EV3217DJ-00A

670kHz, 70V
Voltage Doubler Evaluation Board

The Future of Analog IC Technology

GENERAL DESCRIPTION

The EV3217DJ-00A is the evaluation board for Voltage Doubler Circuit. It is implemented by MP3217, a current mode step up converter intended for small, low power applications. The MP3217 switches at 670kHz and allows the use of tiny, low cost capacitors and inductors to achieve a compact solution.

The MP3217 includes under-voltage lockout, over voltage protection and thermal overload protection preventing damage in the event of an output overload. The MP3217 is available in small 6-pin TSOT23 package.

FEATURES

- Internal 0.6Ω Power MOSFET
- Up to 70V Output Voltage
- 670kHz Fixed Switching Frequency
- Over Voltage Shutdown
- Cycle-by-Cycle Over Current Protection
- UVLO, Thermal Shutdown
- Available in TSOT23-6 Packages

APPLICATIONS

- APD Bias Generation
- Portable Applications
- Handheld Computers and PDAs
- Digital Still Cameras

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ELECTRICAL SPECIFICATION

Parameter	Symbol	Value	Units
Input Voltage	V_{IN}	3.3	V
Output Voltage	V_{OUT}	70	V
Output Current	I_{OUT}	1	mA

EV3217DJ-00A EVALUATION BOARD

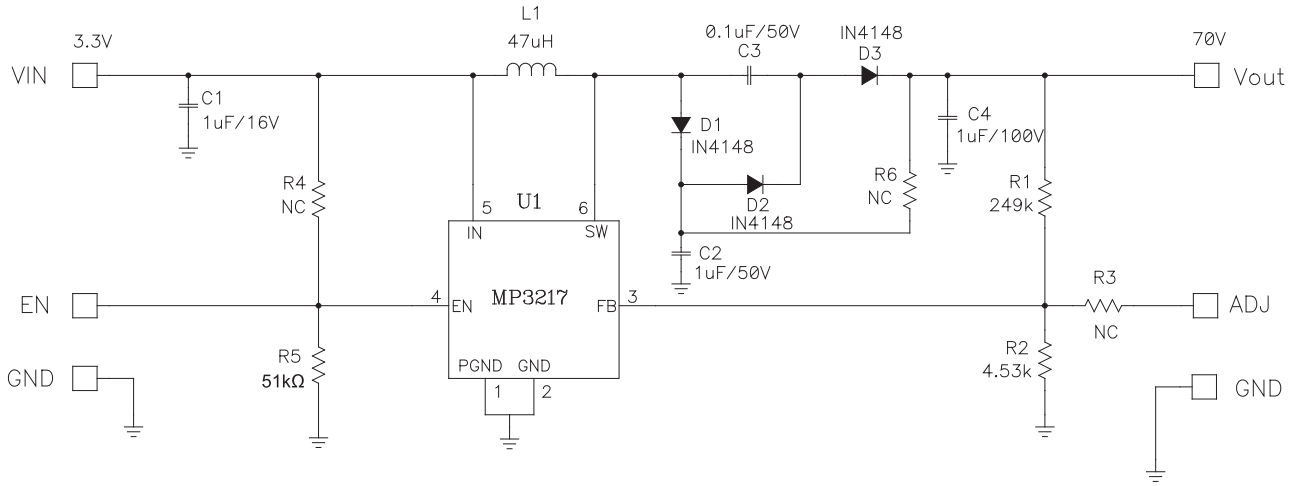


(L x W x H) 2.0" x 1.8" x 0.2"
5.0cm x 4.5cm x 0.5cm

Board Number	MPS IC Number
EV3217DJ-00A	MP3217DJ

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EVALUATION BOARD SCHEMATIC



EV3217DJ-00A BILL OF MATERIALS

Qty	Ref	Value	Description	Package	Manufacturer	Part Number
1	C1	1μF	Ceramic Capacitor,16V,X7R	0805	muRata	GRM21BR71C105KA01L
1	C2	1μF	Ceramic Capacitor,50V,X7R	0805	muRata	GRM21BR71H105KA12L
1	C3	0.1μF	Ceramic Capacitor,50V,X7R	0805	muRata	GRM21BR71H104KA01L
1	C4	1μF	Ceramic Capacitor,100V,X7R	1210	muRata	GRM32ER72A105KA01L
3	D1, D2, D3	1N4148	Diode, 75V, 0.15A	SOD-323	Diodes Inc.	1N4148WS-7-F
1	L1	47μH	Inductor, 0.53A	D63LCB	TOKO	D63LCB-#A921CY-470M
1	R1	249kΩ	Resistor, 1%	0603	Yageo	RC0603FR-07249KL
1	R2	4.53kΩ	Resistor, 1%	0603	Yageo	RC0603FR-074K53L
3	R3, R4, R6	NC				
1	R5	51kΩ	Resistor	0603	Any	
1	U1	MP3217	Boost Converter	TSOT23-6	MPS	MP3217DJ-LF-Z

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PRINTED CIRCUIT BOARD LAYOUT

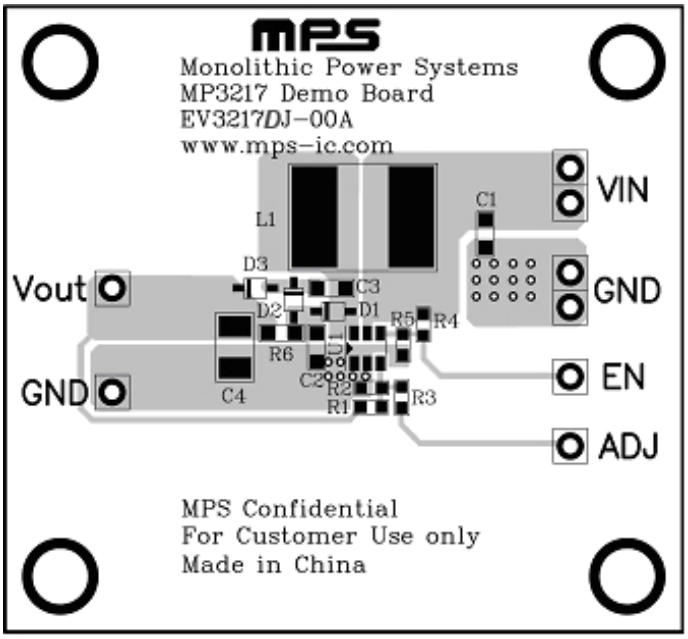


Figure 1—Top Layer

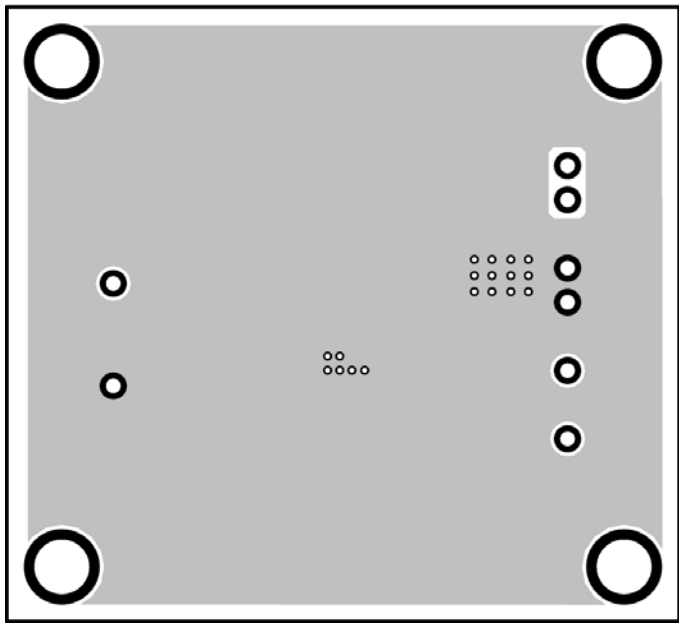


Figure 2—Bottom Layer

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QUICK START GUIDE

The output voltage of this board is set to 70V. The board layout accommodates most commonly used inductors and output capacitors.

1. Preset Power Supply to V_{IN} =3.3V.
2. Turn Power Supply off.
3. Connect Power Supply terminals to:

   Positive (+): Vin

   Negative (–): GND
4. Connect Load to:

   Positive (+): Vout

   Negative (–): GND
5. Turn Power Supply on after making connections.
6. The MP3217 is enabled once V_{EN}>2V. To disable the MP3217, short EN to GND.
7. The output voltage V_{OUT} can be changed by varying R1. Calculate the new value using the formula:

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

   Where V_{FB} = 1.24V and R2 = 4.53kΩ

   For example, for V_{OUT} = 70V

   $$R1 = \left(\frac{70 - 1.24}{1.24}\right) \times 4.53k\Omega = 251.19k\Omega$$

   There choose a 249 kΩ standard 1% value.
8. The output voltage V_{OUT} can be also modified by external adjustable voltage V_{ADJ} thru ADJ pin. Calculate the adjustable voltage value using the formula:

   $$V_{ADJ} = \left(1 + \frac{R3}{R1} + \frac{R3}{R2}\right) \cdot V_{FB} - \frac{R3}{R1} \cdot V_{OUT}$$
9. For normal boost application, open D2, D3, C2 and short R6, the output voltage can be boosted up to 36V by varying R1 using the formula above.

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