

Description

The SC15A is a low-cost, 15-amp, non-isolated DC-DC converter with an amazingly small footprint of only 0.8 in². Designed for today's high power microprocessors, the SC15A accepts either 5 V or 3.3 V inputs and offers outputs from 1.3 V to 3.3 V. The SC15A also uses an industry-standard pin-out making it easy to increase power in existing designs.

Using Bourns Switch Power's proprietary V²™ architecture, the SC15A provides ultrafast transient response, improved line and load regulation, and very high efficiency. It also incorporates short-circuit protection, Enable / Disable control, output voltage trim, and remote sense.

Features

- Low Cost
- 15-amp Output Current
- 90 % Efficiency
- Industry-standard Pin-out
- Low 0.6 " Profile
- Non-isolated Output
- Remote Sense
- Trim Function
- Enable / Disable
- Short-circuit Protection
- Fast Transient Response
- High-temperature Operation
- Output Precharge Capability

Patents 5,770,940
5,978,195
6,127,814

Common Specifications

	Min	Nom	Max	Units	Notes
Input					
Voltage	4.5	5	5.5	Vdc	4.75 V _{in} Startup
	3.0	3.3	3.6	Vdc	
Current			15	A	
Control Voltage					
High = Disable	2.4			Vdc	Source 500 mA
Low = Enable			0.4	Vdc	Open=Enable
E/D Current		1		mA	
Output					
Current			15	A	
Voltage Setpoint Accuracy			±2	%V _{nom}	
Voltage Trim Range	-10		+10	%V _{nom}	
Line Regulation		±0.1		%V _{nom}	
Load Regulation		±0.3		%V _{nom}	
Current Limit	18	21	30	A	
Dynamic Response					
0 to 15 A load		200		mV	Δi/Δt = 3 A/μs
		19		μs	
15 to 0 A load		200		mV	Δi/Δt = 3 A/μs
		19		μs	
Temperature Regulation			±0.02	%V _{out} /°C	
General					
MTBF		1,000		k Hrs	Bellcore TR332, 25 °C
Operating Temperature	-25		85	°C	
	-40		85	°C	Optional
Storage Temperature	-40		125	°C	
Switching Frequency	200	300	400	kHz	



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Specifications are subject to change without notice.
 Customers should verify actual device performance in their specific applications.

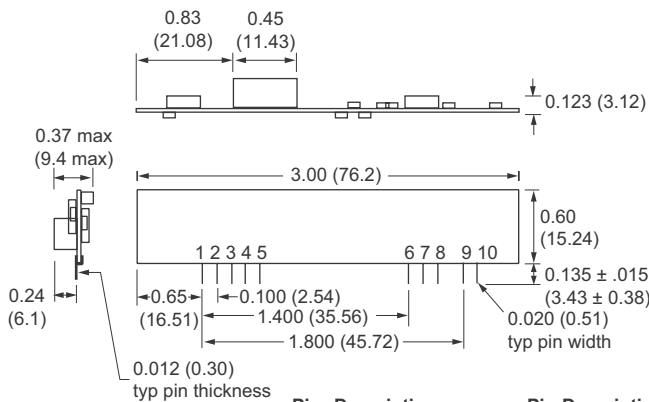
Electrical Specifications

	Nominal Input (V)	Output Voltage (V)	Output Current (A)	Short-circuit Current (A) typ	Noise (mV pp) typ	Efficiency (%) typ
SC15A-5S3.3	5	3.3	15	22	100	
SC15A-5S2.5	5	2.5	15	22	100	
SC15A-5S1.9	5	1.9	15	22	100	89
SC15A-5S1.8	5	1.8	15	22	100	
SC15A-5S1.5	5	1.5	15	22	100	
SC15A-3S2.5	3.3	2.5	15	22	100	
SC15A-3S1.9	3.3	1.9	15	22	100	92
SC15A-3S1.8	3.3	1.8	15	22	100	
SC15A-3S1.5	3.3	1.5	15	22	100	

Standard Options

Add option designators to the end of the part number. Example; SC15A-5S3.3-B

Option	Description
B	No Remote Sense option removes sense pin
F	1 % Setpoint Accuracy
Z	-40 °C Operation
X	Modified pin length followed by three digits (in mils)

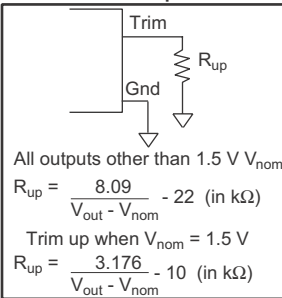


Pin	Description	Pin	Description
1,2,4	V _{out}	5,6	Ground
3	Remote Sense (removed for B option)	7,8	V _{in}
		9	Trim
		10	Enable

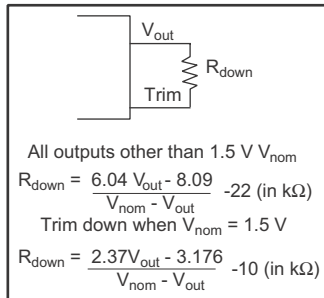
Note: Component placement may change. Recommended keep-out area equals maximum length and width.

SC15A Trim Circuits

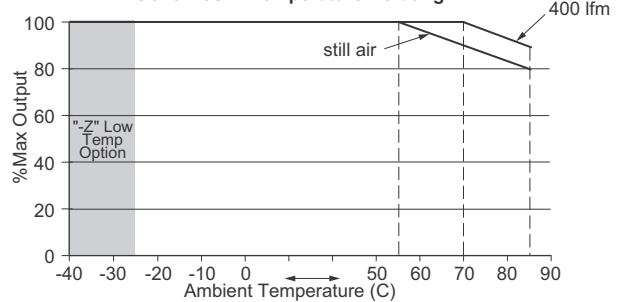
Trim Up



Trim Down



SC15A-5Sxx Temperature Derating



SC15A-3Sxx Temperature Derating

