

GENERAL DESCRIPTION

The EV6002DN-00A is an evaluation board for the MP6002, a monolithic Flyback/Forward DC-DC converter. The device integrates a 150V power switch and is capable of delivering up to 30W output power. The MP6002 has an internal soft-start, auto-retry, and incorporates over current, short circuit, and over-voltage protection. It can also skip cycles to maintain zero load regulation.

This device is available in an 8-pin SOIC package with an exposed pad.

ELECTRICAL SPECIFICATIONS

Parameter	Symbol	Value	Units
Input Voltage	V_{IN}	36–75	V
Output Voltage	V_{OUT}	12	V
Output Current	I_{OUT}	2.5	A

FEATURES

- Integrated 150V Power Switch
- Integrated 100V Startup Circuit
- Cycle-by-Cycle Current Limiting
- Duty Cycle Limiting with Line Feed Forward
- Input UVLO + Over Voltage Protection
- Thermal Shutdown

APPLICATIONS

- Telecom Equipment
- VoIP Phones, Power over Ethernet (PoE)
- Distributed Power Conversions

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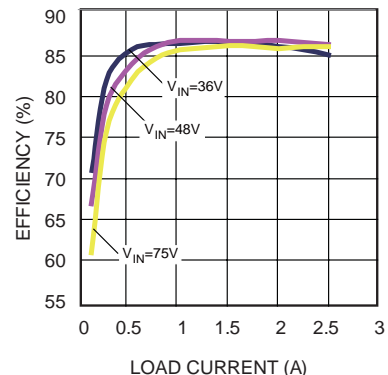
EV6002DN-00A EVALUATION BOARD



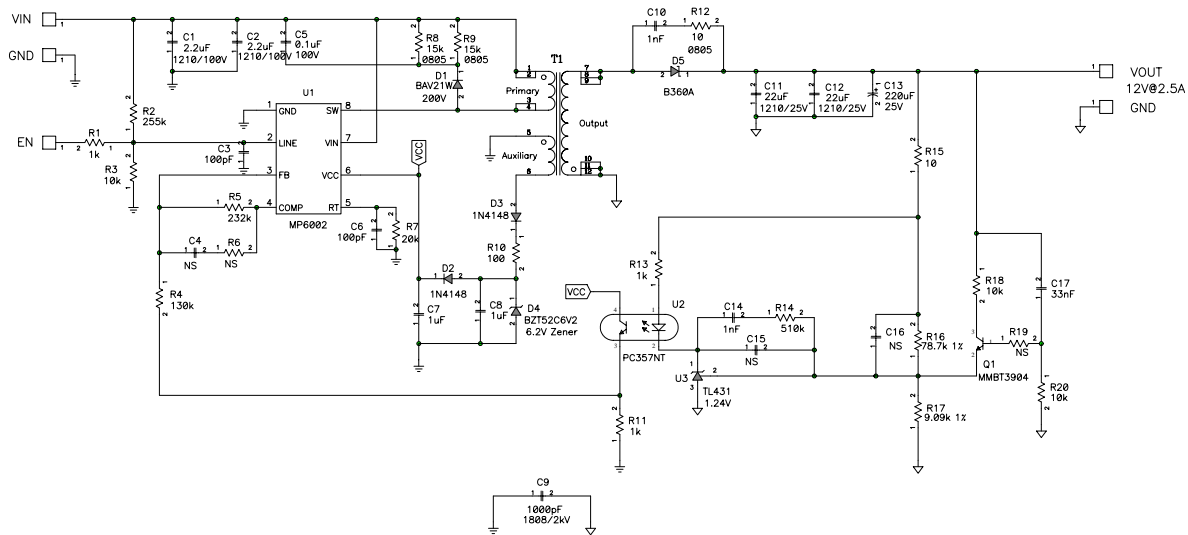
(L x W) 3.8" x 1.2"
(9.8cm x 3.1cm)

Board Number	MPS IC Number
EV6002DN-00A	MP6002DN

Efficiency VS Load Current



EVALUATION BOARD SCHEMATIC



EV6002DN-00A BILL OF MATERIALS

Qty	RefDes	Value	Description	Package	Manufacturer	Manufacturer P/N
2	C1, C2	2.2uF	Ceramic Cap, 100V, X7R	1210	TDK	C3225X7R2A225K
2	C3, C6	100pF	Ceramic Cap. 50V C0G	0603	TDK	C1608C0G1H101J
3	C4, C15, C16	NS				
1	C5	0.1uF	Ceramic Cap. 100V X7R	0805	TDK	C2012X7R2A104K
2	C7, C8	1uF	Ceramic Cap. 25V X5R	0603	TDK	C1608X5R1E105K
1	C9	1000pF	Ceramic Cap. 2000V X7R	1808	TDK	C4520X7R3D102K
2	C10, C14	1nF	Ceramic Cap. 50V X7R	0603	TDK	C1608X7R1H102K
2	C11, C12	22uF	Ceramic Cap, 25V, X5R	1210	Murata	GRM32ER61E226KE15L
1	C13	220uF	25V Electrolytic	DIP	Jiang Hai	
1	C17	33nF	Ceramic Cap. 50V X7R	0603	TDK	C1608X7R1H333K
1	D1	BAV21	Diode Switch, 200V, 250mW	SOD-123	Diodes Inc	BAV21W-7-F
2	D2, D3	1N4148	Diode Switch, 75V, 200mW	SOD-323	Diodes Inc	1N4148WS-7-F
1	D4	6.2V	Diode Zener, 6.2V, 500mW	SOD-123	Diodes Inc	BZT52C6V2-7
1	D5	B360A	Diode Schottky, 60V, 3A	SMA	Diodes Inc	B360A
1	R1	1k	Film Res, 5%	0603	YAGEO	RC0603JR-071KL
1	R2	255k	Film Res, 5%	0603	YAGEO	RC0603JR-07255KL
3	R3, R18, R20	10k	Film Res, 5%	0603	YAGEO	RC0603JR-0710KL

EV6002DN-00A BILL OF MATERIALS (continued)

Qty	RefDes	Value	Description	Package	Manufacturer	Manufacturer P/N
1	R4	130k	Film Res, 5%	0603	YAGEO	RC0603JR-07130KL
1	R5	232k	Film Res, 5%	0603	YAGEO	RC0603JR-07232KL
2	R6, R19	NS				
1	R7	20k	Film Res, 1%	0603	YAGEO	RC0603FR-0720KL
2	R8, R9	15k	Film Res, 5%	0805	YAGEO	RC0805JR-0715KL
1	R10	100	Film Res, 5%	0603	YAGEO	RC0603JR-07100RL
2	R11, R13	1k	Film Res, 1%	0603	YAGEO	RC0603FR-071KL
1	R12	10	Film Res, 5%	0805	YAGEO	RC0603JR-0710RL
1	R14	510k	Film Res, 5%	0603	YAGEO	RC0603JR-07510KL
1	R15	10	Film Res, 5%	0603	YAGEO	RC0603JR-0710RL
1	R16	78.7k	Film Res, 1%	0603	YAGEO	RC0603FR-0778K7L
1	R17	9.09k	Film Res, 1%	0603	YAGEO	RC0603FR-079K09L
1	Q1	MMBT3904	Transistor NPN 40V 350mA	SOT-23	ON Semiconductor	MMBT3904LT1
1	U1	MP6002	DC-DC Converter	SOIC8E	MPS	MP6002DN
1	U2	PC357	Photo coupler, 1-Ch	4-SMD	Sharp	PC357NT
1	U3	ZR431	REG VLT ADJ 1.24V	SOT-23	ZETEX	ZR431LF01
1	T1	750340543	Flyback Transformer, Primary inductance:40uH, Primary: Output: Auxiliary= 1:0.368:0.235	SMD	Würth	750340543

PRINTED CIRCUIT BOARD LAYOUT

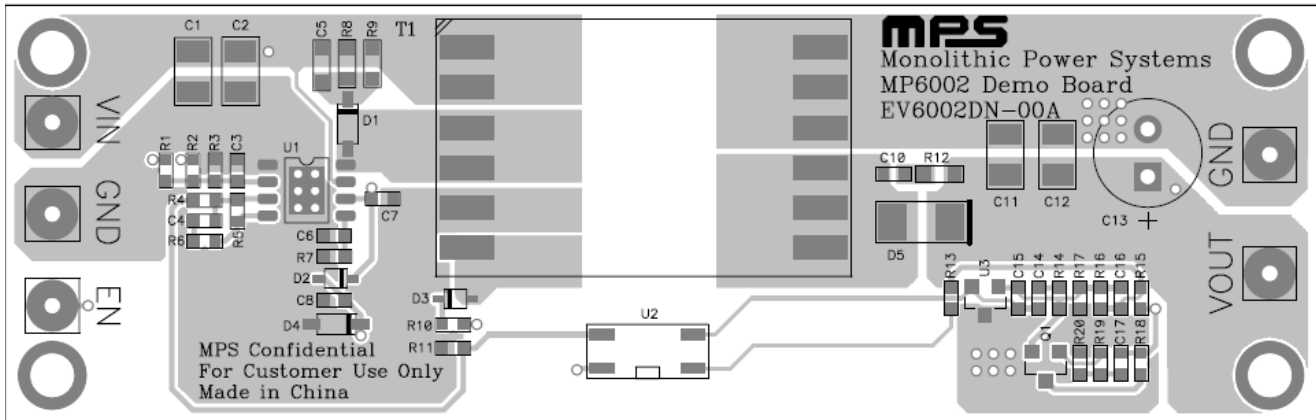


Figure 1—Top Layer

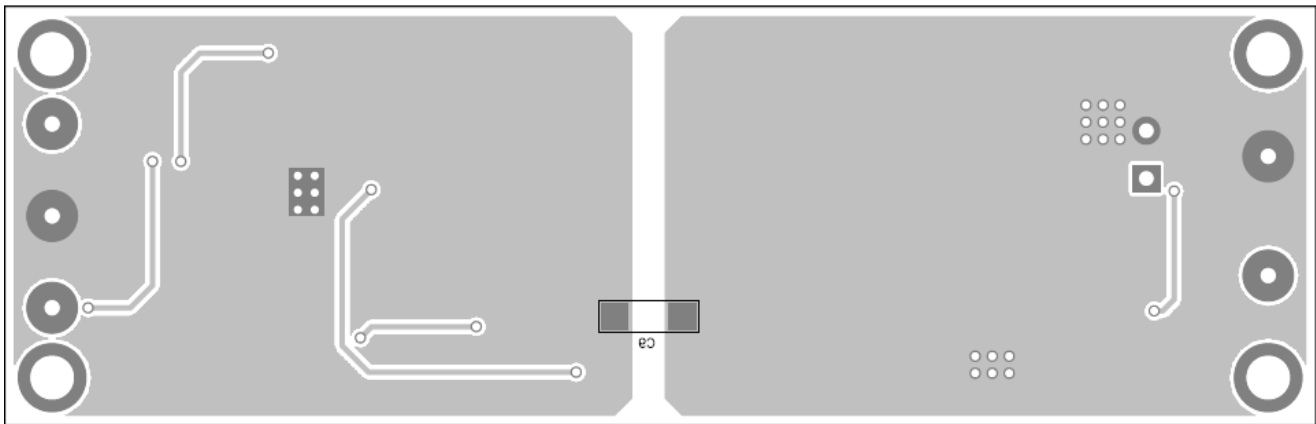


Figure 2—Bottom Layer