AP7343-EVM

Application Note
AP7343 Application Information and Demo Board User Guide

Description

The AP7343 is a 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 AP7343 includes a voltage reference, error amplifier, current limit circuit and an enable input to turn it on and off. With the integrated resistor network fixed output voltage versions can be delivered.

With its low power consumption and line and load transient response, the AP7343 is well suited for low power handheld communication equipment.

The AP7343 is packaged in X2-DFN1010-4 (Type B) and SOT25 packages, allows for smallest footprint and dense PCB layout.

Features

- Low V_{IN} and Wide V_{IN} Range: 1.7V to 5.25V
- Guarantee Output Current 300mA
- V_{OUT} Accuracy ±1%
- Ripple Rejection 75dB at 1KHz
- Low Output Noise, 60μVrms from 10Hz to 100kHz
- Quiescent Current as Low as 35μA
- VOUT Fixed 0.9V 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

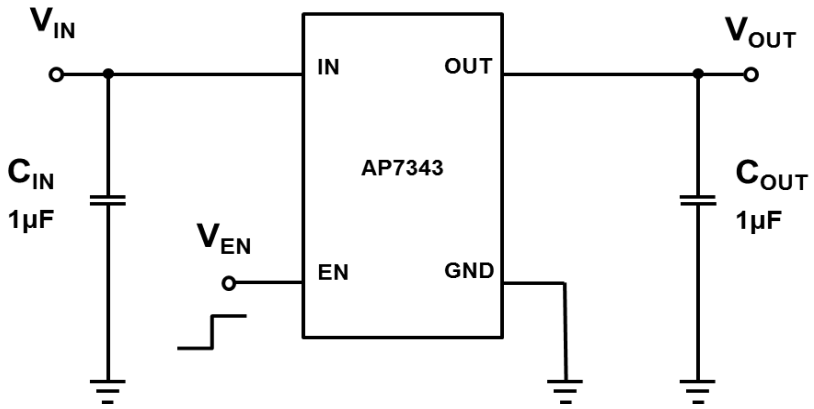

Figure1. AP7343 -EVM

Absolute Maximum Ratings

Symbol	Parameter	Ratings	Unit
ESD HBM	Human Body Mode ESD Protection	>2	kV
ESD MM	Machine Mode ESD Protection	>200	V
V_{IN}	Input Voltage	6.0	V
V_{EN}	Input Voltage EN	6.0	V
V_{OUT}	Output Voltage	-0.3 to V_{IN} +0.3	V
I_{OUT}	Output Current	400	mA
P_D	Power Dissipation (Note 5)	400	mW
T_A	Operating Ambient Temperature	-40 to +85	°C
T_J	Operating Junction Temperature	+125	°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}	Output Current	0	300	mA
T_A	Operating Ambient Temperature	-40	+85	°C

Evaluation Board

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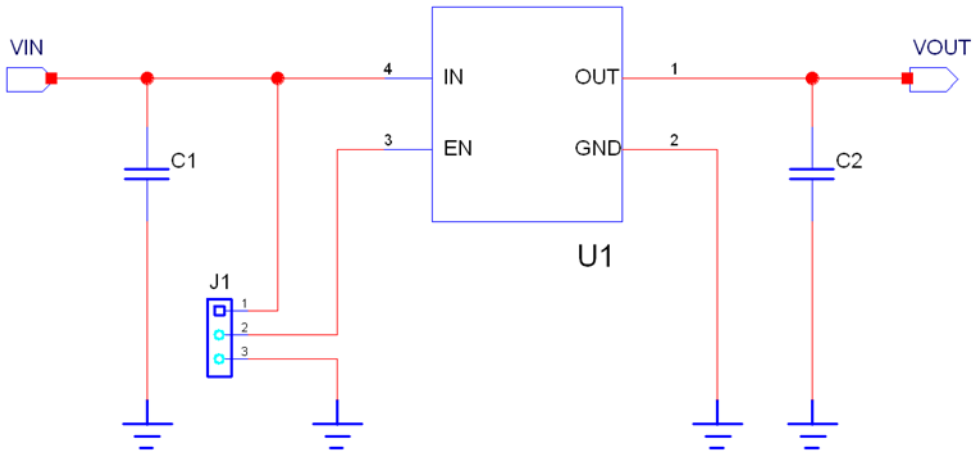
Quick Start Guide

The AP7343-EVM has a simple layout. To evaluate the performance of the AP7343, follow the procedure below:

1. Connect a power supply to the input terminals VIN and GND. Set VIN to VOUT+1V.
2. Connect the positive terminal of the electronic load to VOUT and negative terminal to GND.
3. Place a jumper at JH1 to “High” position to enable IC. Jump to “Low” position to disable IC.
4. The evaluation board power up with output voltage.
5. Check for the proper output voltage (±1%) at the output terminals VOUT and GND. Measurement can also be done with a multimeter with the positive and negative leads between VOUT and GND
6. Set the load to 300mA through the electronic load. Check for the stable operation of the VOUT signal on the oscilloscope.

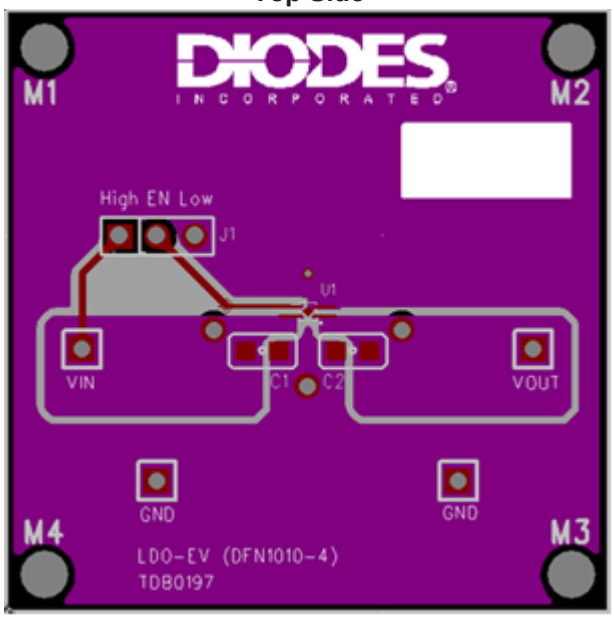
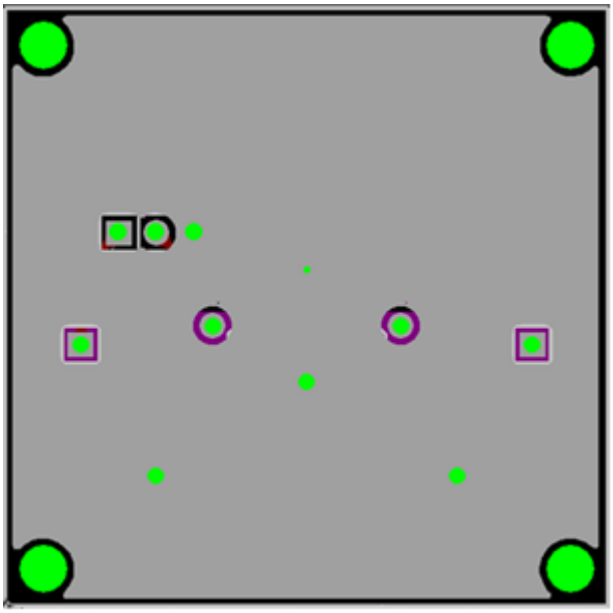
Evaluation Board Schematic

X2-DFN1010-4



PCB Layout

For DFN1010-4 Package

Top Side	Bottom Side
	
X2-DFN1010-4	**X2-DFN1010-4**

Bill of Materials

Component Location	Quantity	Specification	Source	Part No.	Size
C1	1	Cap MLCC 1μF/10V/X7R	TAIYO YUDEN	LMK107B7105KA	C0603
C2	1	Cap MLCC 1μF/10V/X7R	TAIYO YUDEN	LMK107B7105KA	C0603
J1	1	0.1"*3 Header 1 and Jumper	-	-	7.5mm X 2.5mm
VIN,VOUT,GND	4	Header_1	-	-	2.2mm X 1.35mm
U1	1	AP7343, 300mA, LDO	Diodes Inc.	AP7343	DFN1010-4
PCB	1	LDO-EV (DFN1010-4)	Diodes Inc.	TDB0197	1600milX 1600mil

Vendors of peripheral components

Suggested Capacitors：

Vendor	Capacitance	Type	Series
TAIYO YUDEN	Cap MLCC 1μF/10V/X7R	SMD	LMK107B7105KA

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