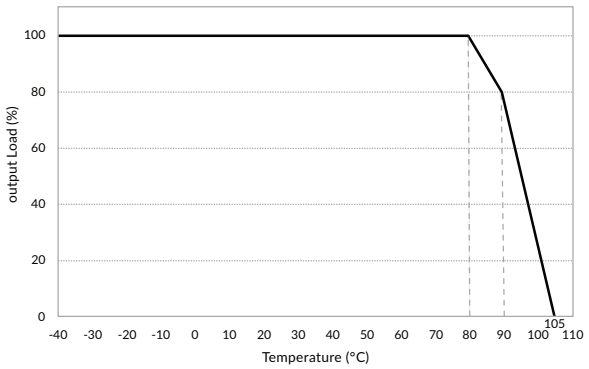
Application notes

Derating curve (nominal input voltage)

5V models



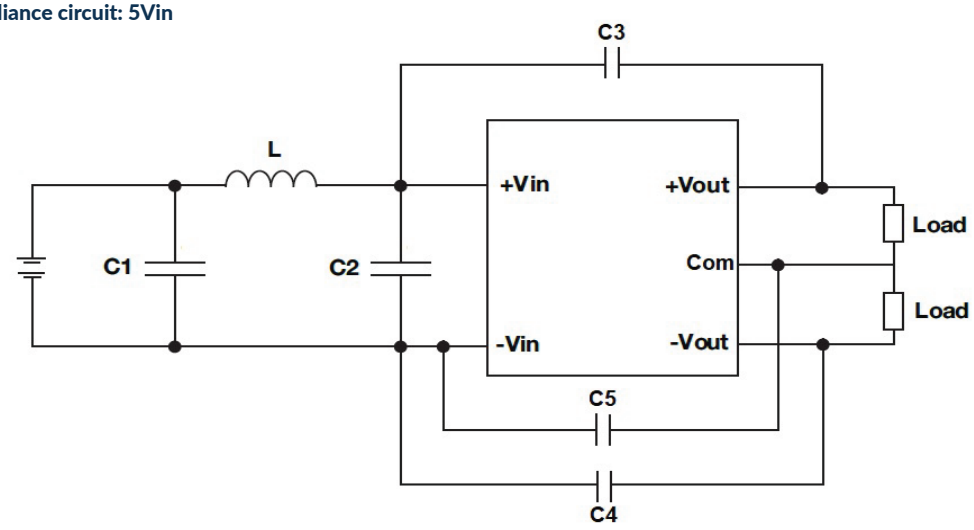
24V models



SFT03C/T series

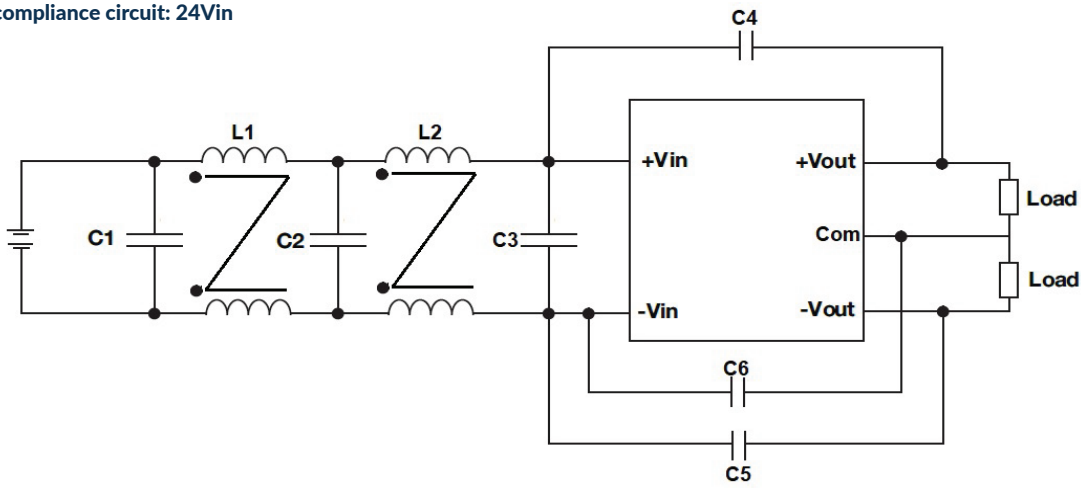
Application notes

EMC (Class A/B) compliance circuit: 5Vin



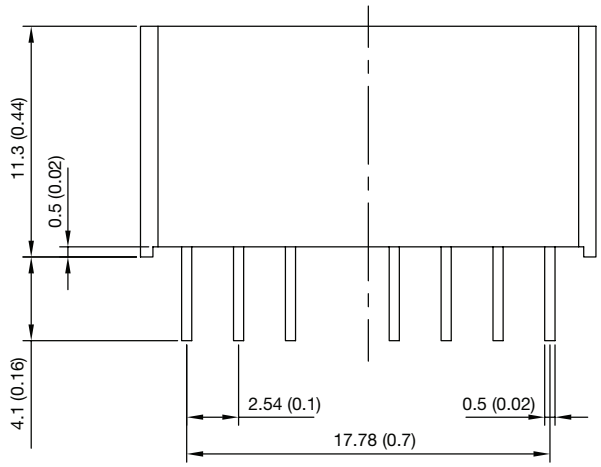
Model	Class	C1	C2	C3	C4	C5	L
Single output	A	10μF	NA	1000pF	1000pF	NA	10μH
Dual output		10μF	NA	1000pF	1000pF	1000pF	10μH
Single output	B	22μF	22μF	1000pF	1000pF	NA	15μH
Dual output		22μF	22μF	1000pF	1000pF	1000pF	15μH

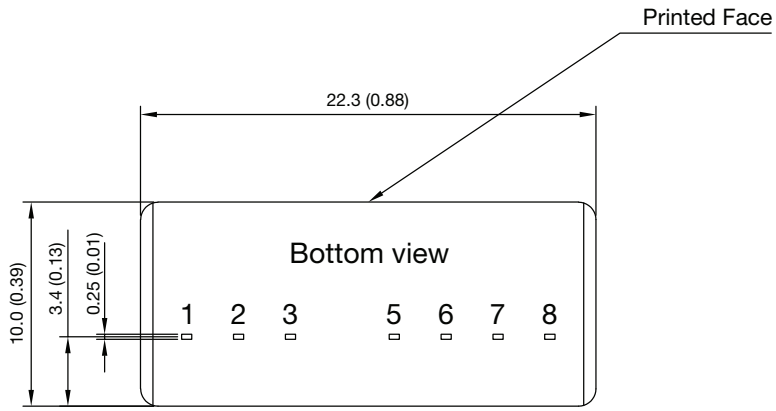
EMC (Class A/B) compliance circuit: 24Vin



Model	Class	C1	C2	C3	C4	C5	C6	L1	L2
Single output	A	NA	10μF	10μF	470pF	470pF	10μF	Short	130μH
Dual output		NA	10μF	10μF	470pF	470pF	10μF	Short	130μH
Single output	B	10μF	10μF	10μF	470pF	470pF	15μF	1mH	27μH
Dual output		10μF	10μF	10μF	470pF	470pF	15μF	1mH	27μH

Mechanical details





Pin connections		
Pin	**Single**	**Dual**
1	-Vin	-Vin
2	+Vin	+Vin
3	Remote	Remote
4	No pin	No pin
5	Not connected	Not connected
6	+Vout	+Vout
7	-Vout	Com
8	Not connected	-Vout

Notes:

1. All dimensions are in mm (inches).
2. Weight: 4.5g (0.01lbs) 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.