

## 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  $\pm 1\%$
- Ripple Rejection 75dB at 1kHz
- Low Output Noise, 60 $\mu$ Vrms from 10Hz to 100kHz
- Total Quiescent Current as Low as 140 $\mu$ A
- 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**

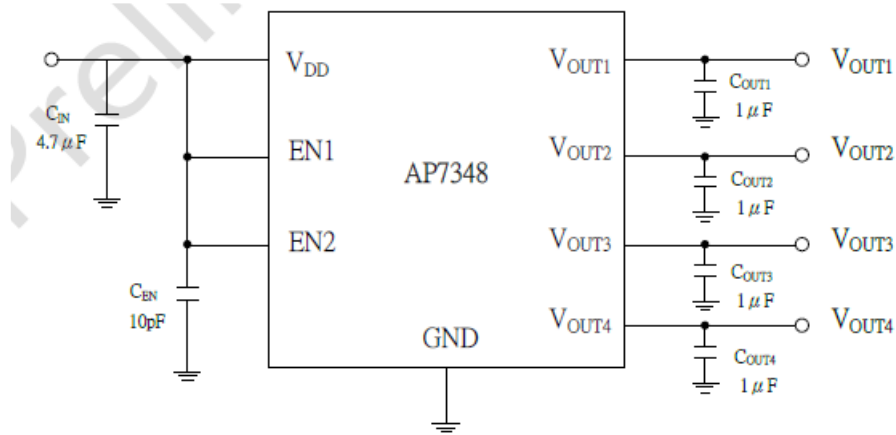
- Smart Phone/Tablet
- RF Supply
- Cameras
- Portable Video
- Portable Media Player
- Wireless Adapter
- Wireless Communication

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](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

## Application Note

### AP7348D Application Information and Demo Board User Guide

#### 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
V <sub>IN</sub>	Input Voltage	6.0	V
V <sub>EN</sub>	Input Voltage for EN Pin	6.0	V
V <sub>OUT</sub>	Output Voltage	-0.3 to V <sub>IN</sub> + 0.3	V
I <sub>OUT</sub>	Each Channel Output Current	300	mA
PD (*c)	Power Dissipation	600	mW
T <sub>A</sub>	Operating Ambient Temperature	-40 to +85	°C
T <sub>STG</sub>	Storage Temperature	-55 to +125	°C

This application note contains new product information. Diodes, Inc. reserves the right to modify the product specification without notice. No liability is assumed as a result of the use of this product. No rights under any patent accompany the sale of the product.

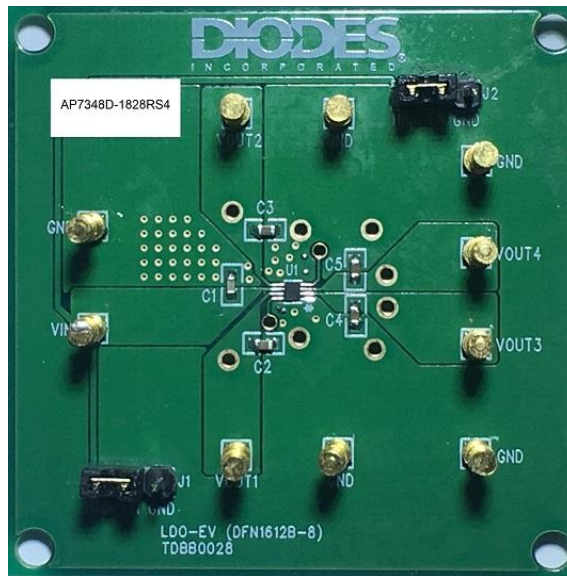
## Application Note

### AP7348D Application Information and Demo Board User Guide

#### 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



This application note contains new product information. Diodes, Inc. reserves the right to modify the product specification without notice. No liability is assumed as a result of the use of this product. No rights under any patent accompany the sale of the product.

## Application Note

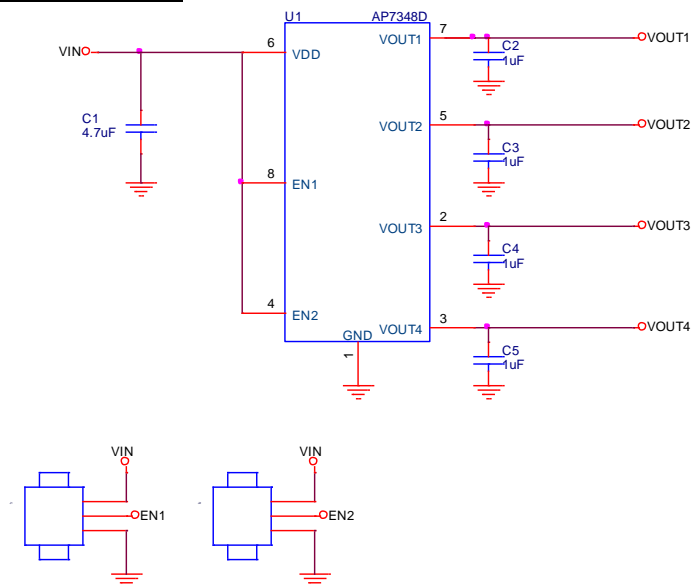
### AP7348D Application Information and Demo Board User Guide

#### Quick Start Guide

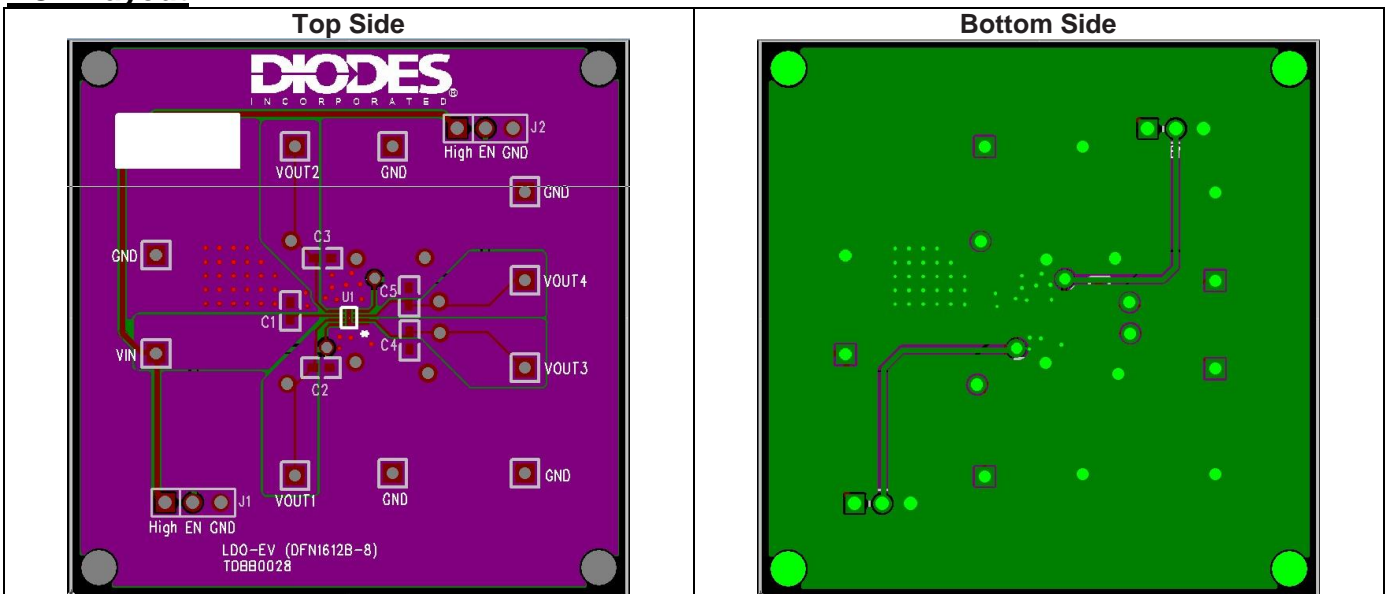
The AP7348D-EVM has a simple layout and allows access to the appropriate signals through test points. To evaluate the performance of the AP7348D, follow the procedure below:

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



This application note contains new product information. Diodes, Inc. reserves the right to modify the product specification without notice. No liability is assumed as a result of the use of this product. No rights under any patent accompany the sale of the product.

## Application Note

### AP7348D Application Information and Demo Board User Guide

#### **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

## Application Note

### AP7348D Application Information and Demo Board User Guide

---

#### IMPORTANT NOTICE

DIODES INCORPORATED MAKES NO WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, WITH REGARDS TO THIS DOCUMENT, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE (AND THEIR EQUIVALENTS UNDER THE LAWS OF ANY JURISDICTION).

Diodes Incorporated and its subsidiaries reserve the right to make modifications, enhancements, improvements, corrections or other changes without further notice to this document and any product described herein. Diodes Incorporated does not assume any liability arising out of the application or use of this document or any product described herein; neither does Diodes Incorporated convey any license under its patent or trademark rights, nor the rights of others. Any Customer or user of this document or products described herein in such applications shall assume all risks of such use and will agree to hold Diodes Incorporated and all the companies whose products are represented on Diodes Incorporated website, harmless against all damages.

Diodes Incorporated does not warrant or accept any liability whatsoever in respect of any products purchased through unauthorized sales channel.

Should Customers purchase or use Diodes Incorporated products for any unintended or unauthorized application, Customers shall indemnify and hold Diodes Incorporated and its representatives harmless against all claims, damages, expenses, and attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized application.

Products described herein may be covered by one or more United States, international or foreign patents pending. Product names and markings noted herein may also be covered by one or more United States, international or foreign trademarks.

This document is written in English but may be translated into multiple languages for reference. Only the English version of this document is the final and determinative format released by Diodes Incorporated.

#### LIFE SUPPORT

Diodes Incorporated products are specifically not authorized for use as critical components in life support devices or systems without the express written approval of the Chief Executive Officer of Diodes Incorporated. As used herein:

A. Life support devices or systems are devices or systems which:

1. are intended to implant into the body, or
2. support or sustain life and whose failure to perform when properly used in accordance with instructions for use provided in the labeling can be reasonably expected to result in significant injury to the user.

B. A critical component is any component in a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or to affect its safety or effectiveness.

Customers represent that they have all necessary expertise in the safety and regulatory ramifications of their life support devices or systems, and acknowledge and agree that they are solely responsible for all legal, regulatory and safety-related requirements concerning their products and any use of Diodes Incorporated products in such safety-critical, life support devices or systems, notwithstanding any devices- or systems-related information or support that may be provided by Diodes Incorporated. Further, Customers must fully indemnify Diodes Incorporated and its representatives against any damages arising out of the use of Diodes Incorporated products in such safety-critical, life support devices or systems.

Copyright © 2020, Diodes Incorporated

[www.diodes.com](http://www.diodes.com)