EV6001DN-01C

Monolithic Buck
DC-DC Converter EV Board

The Future of Analog IC Technology

GENERAL DESCRIPTION

The EV6001DN-01C is an evaluation board for the MP6001, a monolithic Buck DCDC converter. This evaluation board is capable of delivering up to 18W output power. The MP6001 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	Unit
Input Voltage	VIN	43–53	V
Output Voltage	VOUT	12	V
Output Current	IOUT	1.5	A

FEATURES

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

APPLICATIONS

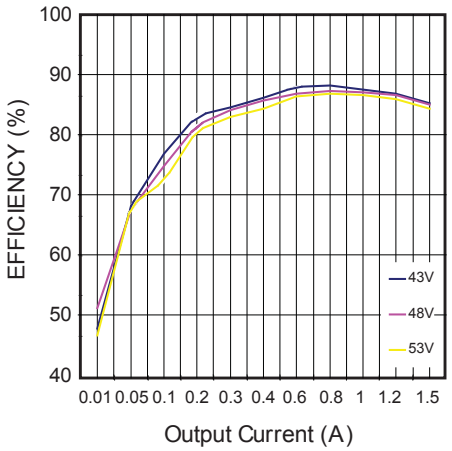
- Telecom Equipment
- VoIP Phones, Power over Ethernet (PoE)
- Distributed Power Conversions

EV6001DN-010C EVALUATION BOARD

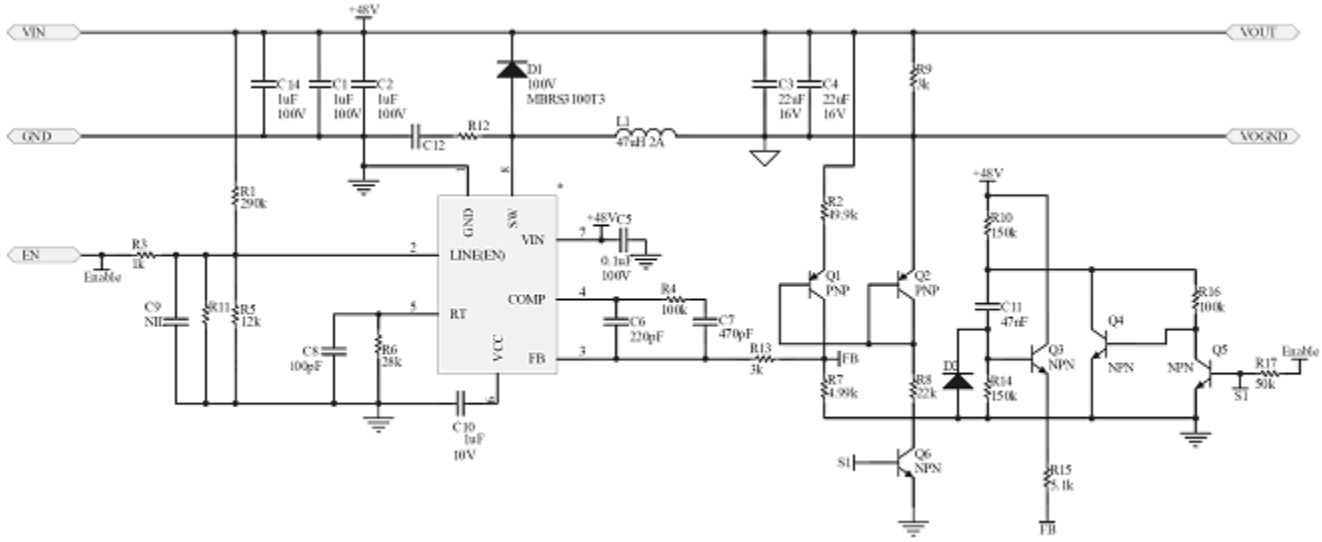
(L×W×H) 59.8"×37.3"×6.1"
(59.8mmx37.3mmx6.1mm)

Board Number	MPS IC Number
EV6001DN-010C	MP6001DN

Efficicency Vs. Output Current



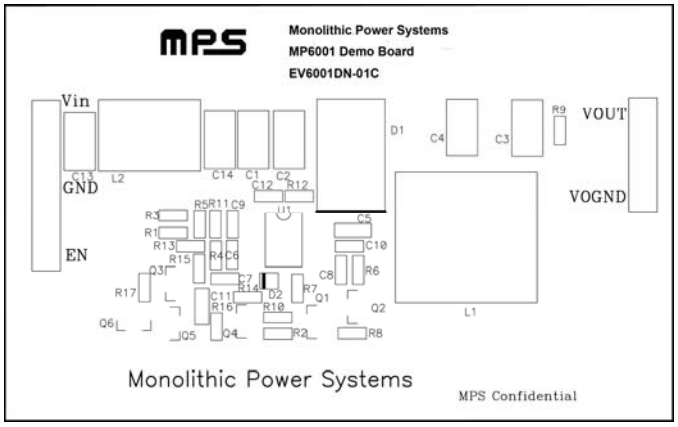
EVALUATION BOARD SCHEMATIC



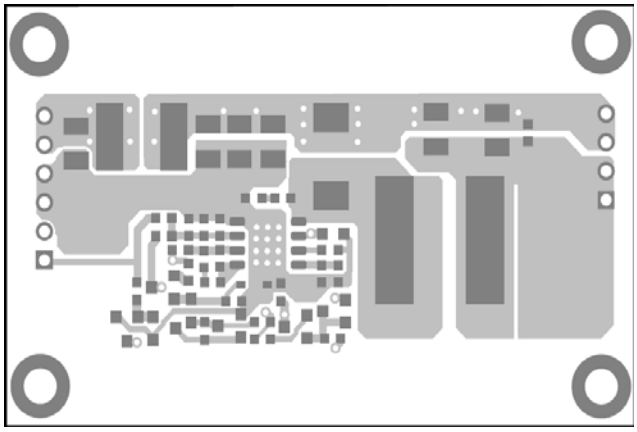
EV6001DN-01C BOM LIST

Qty	Ref	Value	Description	Package	Manufacturer	Manufacturer P/N
1	R1	290k	Film Res., 5%	0603	ANY	
1	R2	49.9k	Film Res., 1%	0603	Yageo	RC0603FR-0749K9L
1	R3	1k	Film Res., 5%	0603	ANY	
1	R4	100k	Film Res., 1%	0603	Yageo	RC0603FR-07100KL
1	R5	12k	Film Res., 5%	0603	ANY	
1	R6	27k	Film Res., 5%	0603	ANY	
1	R7	4.99k	Film Res., 1%	0603	Yageo	RC0603FR-074K99L
1	R8	22k	Film Res.,5%	0603	ANY	
1	R9	3k	Film Res.,5%	0603	ANY	
1	R10	150k	Film Res., 5%	0603	ANY	
2	R11, R12	N/S				
1	R13	3k	Film Res., 5%	0603	ANY	
1	R14	150k	Film Res., 5%	0603	ANY	
1	R15	5.1k	Film Res., 5%	0603	ANY	
1	R16	100k	Film Res., 5%	0603	ANY	
1	R17	51k	Film Res., 5%	0603	ANY	
2	C1,C2,C14	1µF	Ceramic Cap 100V X7R	1210	Murata	GRM32ER72A105KA01L
2	C3,C4	22µF	Ceramic Cap 16V X5V	1210	TDK	C3225X5R1C226M
1	C5	100nF	Ceramic Cap 100V X7R	0805	ANY	
2	C6	220pF	Ceramic Cap 16V X7R	0603	ANY	
1	C7	470pF	Ceramic Cap 16V X7R	0603	ANY	
1	C8	100pF	Ceramic Cap 16V X7R	0603	ANY	
1	C9	N/S				
1	C10	1µF	Ceramic Cap 16V, X7R	0603	TDK	C1608X7R1C105K
1	C11	47nF	Ceramic Cap 50V, X7R	0603	MuRata	GRM188R71H473KA61D
1	C12	N/S				
1	U1		MPS Regulator	SO8	MPS	MP6001
1	Q1		80V PNP Transistor	SOT-23	On semi	MMBTA56LT1
1	Q2		80V PNP Transistor	SOT-23	On semi	MMBTA56LT1
1	Q3		80V NPN Transistor	SOT-23	On semi	MMBTA06LT1
1	Q4		80V NPN Transistor	SOT-23	On semi	MMBTA06LT1
1	Q5		80V NPN Transistor	SOT-23	On semi	MMBTA06LT1
1	Q6		80V NPN Transistor	SOT-23	On semi	MMBTA06LT1
1	D1		Diode 100V 3A	SMC	On semi	MBRS3100T3
1	D2		Diode 1N4148	SOD323	ANY	
1	L1		Inductor 47uH	SMD	Toko	D104C-470M

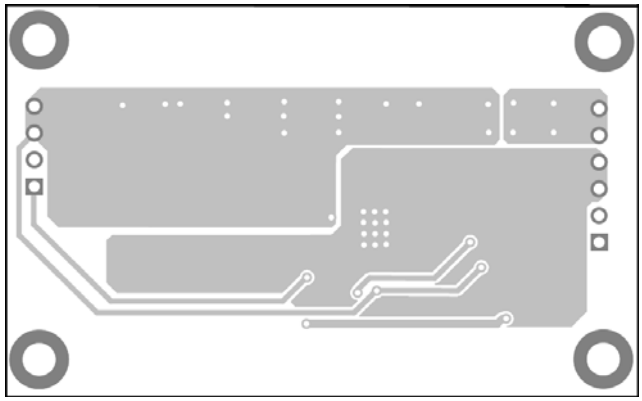
PRINTED CIRCUIT BOARD LAYOUT



Top Silkscreen



Top Layer



Bottom Layer

QUICK START

1. Attach input voltage 43≤ VIN ≤ 53V and input ground to VIN and GND pins respectively.
2. During startup EN should be left HIGH or unconnected.
3. Connect Power Supply terminals to:
    a) Positive (+): VOUT
    b) Negative (–): VOGND
4. Turn power supply on and the board will automatically startup.
5. To use Enable function, apply a digital input to EN pin. Drive EN with 2.5V-5V to turn on the regulator, and drive EN less than 0.7V to turn it off.