

Features

- Linear, constant voltage, low-dropout regulator
- Regulates drain-side voltage for battery power-path applications
- Adjustable V_{BAT} output between 3.6 and 13.3 volts with down to 1.2 mV steps
- Maximum output current: Defined by selected device 1A=AmP8D1, 3A=AmP8D3, 6A=AmP8D6
- 1% typical line and load regulation
- 100 mV dropout
- Low noise
- Integrated current sense
- Short-circuit protection (SCP)
- Adjustable protection: Under-Voltage Lockout, (UVLO), Overcurrent (OCP), Overvoltage (OVP), and Over Temperature (OTP)
- Power-good flag output and Enable input
- Soft start/stop, sequencing
- 74-pin VQFN package
- -40°C to $+125^{\circ}\text{C}$ operating junction temperature
- One SIM element; integrate up to twelve C720S Power Components in one AmP platform

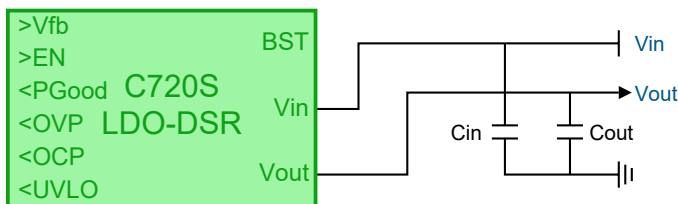
Applications

- On-demand power management, multi-rail power integration
- Battery power path

Typical Application Circuit

Figure 1 provides a typical schematic for the C720S Power Component when integrated with other power rails in an AmP application.

Figure 1: C720S application schematic



Description

The C720S Power Component is a customizable Low-Dropout Voltage Regulator with drain-side regulation for battery power-path applications between the system voltage and the battery. Combine the C720S component with other Power Components to create a highly-integrated, custom-defined, AnDAPT AmP™ on-demand power management device.

The integrated linear Scalable Integrated MOSFET (SIM) provides up to 6A, drain-side output current. The maximum current is defined by the AmP device selected. The LDO provides user-controlled current limit fold-back. The integrated current sense provides over-current protection (OCP) and a programmable current limit.

The customizable output voltage is specified by the power engineer during customization using AnDAPT's cloud-based WebAmp development software. The C720S has customizable control and status pins including an optional enable input, an optional power-good output, and optional output flags to signal when the system triggers an overvoltage (OVP), overcurrent (OCP), or undervoltage lockout (UVLO) condition. The threshold values are specified by the power engineer using the WebAmp tool.

The customizable soft-start and soft-stop slew rates plus ramp timing are also specified by the power engineer using the WebAmp tool.

Customizable Options

Table 1 lists the various customizable options available for the C720S Power Component. These options are set graphically in the WebAmp development software.

Table 1: C720S Customizable Options

Option	Units
Input voltage	V
Output voltage	V
Use optional En input to enable supply	On/Off
Use optional UVLO output to signal under-voltage lockout condition	On/Off
Input voltage threshold for under-voltage lockout	V
Use optional OVP output to signal when over-voltage protection is triggered	On/Off
Over-voltage protection threshold	V
Use optional OCP output to signal when over-current protection is triggered	On/Off
Over-current protection threshold	A
Soft start delay after enable	ms
Soft start rise time after initial delay after enable	ms
Soft stop delay after disable	ms
Soft stop fall time after initial delay after disable	ms
Use optional PGood output to signal "power good"	On/Off
"Power good" threshold, percentage of output	%
Delay from "power good" until PGood asserted	ms

Package Options

Table 2 lists the package options available for the C720S Power Component.

Table 2: Package Options for C720S

Pins	Dimension	SIM Bonding	Part Number
74	8 x 8 mm	Single	C720S

Advanced Capabilities and Options

Table 3 lists derivatives of the C720S component with additional capabilities plus other similar components potentially suitable for this application.

Table 3: C720S Advanced Capabilities Options

Description	Part Number
Standard version (this component)	C720S
LDO with source-side regulation, typical for most applications	C710S
LDO with push-pull regulation for DDR memory applications	C730S

System Characteristics

Table 4: C720S System Characteristics

Parameters	Min	Typ	Max	Units
Power				
Bias Supply Voltage (V_{BIAS})	6		13.3	V
Input Drain Voltage (V_{SYS})	V_{BAT+} V_{DO}		13.3	V
Output Voltage (V_{OUT})	3.6		13.3	V
Output Current (I_{OUT})	D6		6	A
	D3		3	
	D1		1	
Load regulation ($\Delta V_{OUT}/\Delta I_{OUT}$)		1		%/A
Line regulation ($\Delta V_{OUT}/\Delta V_{IN}$)		1		%/V
Short-circuit current (I_{SC})		TBD		A
Power-supply ripple rejection (PSRR)		TBD		dB
Output noise voltage (V_n)		TBD		μV_{RMS}
Control				
Soft start/stop delay	2		10	ms
Current Limit – OCP	0.2		6	A

For other device specifications, see the AnDAPT AmP Platform datasheet.

Additional Resources

- AnDAPT AmP Platform datasheet