

# AS1326

## Evaluation Board Application Note



## General Description

### Board Description

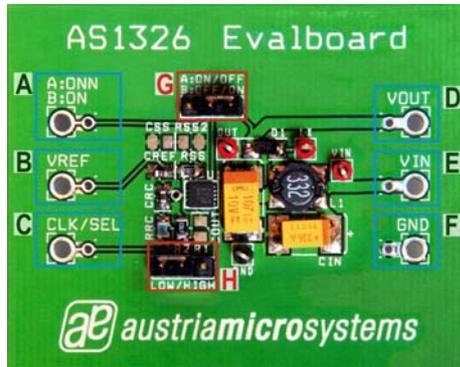


Figure 1: Board Description

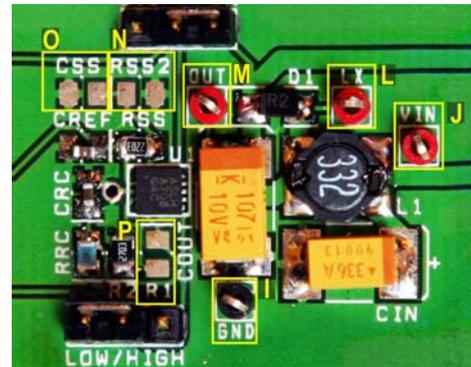


Figure 2: Board Description

### Connector Description

Label	Name	Description	Info
A	<b>A:ONN B:ON</b>	Enable Input	AS1326A: 0=ON, 1=OFF AS1326B: 0=OFF, 1=ON
B	<b>VREF</b>	Internal Reference Bypass Pin	
C	<b>CLK/SEL</b>		0: Normal operation enabling automatic powersave mode 1: Forced PWM-mode Clocked: Forced PWM-mode with the internal oscillator synchronized to this pin between 500kHz and 1.2MHz.
D	<b>VOUT</b>	Power Output Connector	
E	<b>VIN</b>	Input Voltage	Input voltage ranging from 0.7V to 5V
F	<b>GND</b>	Ground	

### Jumper Description

Label	Name	Description	Info
G	<b>A:OFF/ON B:ON/OFF</b>	Enable Jumper	AS1326A: <input type="checkbox"/> ON <input type="checkbox"/> OFF
			AS1326B: <input type="checkbox"/> ON <input type="checkbox"/> OFF
H	<b>LOW/HIGH</b>	Mode Selection	<input type="checkbox"/> LOW Normal Operation Mode
			<input type="checkbox"/> HIGH Forced PWM Mode

### Measurement Points Description

Label	Name	Description	Info
I	<b>GND</b>	Power Supply Connectors for VBATT and Ground.	
J	<b>VIN</b>		
L	<b>LX</b>		
M	<b>OUT</b>		

### Additional Components

Label	Name	Description	Info
N	<b>RSS2</b>	Current Limit Resistance	$I_{LIMIT} = 1.6A \cdot RSS2 / (RSS + RSS2)$
O	<b>CSS</b>	Softstart Capacitance	$t_{SS} = (RSS \cdot RSS2 / (RSS + RSS2)) \cdot CSS$
P	<b>R1</b>	Output Voltage Resistance	$R1 = R2 \cdot (V_{OUT} / V_{FB} - 1)$

## Operational sequence

This evaluation board comes with the AS1326A. The output voltage is set to the default 3.3V but can be adjusted if an additionally resistor R1 “P” is soldered on the board.

1. If not present get the [datasheet](#) for the AS1326 from [www.austriamicrosystems.com](http://www.austriamicrosystems.com). Drive the IC on the Demoboard only with the recommended settings and values as described in the datasheet.
2. Connect a +0.7V to V<sub>OUT</sub> power supply (VIN “E” and GND “F”).
3. Perform measurements at the measurement points “I” to “M”.

If there are questions do not hesitate to contact us. See contact information at the end of the application note.

## Optional Features

### Setting the output voltage

The AS1326 has a default output voltage of 3.3V. Additionally the output voltage can be set between 2.5 and 5V via an additionally resistor R1 which can be placed at “P”. The required resistor value for a certain output voltage can be calculated as shown in equation 1.

$$R1=R2*(V_{OUT}/V_{FB}-1) \text{ (Eq1)}$$

$$R1=270k\Omega*(V_{OUT}/1.24V-1) \text{ (Eq2)}$$

### Using the current limiter

The ISET pin is used to adjust the inductor current limit and to implement the soft-start feature. With pin ISET connected to pin REF, the inductor current limit is set to 1.6A. With ISET connected to a resistor-divider network from pin REF to GND, the current limit is calculated as:

$$I_{LIMIT}=1.6A*RSS2/(RSS+RSS2) \text{ (Eq3)}$$

$$I_{LIMIT}=1.6A*RSS2/(220k\Omega+RSS2) \text{ (Eq4)}$$

### Setting the soft-start

On default the soft-start feature is disabled. The soft-start feature can be implemented by placing a resistor RSS (already soldered) between pin ISET and pin REF and a capacitor CSS between pin ISET and GND. At power-up, ISET is 0V and the LX current is

$$t_{ss}=RSS*CSS \text{ (Eq5)}$$

$$t_{ss}=220k\Omega*CSS \text{ (Eq6)}$$

If the current limiter resistance is also in use, the equation for the soft-start time would be:

$$t_{ss}=(RSS*RSS2/(RSS+RSS2))*CSS \text{ (Eq7)}$$

$$t_{ss}=(220k\Omega*RSS2/(220k\Omega+RSS2))*CSS \text{ (Eq8)}$$

## Layout of evaluation board

### Board schematics and layout

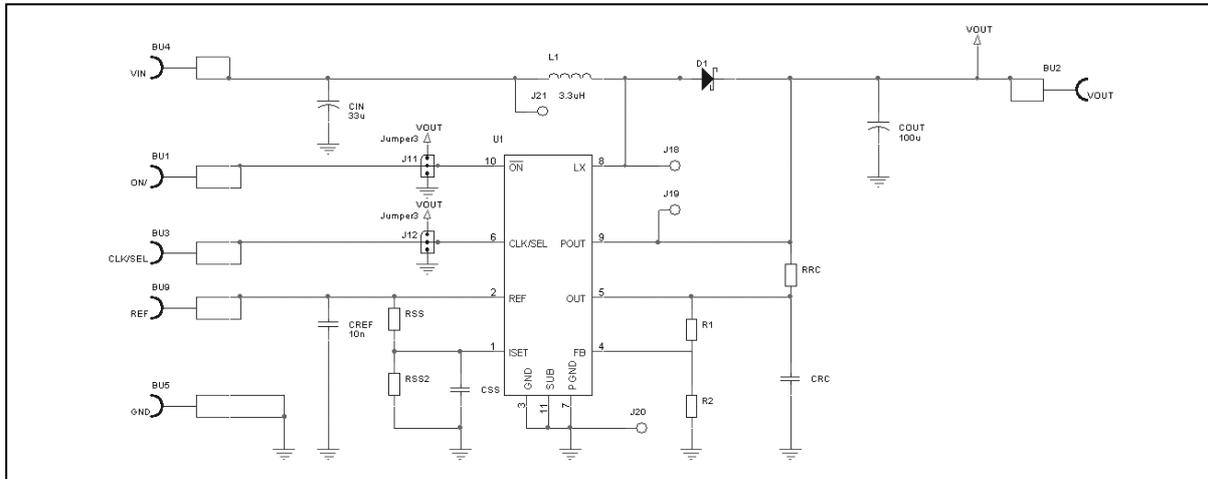


Figure 3: Schematics

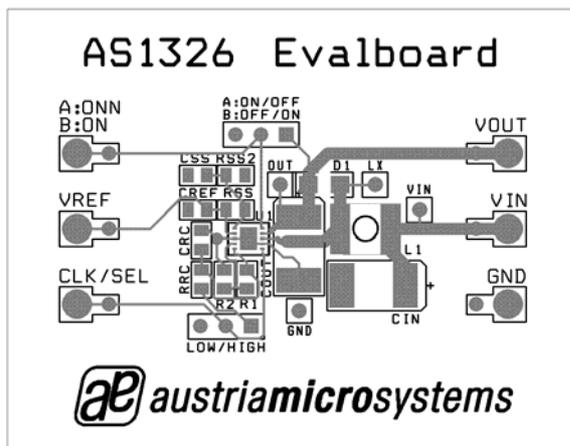


Figure 4: Top view

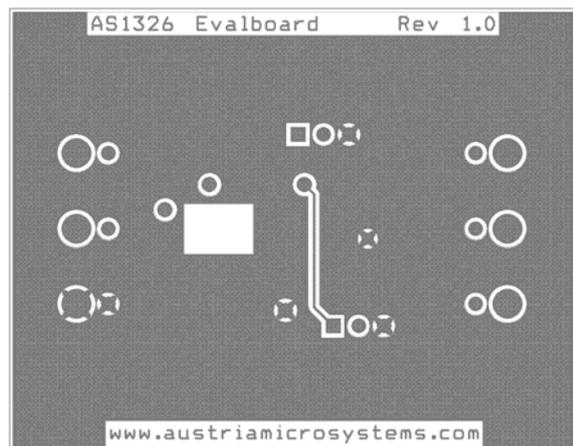


Figure 5: Bottom view

### Assembly List

Label	Info	Type	Manufacturer
CIN	33µF, ±10%, 10V, 150mΩ	TPSC336K010R0150	AVX
COUT	100µF, ±10%, 10V, 50mΩ	T495D107M010ATE050	Kemet
	or 82µF, ±20%, 6.3V, 18mΩ	A700V826M006ATE018	Kemet
L1	3.3µH, 46mΩ, 1.8A	MOS6020-332	Coilcraft
RSS	220kΩ		
R1	270kΩ		
RCC	10Ω		
CRC	330nF		
RCC	10nF		

## Copyright

Copyright © 1997-2007, austriamicrosystems AG, Schloss Premstaetten, 8141 Unterpremstaetten, Austria-Europe. Trademarks Registered ®. All rights reserved. The material herein may not be reproduced, adapted, merged, translated, stored, or used without the prior written consent of the copyright owner.

All products and companies mentioned are trademarks or registered trademarks of their respective companies.

## Disclaimer

Devices sold by austriamicrosystems AG are covered by the warranty and patent indemnification provisions appearing in its Term of Sale. austriamicrosystems AG makes no warranty, express, statutory, implied, or by description regarding the information set forth herein or regarding the freedom of the described devices from patent infringement. Austriamicrosystems AG reserves the right to change specifications and prices at any time and without notice. Therefore, prior to designing this product into a system, it is necessary to check with austriamicrosystems AG for current information.

This product is intended for use in normal commercial applications. Applications requiring extended temperature range, unusual environmental requirements, or high reliability applications, such as military, medical life-support or lifesustaining equipment are specifically not recommended without additional processing by austriamicrosystems AG for each application. For shipments of less than 100 parts the manufacturing flow might show deviations from the standard production flow, such as test flow or test location.

The information furnished here by austriamicrosystems AG is believed to be correct and accurate. However, austriamicrosystems AG shall not be liable to recipient or any third party for any damages, including but not limited to personal injury, property damage, loss of profits, loss of use, interruption of business or indirect, special, incidental or consequential damages, of any kind, in connection with or arising out of the furnishing, performance or use of the technical data herein. No obligation or liability to recipient or any third party shall arise or flow out of austriamicrosystems AG rendering of technical or other services.



## Contact Information

### Headquarters

austriamicrosystems AG  
A-8141 Schloss Premstätten, Austria  
T. +43 (0) 3136 500 0  
F. +43 (0) 3136 5692

For Sales Offices, Distributors and Representatives, please visit:  
<http://www.austriamicrosystems.com/contact>