

DESCRIPTION

The EV3115DT-00A is an evaluation board for the MP3115, a synchronous, 1.3MHz fixed frequency, current mode step-up converter with output to input disconnect.

It can startup from an input voltage as low as 0.95V and provides inrush current limiting as well as output short circuit protection, while the integrated P-Channel synchronous rectified switch provides improved efficiency.

The MP3115 regulates the output voltage up to 3.3V and 200mA from single cell AA battery without the uses of an external Schottky diode.

The MP3115 is offered in a SOT23-6 package.

ELECTRICAL SPECIFICATIONS

Parameter	Symbol	Value	Units
Input Voltage	V _{IN}	0.95 – 2.5	V
Output Voltage	V _{OUT}	3.3	V

FEATURES

- Output to Input Disconnect in Shutdown Mode
- Internal Synchronous Rectifier
- Output Voltage up to 4.0V without an External Schottky Diode
- Inrush Current Limiting and Internal Soft-Start
- Internal Compensation
- 1A Minimum Peak Current Limit
- 1.3MHz Fixed Switching Frequency
- Zero Current in Shutdown Mode
- Thermal Shutdown
- Fully Assembled and Tested

APPLICATIONS

- MP3 Players
- Handheld Computers and PDAs
- Digital Still and Video Cameras
- External Modems
- Small LCD Displays

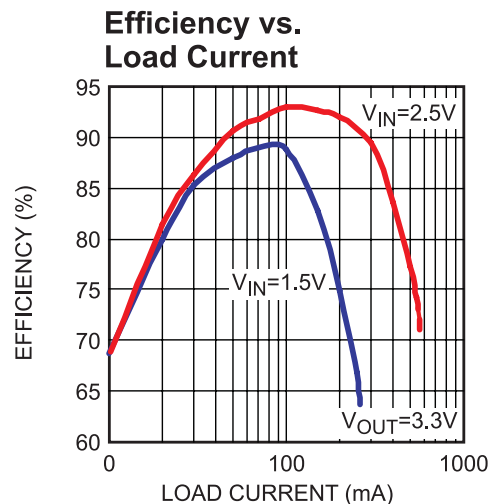
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EV3115DT-00A EVALUATION BOARD

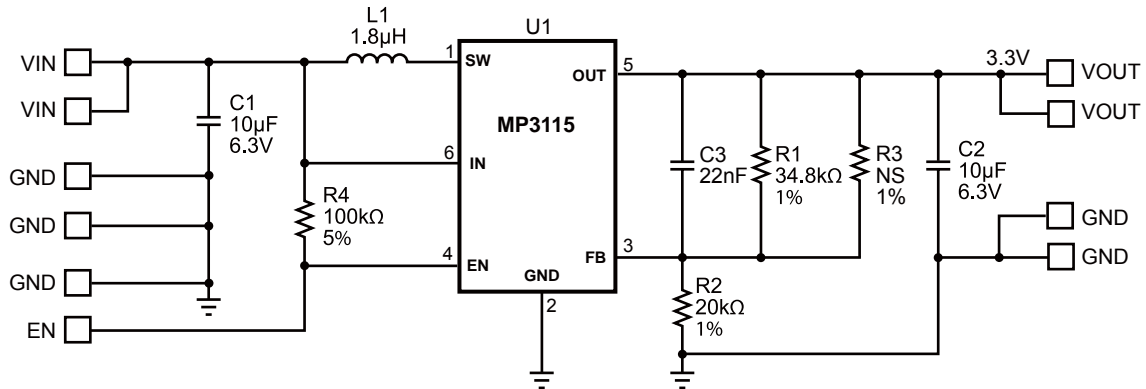


(L x W x H) 2.0" x 2.0" x 0.5"
(5cm x 5cm x 1.2cm)

Board Number	MPS IC Number
EV3115DT-00A	MP3115DT



EVALUATION BOARD SCHEMATIC



EV3115DT-00A BILL OF MATERIALS

Qty	Ref	Value	Description	Package	Manufacturer	Part Number
2	C1, C2	10µF	Ceramic Cap., 10V, X5R	1210	TDK	C3225X5R1A106K
1	C3	22nF	Ceramic Cap., 50V, COG	603	TDK	C16-8COG1H222J
1	R1	34.8kΩ	Film Res., 1% (3.3V)	603	Panasonic	ERJ-3EKF3482V
1	R2	20kΩ	Film Res., 1%	603	Panasonic	ERJ-3EKF203V
1	R3	56.2kΩ	Film Res., 1% NS (2.5V)	603	Panasonic	ERJ-3EKF5622V
1	R4	100kΩ	Film Res., 5%	603	Panasonic	ERJ-3GEY1003V
1	L1	1.8µH	1.8uH, SMD	SMD	TOKO	1123AS-1R8N
2	J1, J2		13-Pin Connector Header, 0.100"		Sullins	
1	U1		Step-Up Converter	TSOT23-6	MPS	MP3115DT

PRINTED CIRCUIT BOARD LAYOUT

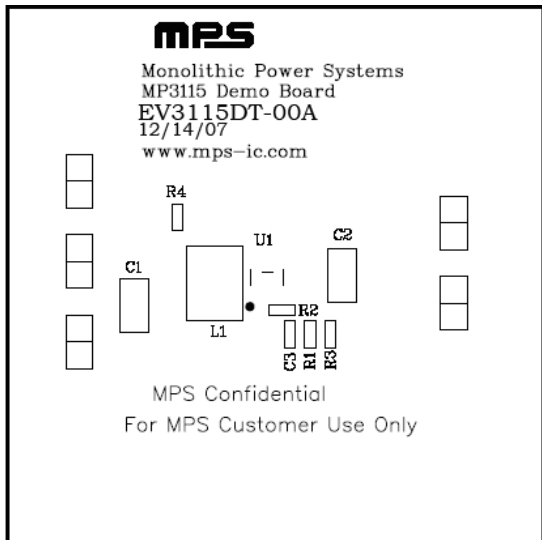


Figure 1—Top Silk Layer

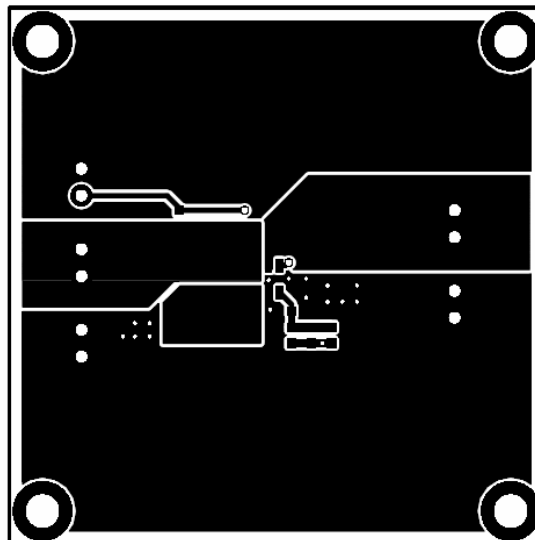


Figure 2—Top Layer

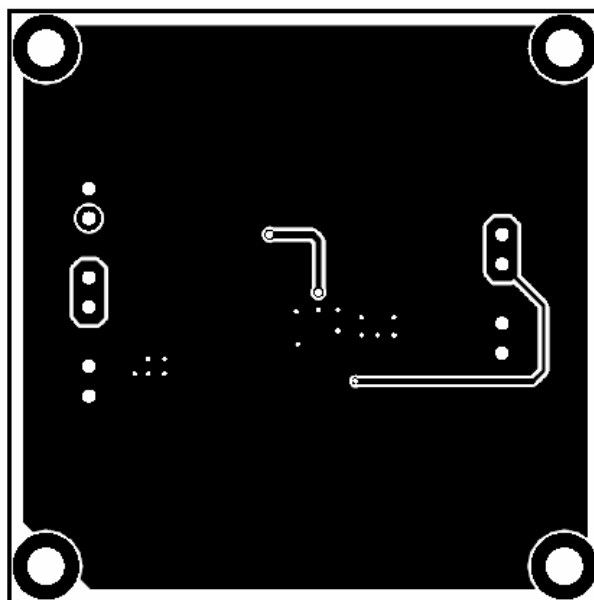


Figure 3—Bottom Layer

QUICK START GUIDE

The output voltage of this board is set to 2.5V or 3.3V. The board layout accommodates most commonly used inductors and output capacitors.

1. Preset Power Supply to $0.95V \leq V_{IN} \leq 2.5V$.
2. Turn Power Supply off.
3. Connect Power Supply terminals to:
Positive (+): IN
Negative (-): GND
4. Connect Load to:
Positive (+): OUT
Negative (-): GND
5. Turn Power Supply on after making connections.
6. The MP3115 is enabled on the evaluation board once V_{IN} is applied. To disable the MP3115, short EN to GND.
7. The output voltage V_{OUT} can be changed by varying R1. Calculate the new value using the formula:

$$R1 = R2 \times \left(\frac{V_{OUT} - V_{FB}}{V_{FB}} \right)$$

Where $V_{FB} = 1.20V$ and $R2 = 20k\Omega$

For example, for $V_{OUT} = 3.3V$

$$R1 = \left(\frac{2.1}{1.2} \right) \times 20k\Omega = 35k\Omega$$

Therefore use a 34.8k Ω standard 1% value.

8. This EV board was set the $V_{OUT}=3.3V$ by using R1. If it needs to set $V_{OUT}=2.5V$, use a R3 resistor (56.2k Ω) to parallel with R1

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