

Description

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 5V input and a DAC controlled output from 1.25V to 3.5V.

Using Switch Power's 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.

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
- 75W/in³ Power Density
- Remote Enable
- 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	4.75V _{in} startup
	3.0	3.3	3.6	Vdc	
Current		10		A	
Enable Voltage					
High = On	2.4			Vdc	Source 500 μA
Low = Off	-0.1		0.3	Vdc	open = enable
Inhibit Current		0.1		mA	
Output					
Current	0		10	A	
Current Limit	11			A	
Voltage Setpoint Accuracy		±1	±2	%V _{nom}	
Voltage Trim Range	-10		+10	%V _{nom}	
Line Regulation		±0.1		%V _{nom}	
Load Regulation		±0.3		%V _{nom}	0.5% w/o remote sense
Dynamic Response					
0-100% load		200		mV	Δi/Δt=3A/μs
		17		μs	
100-0% load		200		mV	Δi/Δt=3A/μs
		20		μs	
Temperature Regulation			±0.02	%V _{out} /°C	
General					
MBTF		2,000		k Hrs	40°C, 80% load
Operating Temperature	0		100	°C	
	-40		100	°C	option
Storage Temperature	-55		125	°C	
Switching Frequency		500		kHz	

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Standard Options

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

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	N/A 3.3 V _{in}
0	1	0	0	0	1.65	1	1	0	0	0	2.70	
0	0	1	1	1	1.70	1	0	1	1	1	2.80	
0	0	1	1	0	1.75	1	0	1	1	0	2.90	
0	0	1	0	1	1.80	1	0	1	0	1	3.00	
0	0	1	0	0	1.85	1	0	1	0	0	3.10	
0	0	0	1	1	1.90	1	0	0	1	1	3.20	
0	0	0	1	0	1.95	1	0	0	1	0	3.30	
0	0	0	0	1	2.00	1	0	0	0	1	3.40	
0	0	0	0	0	2.05	1	0	0	0	0	3.50	

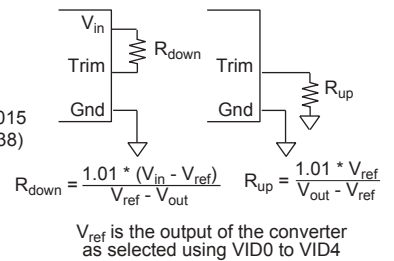
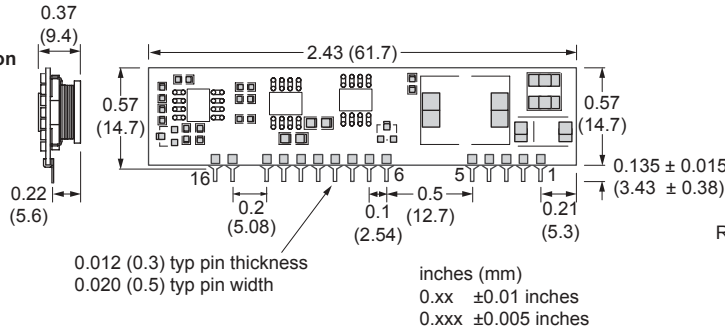
Standard Options

Add option designators to the end of the part number. Example; S10A-5SDAC-Z

Option	Description
Z	-40±C operation

Pin Description

Pin Description	Pin Description
1. V _{out}	9. VID3
2. V _{out}	10. VID4
3. Sense	11. Gnd
4. V _{out}	12. V _{in}
5. Gnd	13. V _{in}
6. VID0	14. No Pin
7. VID1	15. Trim
8. VID2	16. Enable



SC10A DAC Temperature Derating

