

General Description

The LTP7791 is a CMOS low dropout regulator that operates from 2.3 V to 6.5 V and provides up to 1 A of output current. This high output current LDO is ideal for regulation of high performance analog and mixed-signal circuits operating from 6 V down to 1.2 V rails. Using an advanced proprietary architecture, the device provides high power supply rejection and low noise, and achieves excellent line and load transient response with just a small 4.7 μ F ceramic output capacitor. Load transient response is typically 1.5 μ s for a 1 mA to 1A load step.

The LTP7791 is available in 17 fixed output voltage options. The following voltages are available from stock: 1.3 V, 1.8 V, 2.5 V, 3.0 V, 3.3 V, 4.2 V, and 5.0 V. Additional voltages that are available by special order are: 1.5 V, 1.85 V, 2.0 V, 2.2 V, 2.7 V, 2.75 V, 2.8 V, 2.85 V, 3.8 V, and 4.6 V. An adjustable version is also available that allows output voltages that range from 1.2 V to $V_{IN} - V_{DO}$ with an external feedback divider.

Features

- Operating Input Voltage Range: 2.3 V to 6.5 V
- Maximum Output Current: 1 A
- Low noise: 5 μ V rms independent of output voltage at 100 Hz to 100 kHz
- Fast transient response: 1.5 μ s for 1 mA to 1A load step
- High Power Supply Ripple Rejection: 60 dB PSRR at 100 kHz
- Low dropout voltage: 135 mV at 1 A load, $V_{OUT} = 3$ V
- Initial accuracy: -0.8% (minimum), $+0.7\%$ (maximum)
- Accuracy over line, load, and temperature: $\pm 1.5\%$
- Quiescent current, $I_{GND} = 0.7$ mA with no load
- Low shutdown current: 0.25 μ A at $V_{IN} = 5$ V
- Stable with small 4.7 μ F ceramic output capacitor
- Adjustable and fixed output voltage options: 1.2 V to 5.0 V
- Adjustable output from 1.2 V to $V_{IN} - V_{DO}$
- Precision enable
- Adjustable soft start
- Package: DFN3 $\times$ 3-8

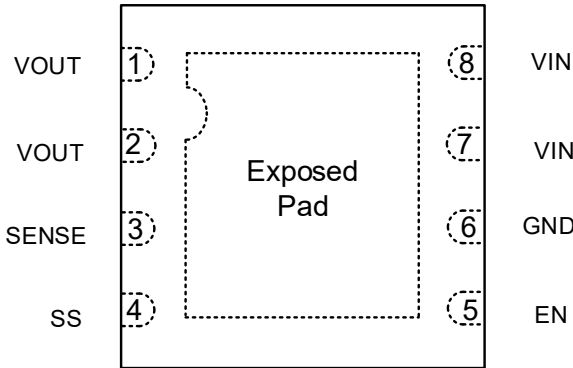
Applications

- Regulation to noise sensitive applications: ADC and DAC circuits, precision amplifiers, PLLs/VCOs, and clocking ICs
- Communications and infrastructure
- Medical and healthcare
- Industrial and instrumentation

Ordering Information

Part Number	Package Type	Quantity	Marking Code
LTP7791-AXF8/R10	DFN3*3-8L	Tape and Reel, 5000	SP1 A
LTP7791-13XF8/R10	DFN3*3-8L	Tape and Reel, 5000	SP1 13
LTP7791-18XF8/R10	DFN3*3-8L	Tape and Reel, 5000	SP1 18
LTP7791-25XF8/R10	DFN3*3-8L	Tape and Reel, 5000	SP1 25
LTP7791-30XF8/R10	DFN3*3-8L	Tape and Reel, 5000	SP1 30
LTP7791-33XF8/R10	DFN3*3-8L	Tape and Reel, 5000	SP1 33
LTP7791-42XF8/R10	DFN3*3-8L	Tape and Reel, 5000	SP1 42
LTP7791-50XF8/R10	DFN3*3-8L	Tape and Reel, 5000	SP1 50
LTP7791-15XF8/R10	DFN3*3-8L	Tape and Reel, 5000	SP1 15
LTP7791-20XF8/R10	DFN3*3-8L	Tape and Reel, 5000	SP1 20
LTP7791-22XF8/R10	DFN3*3-8L	Tape and Reel, 5000	SP1 22
LTP7791-27XF8/R10	DFN3*3-8L	Tape and Reel, 5000	SP1 27
LTP7791-28XF8/R10	DFN3*3-8L	Tape and Reel, 5000	SP1 28
LTP7791-38XF8/R10	DFN3*3-8L	Tape and Reel, 5000	SP1 38
LTP7791-46XF8/R10	DFN3*3-8L	Tape and Reel, 5000	SP1 46
LTP7791-185XF8/R10	DFN3*3-8L	Tape and Reel, 5000	SP1 185
LTP7791-275XF8/R10	DFN3*3-8L	Tape and Reel, 5000	SP1 275
LTP7791-285XF8/R10	DFN3*3-8L	Tape and Reel, 5000	SP1 285

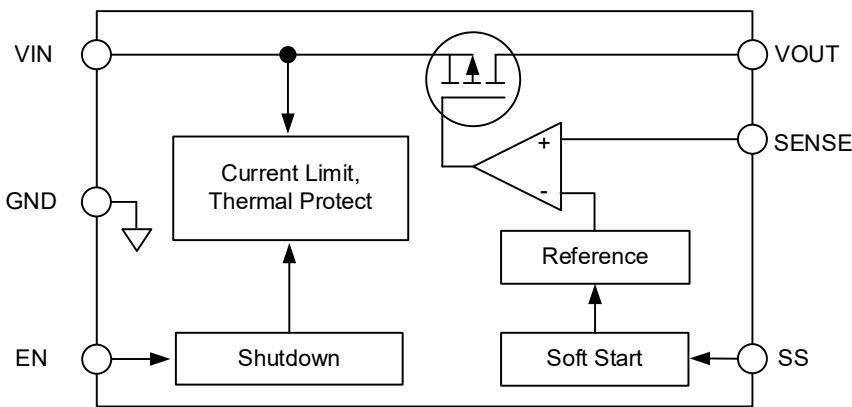
Pin Configurations (Top View)



Pin Function

1	VOUT	Regulated Output Voltage. Bypass this pin to GND with a 4.7 μ F or greater capacitor.
2	VOUT	Regulated Output Voltage. This pin is internally connected to Pin 1.
3	SENSE	Sense Input. Connect this pin as close as possible to the load for best load regulation. Use an external resistor divider to set the output voltage higher than the fixed output voltage.
4	SS	Soft Start. A 1 nF external capacitor connected to SS results in a 1.0 ms start-up time.
5	EN	Regulator Enable. Drive EN high to turn on the regulator; drive EN low to turn off the regulator. For automatic startup, connect EN to VIN (Pin 7 or Pin 8).
6	GND	Ground.
7	VIN	Regulator Input Supply. Bypass this pin to GND with a 4.7 μ F or greater capacitor.
8	VIN	Regulator Input Supply. This pin is internally connected to Pin 7.
9	EP	Exposed Pad. The exposed pad is on the bottom of the package. The exposed pad enhances thermal performance and is electrically connected to GND inside the package. Connect the exposed pad to the ground plane on the board to ensure proper operation.

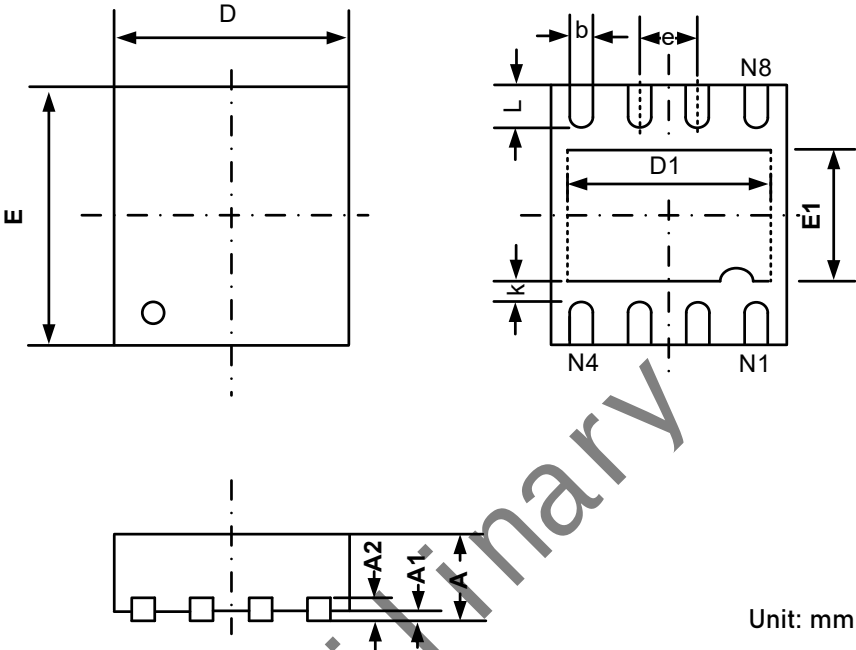
Block Diagram



CAUTION: These devices are sensitive to electrostatic discharge; follow proper IC Handling Procedures.
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Package Dimension

DFN3×3-8



Unit: mm

Symbol	Dimensions In Millimeters	
	Min	Max
A	0.700	0.800
A1	0.000	0.050
A2	0.203REF	
b	0.180	0.300
D	2.900	3.100
D1	2.200	2.400
E	2.900	3.100
E1	1.400	1.600
e	0.650BSC	
L	0.375	0.575
k	0.200	