AP7348D-1828RS4-7-EVM

Application Note
AP7348D Application Information and Demo Board User Guide

Description

The AP7348 is a 4 channel low dropout regulator with high output voltage accuracy, low RDS(ON), high PSRR, low output noise and low quiescent current. This regulator is based on a CMOS process.

The AP7348 includes a voltage reference, error amplifier, current limit circuit and two enable inputs to turn CH1&CH3, CH2&CH4 on and off separately. With the integrated resistor network fixed output voltage versions can be delivered.

With its low power consumption and line and load transient response, the AP7348 is well suited for low power handheld communication equipment.

Features

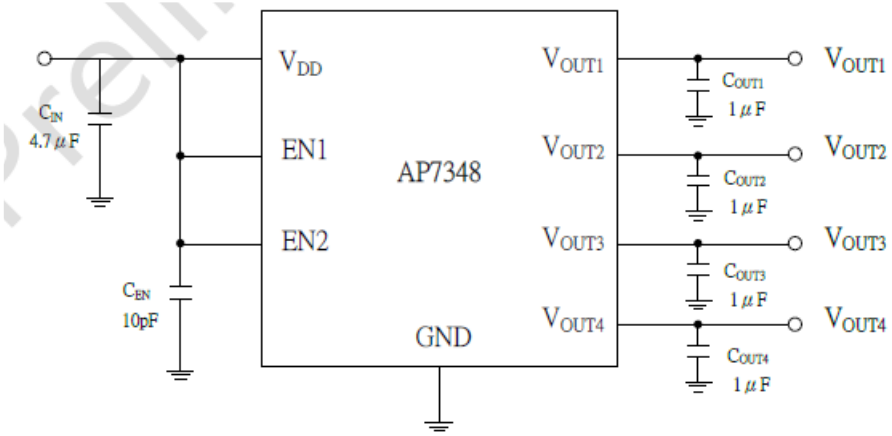
- Low VIN and Wide VIN Range: 1.7V to 5.25V
- Each Channel Output Current: 300mA
- VOUT Accuracy ±1%
- Ripple Rejection 75dB at 1kHz
- Low Output Noise, 60μVrms from 10Hz to 100kHz
- Total Quiescent Current as Low as 140μA
- VOUT Fixed 1.2V to 3.6V
- Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)
- Halogen and Antimony Free. “Green” Device (Note 3)

Applications

- Smart Phone/Tablet
- RF Supply
- Cameras
- Portable Video
- Portable Media Player
- Wireless Adapter
- Wireless Communication

Notes: 1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
2. See http://www.diodes.com/quality/lead_free.html for more information about Diodes Incorporated’s definitions of Halogen- and Antimony-free, "Green" and Lead-free.
3. Halogen- and Antimony-free "Green” products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds

Typical Applications Circuit



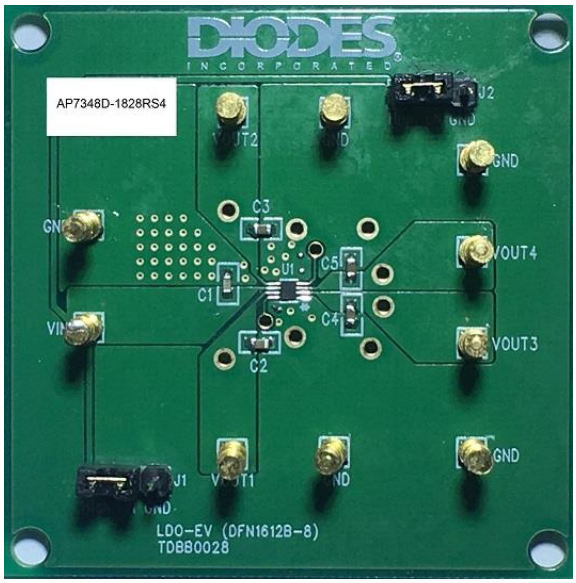
Absolute Maximum Ratings

Symbol	Parameter	Ratings	Unit
ESD HBM	Human Body Mode ESD Protection	± 2	KV
ESD CDM	Charge Device Model	± 500	V
VIN	Input Voltage	6.0	V
VEN	Input Voltage for EN Pin	6.0	V
VOUT	Output Voltage	-0.3 to V_{IN} + 0.3	V
IOUT	Each Channel Output Current	300	mA
PD (*c)	Power Dissipation	600	mW
T_A	Operating Ambient Temperature	-40 to +85	°C
T_{STG}	Storage Temperature	-55 to +125	°C

Recommended Operating Conditions

Symbol	Parameter	Min	Max	Unit
V_{IN}	Input Voltage	1.7	5.25	V
I_{OUT}	Each Channel Output Current	0	300	mA
T_A	Operating Ambient Temperature	-40	+85	°C

Evaluation Board



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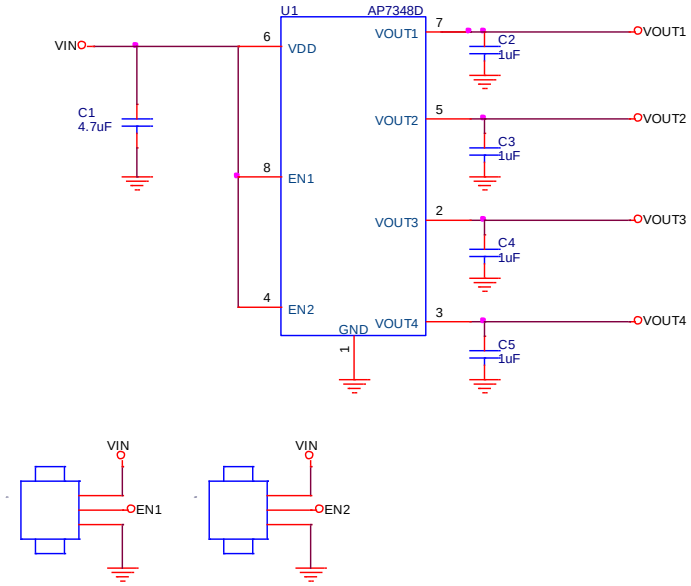
Quick Start Guide

The AP7348D-EVM has a simple layout and allows access to the appropriate signals through test points. To evaluate the performance of the AP7348D, follow the procedure below:

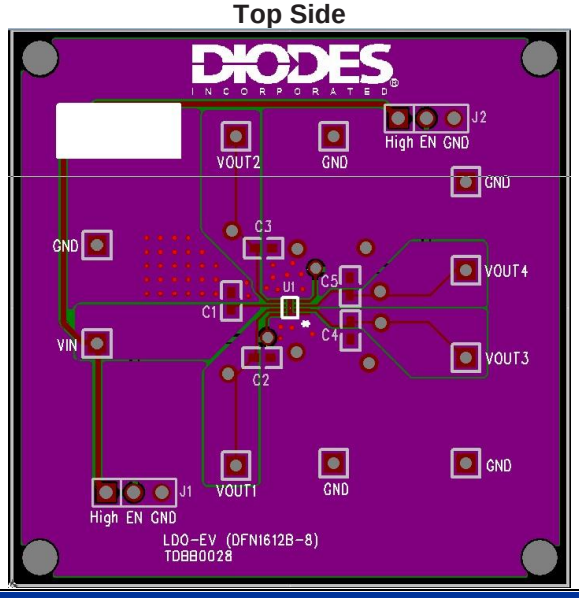
1. Connect a power supply to the input terminals VIN and GND. Set VIN to 5V.
2. Connect the positive terminal of the multimeter to VOUT and negative terminal to GND.
3. For Enable, place two jumpers to “High” position to connect EN pin to enable IC. Jump to “Low” position to disable IC.
4. The evaluation board should now power up with 1.8V and 2.8V output voltage.
5. Check for the proper output voltage at the output terminals VOUT and GND. (VOUT1 & VOUT2=1.8V , VOUT3 & VOUT4=2.8V)

Evaluation Board Schematic

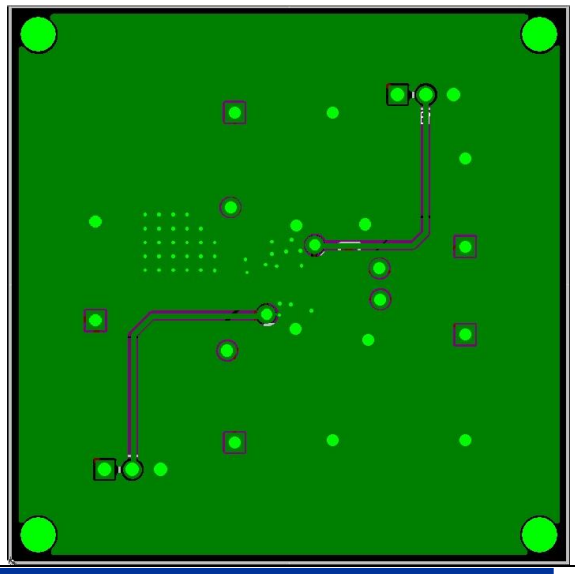


PCB Layout

Top Side



Bottom Side



Bill of Materials

Component Location	Qty	Specification	Mark	Maker Part No.	Size
C1	1	Cap MLCC 4.7uF/10V/X5R	Holy stone	C0603B475K010T	0603
C2,C3,C4,C5	4	Cap MLCC 1uF/25V/X7R	WALSIN	0603B105K250	0603
J1,J2	1	0.1"*3 Header 1 and Jumper			5mm X 2.5mm
VIN VOUT1 VOUT2 VOUT3 VOUT4 GND	8	Test pin			2.2mm X 1.35mm
U1	1	LDO	Diodes Inc	AP7348D-1828RS4-7	DFN1612
PCB	1	LDO-EV (DFN1612-8)	Diodes Inc.	TDBB0028	51mmX51mm

Vendors of peripheral components

Suggested Capacitors：

Vendor	Capacitance	Type	Series
Holy stone	Cap MLCC 0.1uF/50V/X7R	SMD	C0603B475K010T
WALSIN	Cap MLCC 1uF/25V/X7R		0603B105K250

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