

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.....	$\pm 1\% V_{nom}$ $\pm 2\% V_{nom}$ max.
Voltage Trim Range.....	-10 to +10 % Vnom
Line Regulation	$\pm 0.1\% V_{nom}$
Load Regulation.....	$\pm 0.3\% V_{nom}$ ($\pm 0.5\%$ without remote sense)
Dynamic Response	
0 to 100 % load	
.....	200 mV Nom. ($\Delta i/\Delta t = 3$ A/ μs) 17 μs Nom.
100 to 0 % load	
.....	200 mV Nom. ($\Delta i/\Delta t = 3$ A/ μs) 20 μs Nom.
Temperature Regulation	
.....	$\pm 0.02\% V_{out}/^{\circ}C$ 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

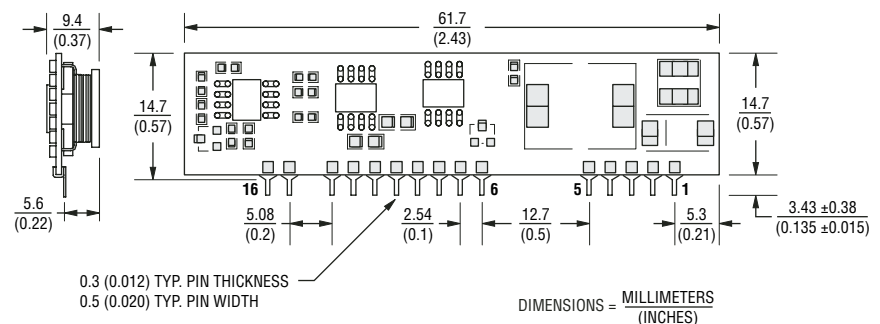
	Nominal Input (V)	Output Voltage (V)	Output Current (A)	Ripple Max. (mV pp)	Efficiency Typ. (%)
SC10A5SDAC	5	1.3 to 3.5	10	100	90
SC10A3SDAC	3.3				

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

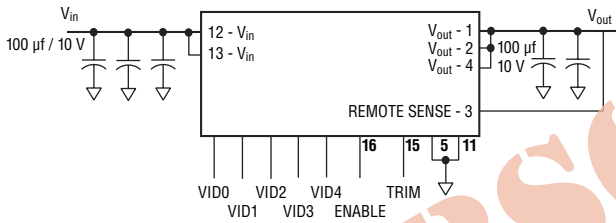
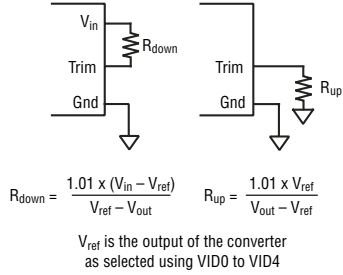
DIMENSIONS = MILLIMETERS (INCHES)

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

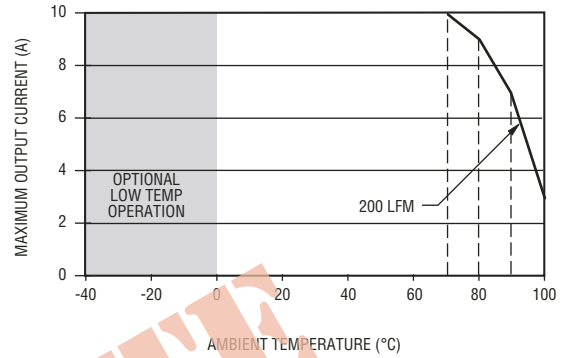
SC10A DAC Series – Power Module



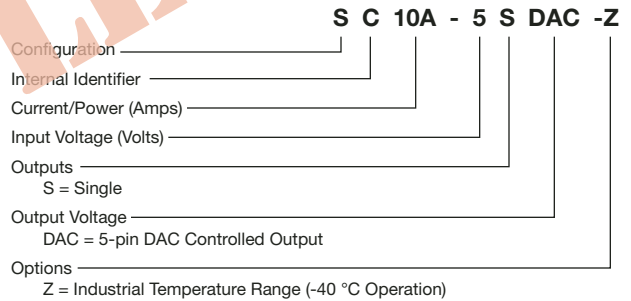
Product Schematic



Temperature Derating



How to Order



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