



The Future of Analog IC Technology®

EV3908DK-00C

High Efficiency Isolated Flyback Converter EV Board

DESCRIPTION

The EV3908DK-00C is an evaluation board for the MP3908DK. It is configured to provide a regulated 3.3V output at up to 7.5A load current from a 36V-72V input. The output is adjustable by changing feedback resistors on the evaluation board.

MP3908DK features a synchronous gate output which enables high efficiency design by relating the schottky rectifier by a MOSFET.

ELECTRICAL SPECIFICATIONS

Parameter	Symbol	Value	Units
Input voltage	V_{IN}	36–72	V
Input current	I_{IN}	0–1	A
Output voltage	V_O	3.3	V
Output Current	I_O	7.5	A

FEATURES

- Isolated high efficiency 25W design
- Current Mode Control
- Under-Voltage Lockout
- Cycle-by-Cycle Current Limiting
- 10 μ A Shutdown Current
- 180 μ A Quiescent Current
- 250KHz Constant Frequency Operation

APPLICATIONS

- Power over Ethernet (PoE)
- TV CCFL Power Generation
- Telecom Isolated Power
- Brick Modules

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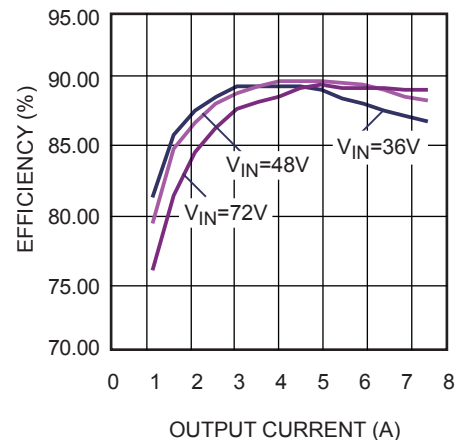
EV3908DK-00C EVALUATION BOARD



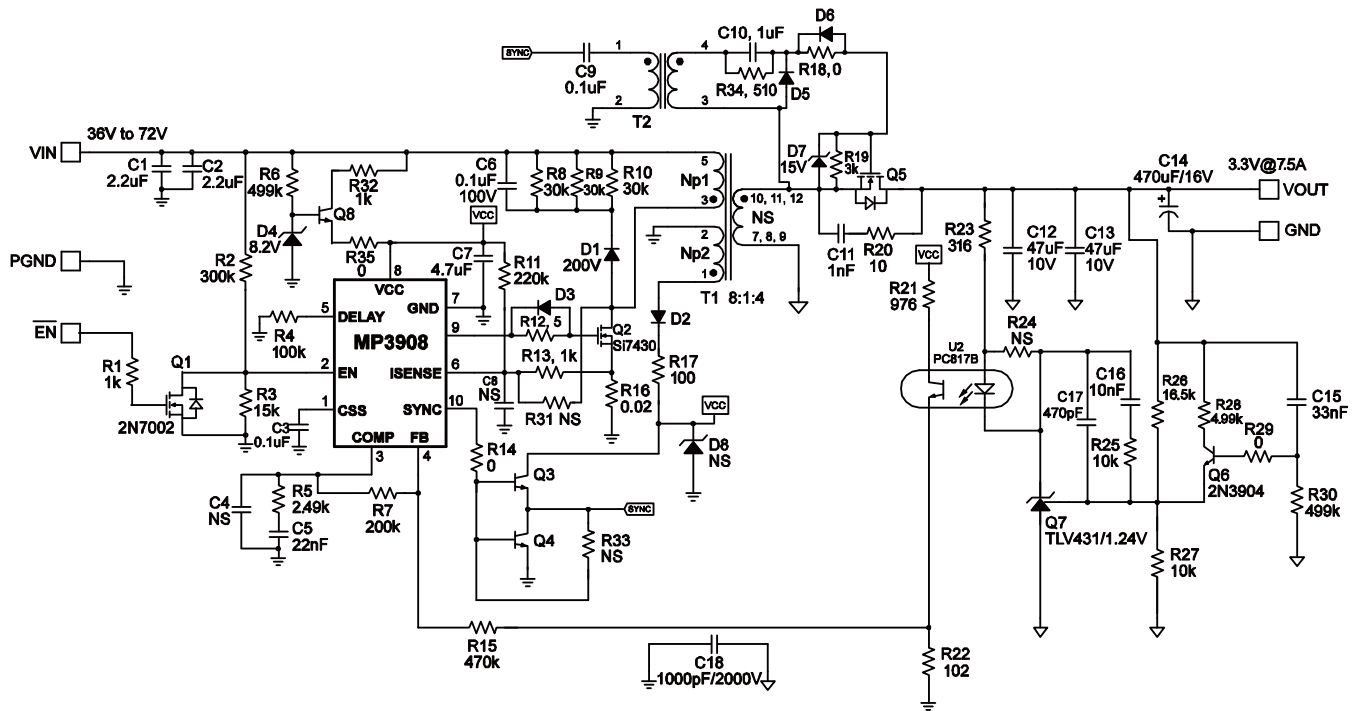
(L x W x H) 2.6" x 1.8" x 0.6"
6.7cm x 4.6cm x 1.4cm

Board Number	MPS IC Number
EV3908DK-00C	MP3908DK

Efficiency vs. Output Current



EVALUATION BOARD SCHEMATIC



EV3908DK-00C BILL OF MATERIALS

Qty	Ref	Value	Description	Package	Manufacturer	Manufacturer P/N
2	C1,C2	2.2uF	Ceramic Cap. 100V X7R	1210	TDK	C3225X7R2A225K
2	C3,C9	0.1uF	Ceramic Cap. 50V X7R	0603	TDK	C1608X7R1H104K
2	C4,C8	NS				
1	C5	22nF	Ceramic Cap. 50V X7R	0603	TDK	C1608X7R1H223K
1	C6	0.1uF	Ceramic Cap. 100V X7R	0805	TDK	C2012X7R2A104K
1	C7	4.7uF	Ceramic Cap. 25V X7R	1206	TDK	C3216X7R1E475K
1	C10	1uF	Ceramic Cap. 16V X7R	0603	TDK	C1608X7R1C105K
1	C11	1nF	Ceramic Cap. 50V X7R	0603	TDK	C1608X7R1H102K
2	C12,C13	47uF	Ceramic Cap. 10V X5R	1210	TDK	C3225X5R1A476M
1	C14	470uF	16V Electrolytic	DIP		
1	C15	33nF	Ceramic Cap. 50V X7R	0603	TDK	C1608X7R1H333K
1	C16	10nF	Ceramic Cap. 50V X7R	0603	TDK	C1608X7R1H103K
1	C17	470pF	Ceramic Cap. 50V X7R	0603	TDK	C1608X7R1H471K
1	C18	1nF	Ceramic Cap. 2000V X7R	1812	TDK	C4520X7R3D102K
3	R1,R13, R32	1k	Film Resistor 1%	0603	Yageo	RC0603FR-071KL
1	R2	300k	Film Resistor 1%	0603	Yageo	RC0603FR-07300KL
1	R3	15k	Film Resistor 1%	0603	Yageo	RC0603FR-0715KL

EV3908DK-00C BILL OF MATERIALS (continued)

Qty	Ref	Value	Description	Package	Manufacturer	Manufacturer P/N
1	R4	100k	Film Resistor 1%	0603	Yageo	RC0603FR-07100KL
1	R5	2.49k	Film Resistor 1%	0603	Yageo	RC0603FR-072K49L
3	R24,R31,R33	NS				
2	R6,R30	499k	Film Resistor 1%	0603	Yageo	RC0603FR-07499KL
1	R7	200k	Film Resistor 5%	0603	Yageo	RC0603JR-07200KL
3	R8,R9,R10	30k	Film Resistor 5%	0805	Yageo	RC0805JR-0730KL
1	R11	220k	Film Resistor 1%	0603	Yageo	RC0603FR-07220KL
1	R12	5.1	Film Resistor 5%	0603	Yageo	RC0603JR-075R1L
4	R14,R18,R29, R35	0	Film Resistor 5%	0603	Yageo	RC0603JR-070RL
1	R15	470k	Film Resistor 5%	0603	Yageo	RC0603JR-07470KL
1	R16	20mΩ	Strip Resistor 1%	1206	Vishay	WSL1206-18
1	R17	100	Film Resistor 5%	0603	Yageo	RC0603JR-07100RL
1	R19	3.01k	Film Resistor 1%	0603	Yageo	RC0603FR-073K01L
1	R20	10	Film Resistor 5%	0805	Yageo	RC0805JR-0710RL
1	R21	976	Film Resistor 1%	0603		RC0603FR-07976RL
1	R22	102	Film Resistor 1%	0603	Yageo	RC0603FR-07102RL
1	R23	316	Film Resistor 1%	0603	Yageo	RC0603FR-07316RL
2	R25,R27	10k	Film Resistor 1%	0603	Yageo	RC0603FR-0710KL
1	R26	16.5k	Film Resistor 1%	0603	Yageo	RC0603FR-0716K5L
1	R28	4.99k	Film Resistor 1%	0603	Yageo	RC0603FR-074K99L
1	R34	510	Film Resistor 5%	0603	Yageo	RC0603JR-07510RL
1	D1	BAV21	Switching Diode 200V 200mW	SOD-123	Diodes Inc	BAV21W-7-F
4	D2,D3,D5,D6	1N4148	Switching Diode 75V 250mW	SOD323	Diodes Inc	1N4148WS-7
1	D4	8.2V	DIODE ZENER 8.2V	SOD-123	Diodes Inc	BZT52C8V2
1	D7	15V	DIODE ZENER 15V	SOD-123	Diodes Inc	BZT52C15
1	D8	NS				
1	Q1	2N7002	N-CH MOSFET	SOT-23		
1	Q2	Si7430	N-CH MOSFET 150V 45mΩ	PowerPAK SO-8	Vishay Siliconix	Si7430DP
1	Q4	PNP	Transistor PNP 40V 350mA	SOT-23	Fairchild	MMBT3906FSCT
1	Q5	Si4166	N-CH MOSFET 30V 3.2mΩ	SO-8	Vishay Siliconix	Si4166DY
2	Q3,Q6	NPN	Transistor NPN 40V 350mA	SOT-23	Fairchild	MMBT3904FSCT
1	Q7	TLV431A	REG VLT ADJ 1.24V	SOT-23-5	Zetex Inc	TLV431A
1	Q8	NPN	Transistor PNP 80V 500mA	SOT-23	Diodes Inc	MMBTA06LT1G
1	U1	MP3908DK	BOOST	MSOP10	MPS	MP3908DK

EV3908DK-00C BILL OF MATERIALS *(continued)*

Qty	Ref	Value	Description	Package	Manufacturer	Manufacturer P/N
1	U2	PC817B	PHOTOCOUP	SMD	SHARP	PC817B
1	T1		Power Transformer Lm=120uH Pri:Sec:Aux=8:1:4	SMD	Cooper	CTX01-18290-R
1	T2		DRIVER TRANSFORMER	SMD	WURTH	750340060

PRINTED CIRCUIT BOARD LAYOUT

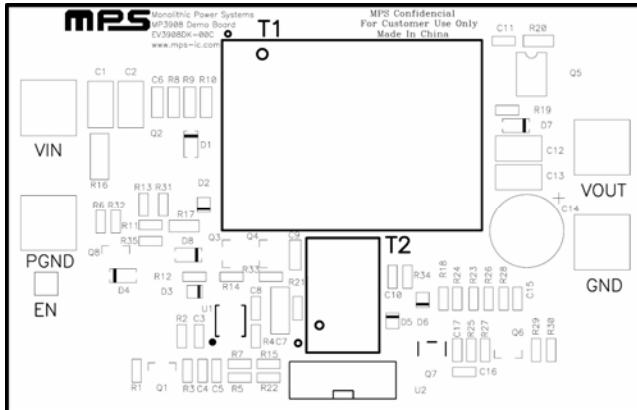


Figure 1—Top Silk Layer

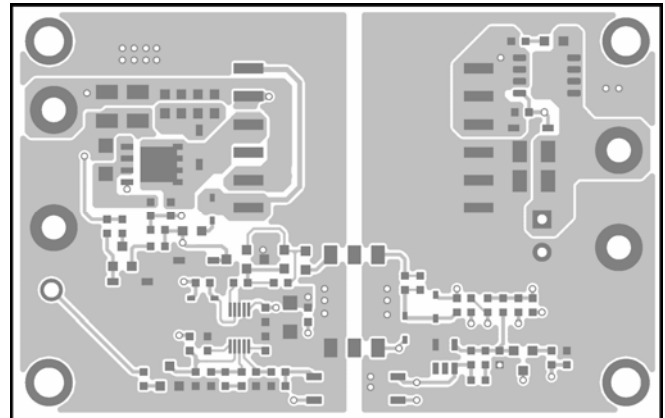


Figure 2—Top Layer

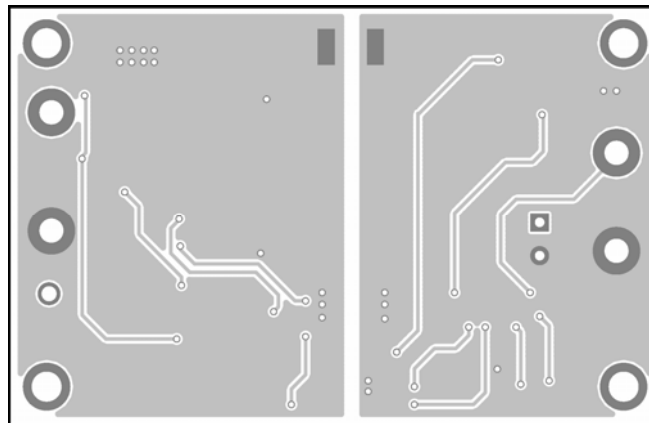


Figure 3—Bottom Layer