

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 in². 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 V²™ 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 input4.5 VDC Min.
 5 VDC Nom.
 5.5 VDC Max.
 (4.75 V_{in} start-up)
 3.3 V input3.0 VDC Min.
 3.3 VDC Nom.
 3.6 VDC Max.

Current15 A Max.

Enable Voltage
 High = Disable2.4 VDC Min.
 (Source 500 mA)
 Low = Enable0.4 VDC max.

Enable/Disable Current1 mA Nom.

Output Specifications

Current15 A Max.

Voltage Setpoint Accuracy
±2 %V_{nom} Max.

Voltage Trim Range.....-10 to +10 %V_{nom}

Line Regulation±0.1 %V_{nom}

Load Regulation±0.3 %V_{nom}

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_{out}/°C Max.

General Specifications

MBTF1,000 kHrs Nom.
 (Bellcore TR332, 25 °C)

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

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

Switching Frequency200 kHz Min.
 300 kHz Nom.
 400 kHz Max.

Standard Options

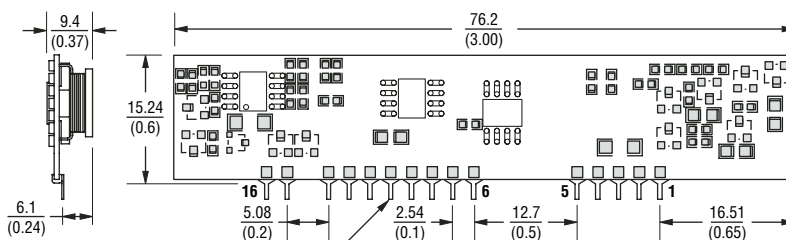
	Nominal Input (V)	Output Voltage (V)	Output Current (A)	Short-circuit Current Typ. (A)	Noise Max. (mV pp)	Efficiency Typ. (%)
SC15A-5SDAC	5	1.3 to 3.5	15	22	100	90
SC15A-3SDAC	3.3	1.3 to 2.5				

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 ¹
0	1	0	0	0	1.65	1	1	0	0	0	2.70 ¹
0	0	1	1	1	1.70	1	0	1	1	1	2.80 ¹
0	0	1	1	0	1.75	1	0	1	1	0	2.90 ¹
0	0	1	0	1	1.80	1	0	1	0	1	3.00 ¹
0	0	1	0	0	1.85	1	0	1	0	0	3.10 ¹
0	0	0	1	1	1.90	1	0	0	1	1	3.20 ¹
0	0	0	1	0	1.95	1	0	0	1	0	3.30 ¹
0	0	0	0	1	2.00	1	0	0	0	1	3.40 ¹
0	0	0	0	0	2.05	1	0	0	0	0	3.50 ¹

1 - Not available in 3.3 Vin.

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 – Vout 5 – Gnd 9 – VID3 13 – Vin
 2 – Vout 6 – VID0 10 – VID4 14 – No Pin
 3 – Sense 7 – VID1 11 – Gnd 15 – Trim
 4 – Vout 8 – VID2 12 – Vin 16 – Enable

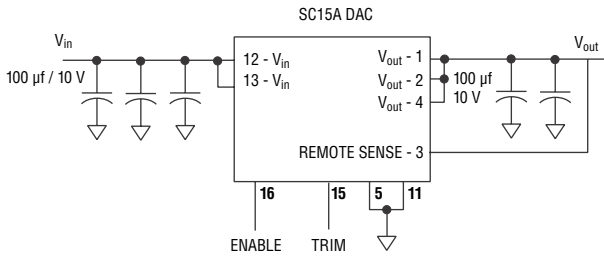
TOLERANCES = (.xx) = ± $\frac{.25}{(.01)}$
 (.xxx) = ± $\frac{.13}{(.005)}$

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

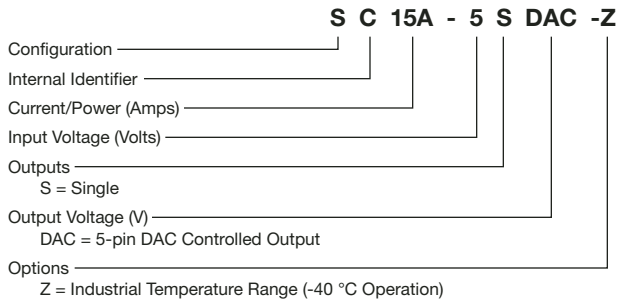
SC15A DAC Series – Power Module



Product Schematic

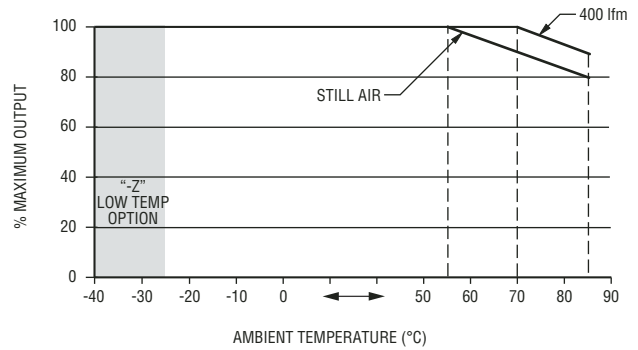


How to Order

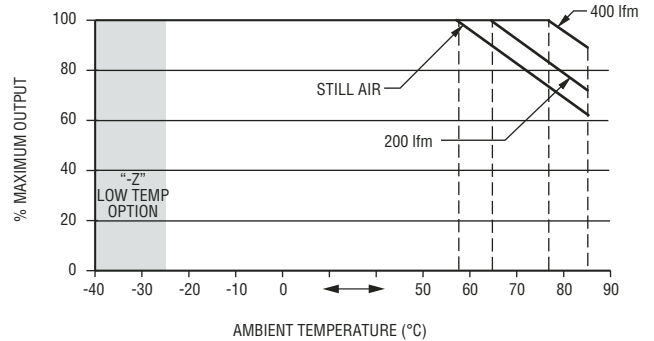


Temperature Derating

SC15A-5Sxx



SC15A-3Sxx



Reliable Electronic Solutions

Asia-Pacific: TEL +886- (0)2 25624117 • FAX +886- (0)2 25624116

Europe: TEL +41-41 768 5555 • FAX +41-41 768 5510

The Americas: TEL +1-951 781-5500 • FAX +1-951 781-5700

www.bourns.com