

Product Description

The C75x Power Component series is a customizable Load Switch with current protection and soft-start to control in-rush current. Combine the C750/755 component with other Power Components to create a highly-integrated, custom-defined, AnDAPT AmP™ on-demand power management device.

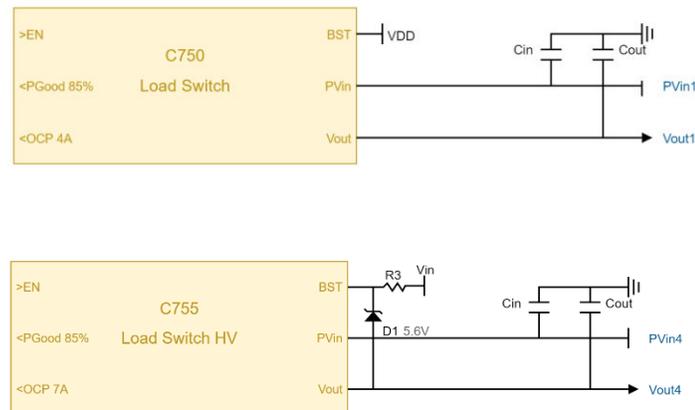
Features

- Output voltage from 0.5V to 2.5V (C750) and 1.8V to 5V (C755)
- Low RDS_{ON} MOSFET: 30mΩ
- Maximum output current: 6A (AmP8D6)
- Soft-start slew rate to control inrush current
- OCP Current limit protection
- Short-circuit protection (SCP)
- Additional communication capabilities – I75x, P75x
- Power-good flag output and Enable input
- -40°C to +125°C operating junction temperature
- One SIM element used from AmP platform

Applications

- Reverse-current protection
- Power isolation; reduce leakage current
- Protect circuits from inrush current or current spikes
- Reduce power and extend battery life; turn off power to unused circuits

Figure 1: C75x application schematics



Product Detail

The C75x is a single channel high-side load switch designed for operation from 0.5V to 5.0 V. This load switch provides power domain isolation. The device contains a low on-resistance, N-channel MOSFET that supports more than 6A of continuous current and minimizes power loss. In addition, the device features over current and over voltage protection to protect the device against fault conditions.

The C750 is designed to cover the lower voltage range (0.5V to 2.5V) while the C755 is designed to cover the higher voltage range (1.8V to 5V). Overlap in the voltage range is provided for user convenience.

The Load Switch is controlled by an on and off input, which is capable of interfacing directly with low-voltage control signals. The integrated linear Scalable Integrated MOSFET (SIM) provides up to 6A, output current. The maximum current is defined by the AmP device selected. The integrated current sense provides over-current protection (OCP).

The C75x has control and status pins including an enable input, a power-good output. The Load Switch parameters are specified by the power engineer using AnDAPT's cloud-based WebAmp™ development software.

Part number	AmP Platform	IOUT Max	VOUT Max
C750	AmPxD6	6A	2.5V
C755	AmPxD6	6A	5.0V

Pin Description Table

Port Name	Analog/Digital	Input/Output	Description
Pvin	Analog	I/P	Power switch input voltage
Vout	Analog	O/P	Power switch output voltage
BST	Analog	I/P	Bootstrap Connect to Vdd for C750. Connect to external Zener diode for C755.
EN	Digital	I/P	Enable input, logic high turns on power switch.
PGood	Digital	O/P	Power Good indicator. Turns High when output voltage reach 85% of V_{OUT}
OCP	Digital	O/P	Over Current Indicator Turns high when current exceeds OCP level

System Characteristics

[Table 1:](#) lists the system characteristics for the C75x Power Component when implemented in an AnDAPT AmP device.

Table 1: System Characteristics

Parameters	Min	Typ	Max	Units
Input voltage (C750)	0.6		2.5	V
Input Voltage (C755)	1.8		5	V
Output Current (I_{OUT})			6	A
Output MOSFET switch ($R_{DS(on)}$)		30		m Ω
Current Limit – OCP (C750)	I_{OUT}		7	A
Current Limit – OCP (C755)	I_{OUT}		7	A
Overshoot protection trip point range (OVP) C75x		$V_{OUT} + 1V$		V

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

Customizable Options

[Table 2](#) lists the various customizable options available for the C750 Power Component. These options are set graphically in the WebAmp development software.

Table 2: C750 Customizable Options

Option	Units
Input/Output voltage	V
Output Current	A
Enable OCP output to signal when overcurrent protection is triggered	On/Off
Overcurrent protection level ($I_{OUT}+1A$)	A
Enable soft start	On/Off
Use optional PGood output to signal “power good”	On/Off

Advanced Capabilities and Options

[Table 3](#) lists derivatives of the C75x component with additional capabilities plus other similar components potentially suitable for this application.

Table 3: C75x Advanced Capabilities Options

Description	Part Number
Standard Pro Series version (this component)	C75x
Add external control via I ² C bus interface	I75x
Add telemetry and dynamic voltage scaling via DVS interface	P75x