

LP5990 microSMD Evaluation Board

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National Semiconductor
Application Note 1584
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Introduction

This board is designed to allow the evaluation of the LP5990 Low Voltage CMOS Regulator. Each board is pre-assembled and tested in the factory. The board contains the LP5990 in a 4 bump micro SMD, 0.4mm pitch package with input and output capacitors connected to GND. The LP5990 will provide a 1.8V regulated output from a low input voltage of 2.2V and can provide 200mA to an external load. The LP5990 is particularly suitable for powering digital circuits, where good transient behavior is required.

The LP5990 is designed to be stable with space saving 0402 capacitors as small as 1 μ F.

Operation

The input voltage, applied between V_{IN} and GND should be at least 1.0V above the output voltage with a maximum of

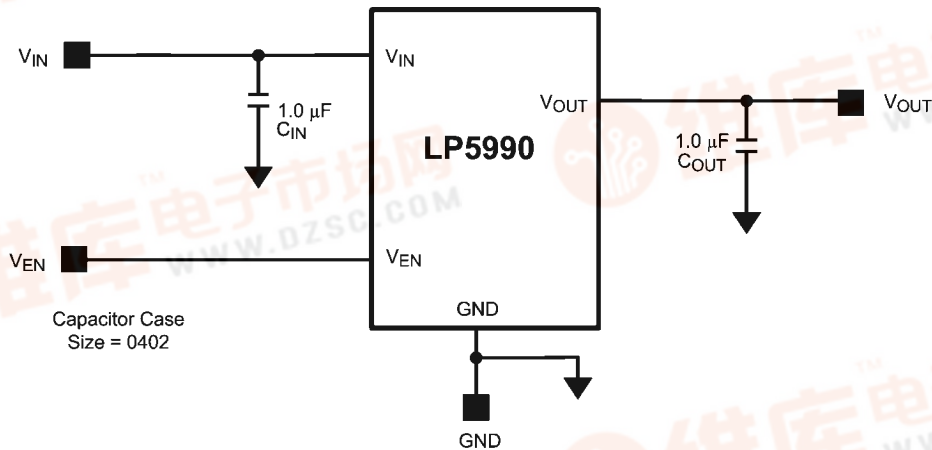
5.5V. Input connections should be kept reasonably short (<300mm) to minimize input inductance and ensure optimum transient performance. If longer leads are used, then it may be required to increase the input capacitor value to 2.2 μ F.

ON/OFF control of the LP5990 is provided on the evaluation board by a logic signal applied to the V_{EN} pin. A minimum of 0.95V is required to guarantee the device to be on and the device will be shutdown with V_{EN} set to 0.4V or less. If ON/OFF control is not required, the V_{EN} pin can be connected to V_{IN} .

The load should be connected from the V_{OUT} pin to GND.

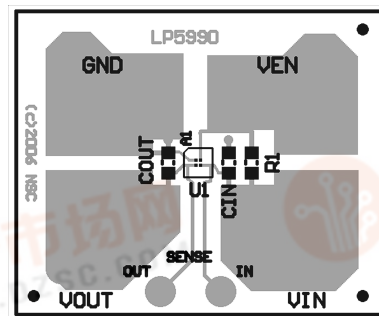
The schematic and board layout are shown below:

Schematic Diagram



Evaluation Board Schematic

PCB Layout



Evaluation Board Component and Pin Layout
Board Size:- 1.200" x 1.000"

Bill of Materials for LP5990 micro SMD Evaluation Board

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Item	Value	Qty	Footprint	Note
U1	LP5990 TM-X.X	1	TMD-04	"X.X" corresponds to the output voltage option.
CIN	1.0 μ F	1	0402	X5R, Input Capacitor
COUT	1.0 μ F	2	0402	X5R, Output Capacitor
R1	0 Ω	Not Fitted	0603	Connects V_{EN} to V_{IN}
Test Pins		6		

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