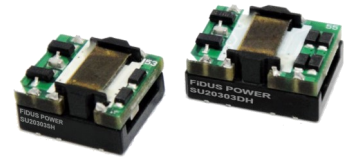


2 Watts

- Rated working voltage 250Vrms / 400VDC
- 4200VDC High Isolation
- Single (8 pin) and Dual output (10 pin)
- Operating Temperature -40 to 105°C
- Efficiency up to 81%
- 5 Year warranty



The SU2 series of low cost surface mount DC/DC converters come in both single and dual outputs in a 8 or 10 pin package respectively. Inputs are available in 3.3 & 5V versions and outputs from 3.3 to 5.5V single and dual. The units operate from -40 to +105°C and offer high isolation of 4200VDC with a high rated working voltage of 250Vrms/400VDC. All models have a FiDUS 5 year warranty.

Dimensions:

Single: 0.50 x 0.44 x 0.27" (12.7 x 11.18 x 6.85mm)
Dual: 0.60 x 0.44 x 0.27" (15.24 x 11.18 x 6.85mm)

Models & Ratings

Model Number ⁽¹⁾	Input Voltage	Output Voltage	Output Current	Input Current		Maximum Capacitive Load	Efficiency
				No Load	Full Load		
SU20303SH	3.3V	3.3V	500mA	60mA	650mA	470uF	77%
SU20305SH	3.3V	5V	400mA	60mA	777mA	470uF	78%
SU20503SH	5V	3.3V	500mA	45mA	446mA	470uF	76%
SU20505SH	5V	5V	400mA	45mA	513mA	470uF	78%
SU20303DH	3.3V	±3.3V	±303mA	60mA	798mA	±220uF	78%
SU20305DH	3.3V	±5V	±200mA	60mA	758mA	±220uF	80%
SU20503DH	5V	±3.3V	±303mA	45mA	541mA	±220uF	76%
SU20505DH	5V	±5V	±200mA	45mA	494mA	±220uF	81%

Notes

1. For parts on reel add -R to part number
2. Do not operate continuously in the red area of the derating curve
3. Under no load conditions the unit may not meet all specifications
4. 3.3V input recommended fusing 2A slow blow fuse, 5V input recommended 1A slow blow fuse

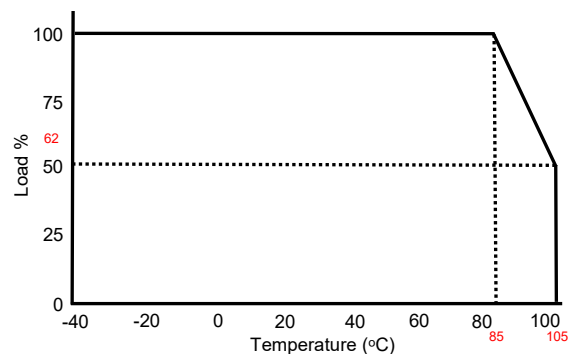
Input

Parameter	Rating
Input voltage range	See table
Working voltage	250Vrms / 400VDC
Input reflected ripple current	20mA pk-pk through 12uH inductor & 47uF ESR<1Ωat 100KHz
Input surge (1000mS max)	3.3V Models 5VDC Max. 5V Models 9VDC Max.
Input filter	Capacitor

Physical

Parameter	Rating
Case material	Non-conductive black plastic (UL94V-0)
Pin material	0.5mm C5191R-H Solder coated
Potting material	Epoxy (UL94V-0)
Weight	Single 1.52g, Dual 1.8g
Dimensions	Single: 0.50 x 0.44 x 0.27" (12.7 x 11.18 x 6.85mm) Dual: 0.60 x 0.44 x 0.27" (15.24 x 11.18 x 6.85mm)
Reflow soldering temperature	Peak 245°C 10 sec max
Reflow solder process	IPC/JEDEC J-STD-020D.1
Vibration	MIL-STD-810F

Derating curve



Output

Parameter	Minimum	Typical	Maximum	Units	Notes & Conditions
Output voltage	3.3		5	VDC	±10% See Model & Ratings table
Set point accuracy					See envelope curve
Line regulation			±1.2	%/Vin	
Load regulation	3.3 Vdc output models ±15 5 Vdc output models ±14			%	From 10% to 100% load change
Minimum load		0		%	Under no load conditions the unit may not meet all specifications
Ripple & Noise	150		±150	mV pk-pk	Measured with 20MHz bandwidth, may be larger at low loads
Short circuit protection					Continuous with automatic recovery 0.5sec
Maximum capacitive load					See Model and Ratings table

General

Parameter	Minimum	Typical	Maximum	Units	Notes & Conditions
Efficiency	76		81	%	See Model & Ratings table
Isolation	4200			VDC	Input to output 60sec
Isolation resistance	1000			M Ohm	
Isolation capacitance			25	pF	
Switching frequency	40		80	KHz	
Power density			33.3	W/In ³	
MTBF		>6.5		MHrs	As per MIL-HDBK-217F, 25°C GB

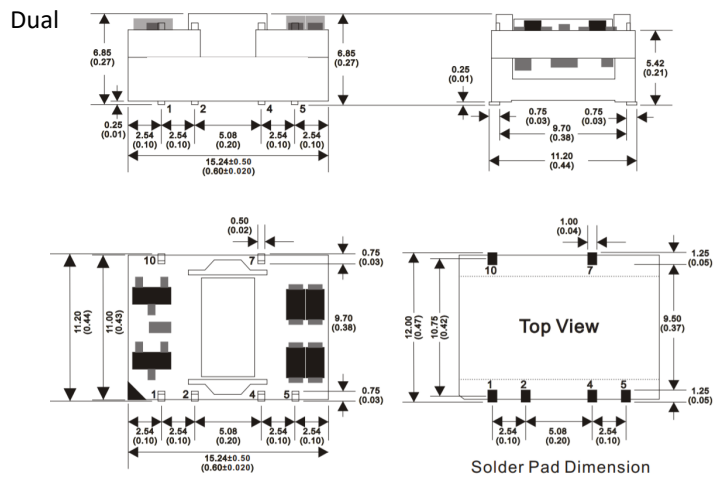
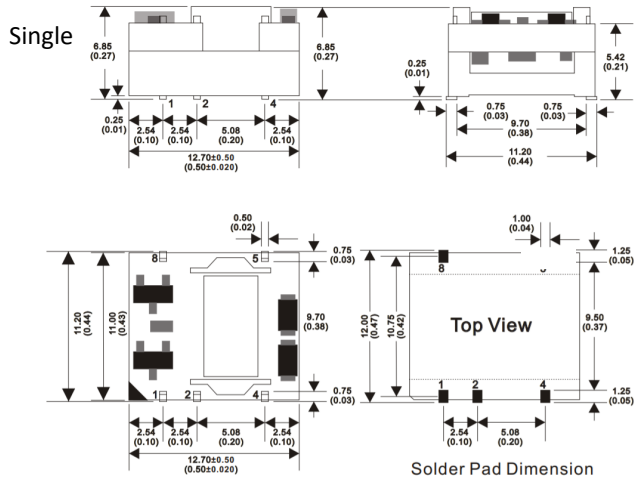
Environmental

Parameter	Minimum	Typical	Maximum	Units	Notes & Conditions
Operating temperature	-40		105	°C	Derate linearly from 100% load at 85°C to 50% load at 105°C.
Storage temperature	-55		125	°C	
Case temperature			100	°C	
Cooling					Convection cooled 30-65LFM
Humidity			95	% RH	Non-condensing
Moisture sensitivity level (MSL)	IPC/JEDEC J-STD-020D.1 LEVEL 1				
Temperature coefficient			±0.03	%/°C	

EMC

	Standard	Test level	Criteria	Notes & Conditions
Conducted	EN55032	B	-	See application note
Radiated	EN55032	B	-	
ESD	IEC 61000-4-2	3	A	8kV air discharge, 6kV contact discharge
RS	IEC 61000-4-3	3	A	80~1000 MHz, 10V/m, 80% AM (1kHz)
EFT	IEC 61000-4-4	3	A	Power line : 2kV. See application note
Surge	IEC 61000-4-5	2	A	1.2/50 µs Open Circuit Voltage, 8/20 µs Short Circuit Current, DC Port, Line to line : 1.0kV. See application note
CS	IEC 61000-4-6	3	A	0.15 ~ 80 MHz, 10Vrms, 80% AM (1kHz)
PfMF	IEC 61000-4-8	1	A	50Hz, 1A/m

Mechanical Details



Pin Connections		
Pin	Single	Dual
1	-Vin	-Vin
2	+Vin	+Vin
4	-Vout	Com
5	+Vout	-Vout
7	-	+Vout
8	N.C	-
10	-	N.C

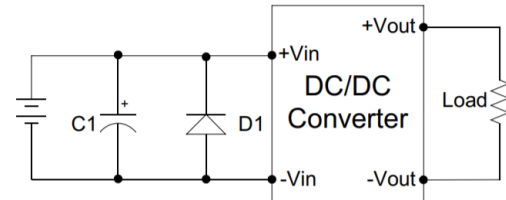
Notes

1. All dimensions shown in millimetres (inches)
2. Tolerance (unless marked) ± 0.25 (± 0.001)

Application notes

Surge Filter

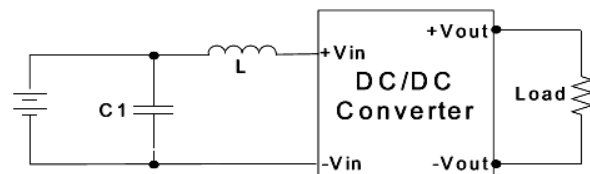
The input surge and EFT filter components can be fitted to help meet conducted immunity requirements for the system. They should be mounted as close as possible to the module. Lead lengths should be minimized and where possible avoid running input and output tracks under the module as part of good design practice for best EMC performance. If the module is embedded in a system running from an AC/DC converter, this will have its own additional immunity protection and EMI filtering that will impact the overall system EMI performance.



Model	C1	D1
SU03XXXX	220uF/35V	SMDJ6.0A
SU05XXXX	330uF/50V	SMDJ9.0A

EMI Filter

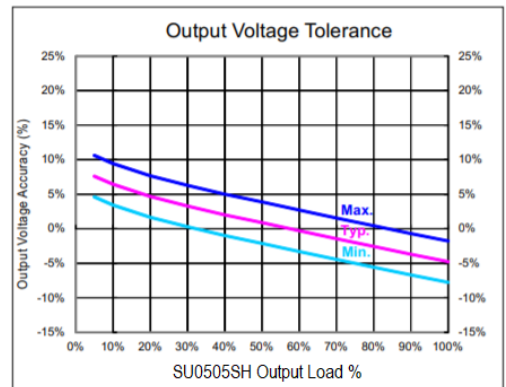
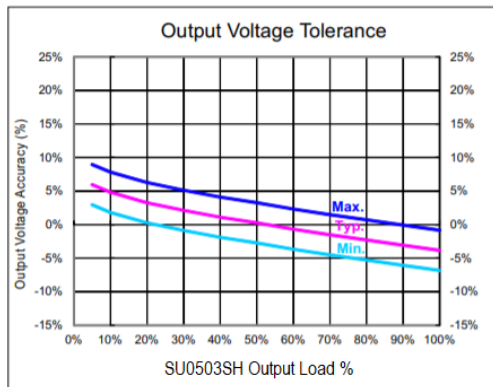
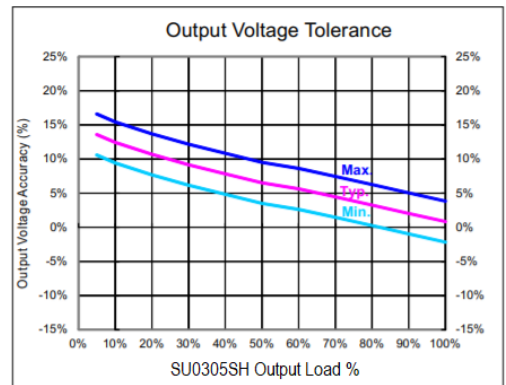
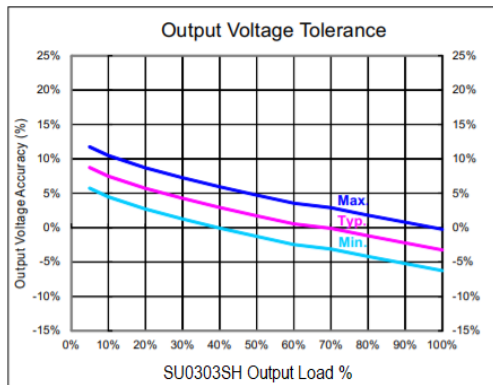
The input filter components can be fitted to help meet conducted emission requirements for the system. They should be mounted as close as possible to the module. Lead lengths should be minimized and where possible avoid running input and output tracks under the module as part of good design practice for best EMC performance. If the module is embedded in a system running from an AC/DC converter, this will have its own additional immunity protection and EMI filtering that will impact the overall system EMI performance.



C1	L
1206, 22uF/10V	6.8uH

Tolerance Envelope Curve

Single



Dual

