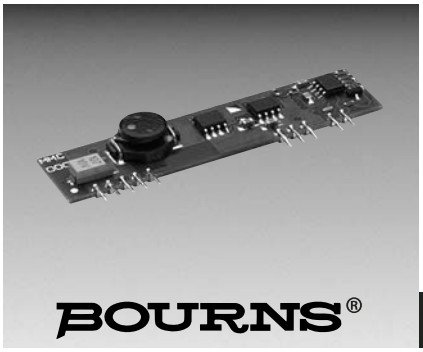


BOURNS®

Features

- Low cost
- 10 amp output current
- 94 % efficiency
- Industry-standard pin-out
- Low 0.6 ˝ profile
- Remote sense
- Trim function
- Short-circuit protection with auto-restart
- Fast transient response
- High-temperature operation
- 75 W/in³ power density
- Remote enable
- Output precharge capability
- Patents 5,770,940; 5,978,195; 6,127,814

SC10A DAC Series – Power Module

General Information

The SC10A DAC is a low-cost, 10 amp, non-isolated DC-DC converter with an amazingly small footprint. Designed for today's high power microprocessors, the SC15A accepts a 5 V input and a DAC controlled output from 1.25 V to 3.5 V.

Using Bourns proprietary V2™ architecture, the SC10A 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 Vin start-up)
3.3 V input .....3.0 VDC Min.
3.3 VDC Nom.
3.6 VDC Max.
Current .....10 A Nom.
Enable Voltage
High = On
.....2.4 VDC Min. (Source 500 mA)
Low = Off
..... -0.1 to 0.3 VDC (open = enable)
Inhibit Current .....0.1 mA Nom.

Output Specifications

Current .....0 to 10 A
Current Limit.....11 A Min.
Voltage Setpoint Accuracy.....±1 %Vnom
±2 %Vnom max.
Voltage Trim Range.....-10 to +10 %Vnom
Line Regulation .....±0.1 %Vnom
Load Regulation.....±0.3 % Vnom
(±0.5 % without remote sense)
Dynamic Response
0 to 100 % load
.....200 mV Nom. (Δi/Δt = 3 A/µs)
17 µs Nom.
100 to 0 % load
.....200 mV Nom. (Δi/Δt = 3 A/µs)
20 µs Nom.
Temperature Regulation
.....±0.02 %Vout/°C Max.

General Specifications

MBTF...2,000 kHrs Nom. (40 °C, 80 % load)
Operating Temperature.....0 to 100 °C
(-40 to +100 °C optional)
Storage Temperature.....-55 to +125 °C
Switching Frequency.....500 kHz Nom.

Standard Options

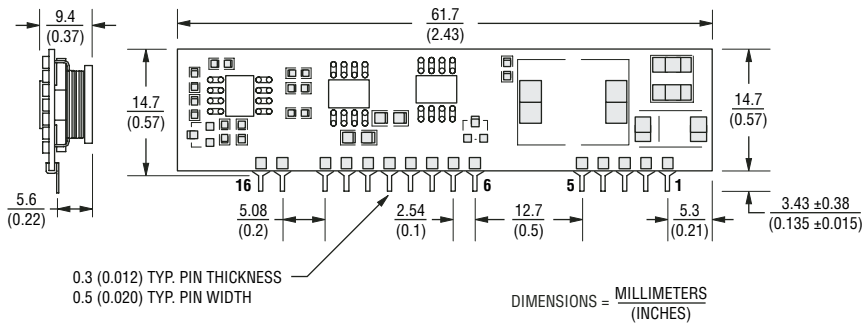
	Nominal Input (V)	Output Voltage (V)	Output Current (A)	Ripple Max. (mV pp)	Efficiency Typ. (%)
SC10A5SDAC	5	1.3 to 3.5	10	100	90
SC10A3SDAC	3.3				

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

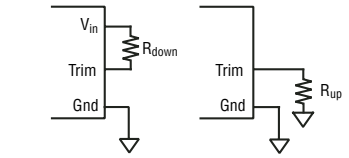


PIN DESCRIPTIONS:

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

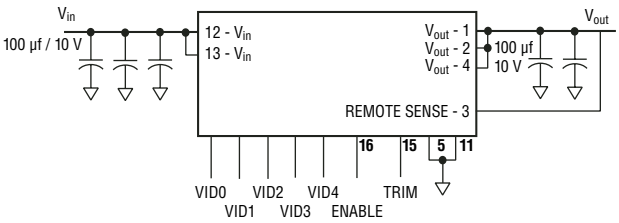
Specifications are subject to change without notice.
Customers should verify actual device performance in their specific applications.

Product Schematic

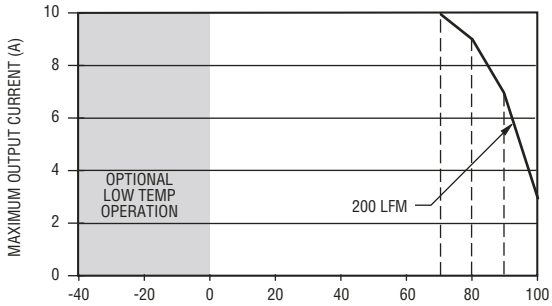


$$R_{down} = \frac{1.01 \times (V_{in} - V_{ref})}{V_{ref} - V_{out}} \qquad R_{up} = \frac{1.01 \times V_{ref}}{V_{out} - V_{ref}}$$

V_{ref} is the output of the converter as selected using VID0 to VID4



Temperature Derating



How to Order

S C 10A - 5 S DAC -Z

- Configuration
- Internal Identifier
- Current/Power (Amps)
- Input Voltage (Volts)
- Outputs
  - S = Single
- Output Voltage
  - DAC = 5-pin DAC Controlled Output
- Options
  - Z = Industrial Temperature Range (-40 °C Operation)

Reliable Electronic Solutions

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