

## 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 with auto-restart
- Fast transient response
- High-temperature operation
- Output precharge capability
- Patents 5,770,940; 5,978,195 & 6,127,814

## SC15A DAC Series – Power Module

### General Information

The SC15A DAC is a low-cost, 15 amp, non-isolated DC-DC converter with an amazingly small footprint of only 0.8 in<sup>2</sup>. Designed for today's high power microprocessors, the SC15A accepts either 5 V or 3.3 V inputs and offers DAC controlled outputs from 1.25 V to 3.5 V.

Using Bourns proprietary V<sup>2</sup>™ architecture, the SC15A DAC 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.

### Input Specifications

Voltage  
 5 V input .....4.5 VDC Min.  
   5 VDC Nom.  
   5.5 VDC Max.  
   (4.75 V<sub>in</sub> start-up)  
 3.3 V input .....3.0 VDC Min.  
   3.3 VDC Nom.  
   3.6 VDC Max.

Current .....15 A Max.

Enable Voltage  
 High = Disable .....2.4 VDC Min.  
   (Source 500 mA)  
 Low = Enable .....0.4 VDC max.

Enable/Disable Current .....1 mA Nom.

### Output Specifications

Current .....15 A Max.

Voltage Setpoint Accuracy  
 .....±2 %V<sub>nom</sub> Max.

Voltage Trim Range.....-10 to +10 %V<sub>nom</sub>

Line Regulation .....±0.1 %V<sub>nom</sub>

Load Regulation .....±0.3 %V<sub>nom</sub>

Current Limit.....18 A Min.  
   21 A Nom.  
   30 A Max.

Dynamic Response  
 0 to 15 A load  
 .....200 mV Nom. (Δi/Δt = 3 A/μs)  
   19 μs Nom.

15 to 0 A load  
 .....200 mV Nom. (Δi/Δt = 3 A/μs)  
   19 μs Nom.

Temperature Regulation  
 .....±0.02 %V<sub>out</sub>/°C Max.

### General Specifications

MBTF .....1,000 kHrs Nom.  
 (Bellcore TR332, 25 °C)

Operating Temperature.....-25 to +85 °C  
 (-40 to +85 °C optional)

Storage Temperature.....-40 to +125 °C

Switching Frequency .....200 kHz Min.  
   300 kHz Nom.  
   400 kHz Max.

### Standard Options

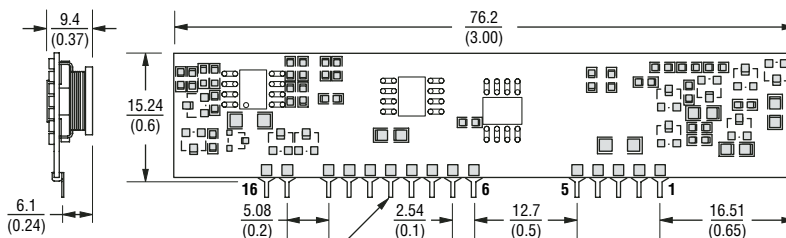
	Nominal Input (V)	Output Voltage (V)	Output Current (A)	Short-circuit Current Typ. (A)	Noise Max. (mV pp)	Efficiency Typ. (%)
SC15A-5SDAC	5	1.3 to 3.5	15	22	100	90
SC15A-3SDAC	3.3	1.3 to 2.5				

### Output Voltage Selection

VID4	VID3	VID2	VID1	VID0	Output	VID4	VID3	VID2	VID1	VID0	Output
0	1	1	1	1	1.30	1	1	1	1	1	2.00
0	1	1	1	0	1.35	1	1	1	1	0	2.10
0	1	1	0	1	1.40	1	1	1	0	1	2.20
0	1	1	0	0	1.45	1	1	1	0	0	2.30
0	1	0	1	1	1.50	1	1	0	1	1	2.40
0	1	0	1	0	1.55	1	1	0	1	0	2.50
0	1	0	0	1	1.60	1	1	0	0	1	2.60 <sup>1</sup>
0	1	0	0	0	1.65	1	1	0	0	0	2.70 <sup>1</sup>
0	0	1	1	1	1.70	1	0	1	1	1	2.80 <sup>1</sup>
0	0	1	1	0	1.75	1	0	1	1	0	2.90 <sup>1</sup>
0	0	1	0	1	1.80	1	0	1	0	1	3.00 <sup>1</sup>
0	0	1	0	0	1.85	1	0	1	0	0	3.10 <sup>1</sup>
0	0	0	1	1	1.90	1	0	0	1	1	3.20 <sup>1</sup>
0	0	0	1	0	1.95	1	0	0	1	0	3.30 <sup>1</sup>
0	0	0	0	1	2.00	1	0	0	0	1	3.40 <sup>1</sup>
0	0	0	0	0	2.05	1	0	0	0	0	3.50 <sup>1</sup>

1 - Not available in 3.3 V<sub>in</sub>.

### Product Dimensions



0.3 (0.012) TYP. PIN THICKNESS  
 0.5 (0.020) TYP. PIN WIDTH  
 3.43 (0.135) TYP. PIN LENGTH BELOW SHOULDER

DIMENSIONS =  $\frac{\text{MILLIMETERS}}{(\text{INCHES})}$

#### PIN DESCRIPTIONS:

1 – V<sub>out</sub>    5 – Gnd    9 – VID3    13 – V<sub>in</sub>  
 2 – V<sub>out</sub>    6 – VID0    10 – VID4    14 – No Pin  
 3 – Sense    7 – VID1    11 – Gnd    15 – Trim  
 4 – V<sub>out</sub>    8 – VID2    12 – V<sub>in</sub>    16 – Enable

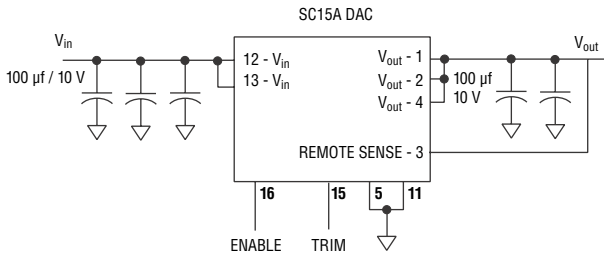
TOLERANCES = (.xx) = ±  $\frac{.25}{(.01)}$   
 (.xxx) = ±  $\frac{.13}{(.005)}$

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

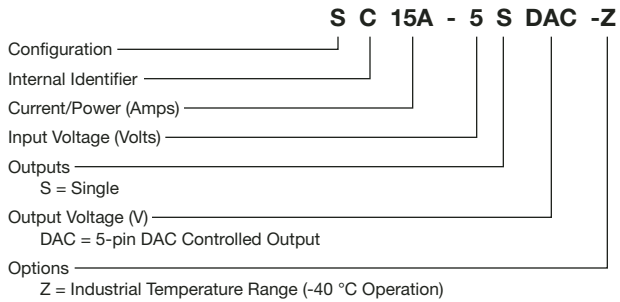
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## Product Schematic

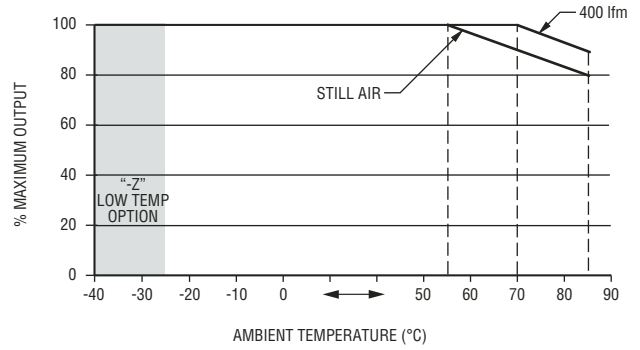


## How to Order

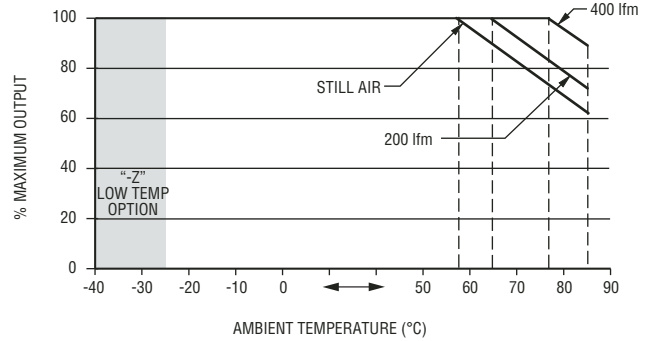


## Temperature Derating

SC15A-5Sxx



SC15A-3Sxx



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