



The Future of Analog IC Technology®

# EV6001DN-01C

## Monolithic Buck DC-DC Converter EV Board

### 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

All MPS parts are lead-free and adhere to the RoHS directive. For MPS green status, please visit MPS website under Products, Quality Assurance page.

“MPS” and “The Future of Analog IC Technology” are registered trademarks of Monolithic Power Systems, Inc.

ADAM (Analog Digital Adaptive Modulation) and AAM (Advanced Asynchronous Mode) are trademarks of Monolithic Power Systems, Inc.

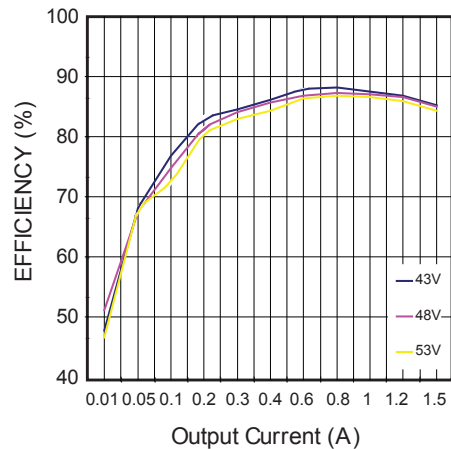
### EV6001DN-010C EVALUATION BOARD

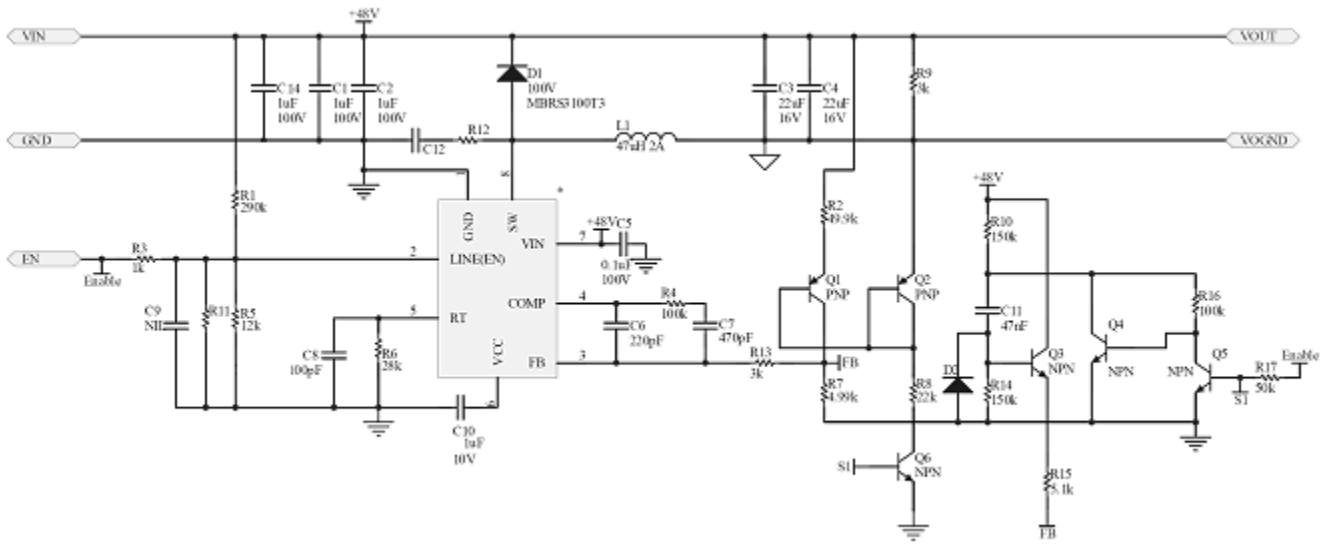


(LxWxH) 59.8”x37.3”x6.1”  
(59.8mmx37.3mmx6.1mm)

Board Number	MPS IC Number
EV6001DN-010C	MP6001DN

### Efficiency Vs. Output Current

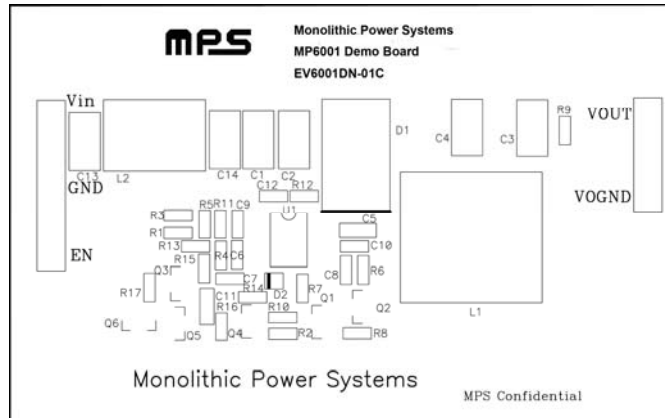


**EVALUATION BOARD SCHEMATIC**


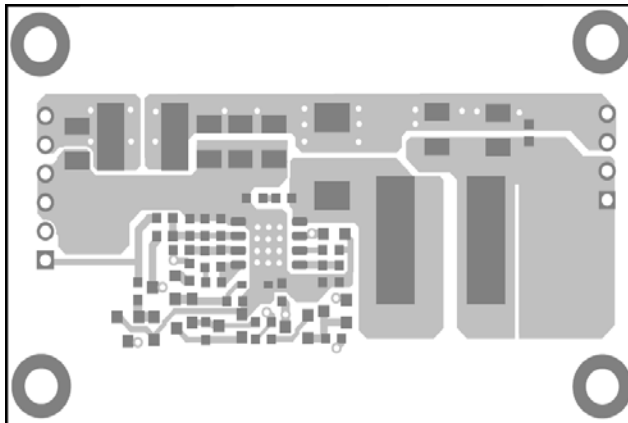
**EV6001DN-01C BOM LIST**

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 47µH	SMD	Toko	D104C-470M

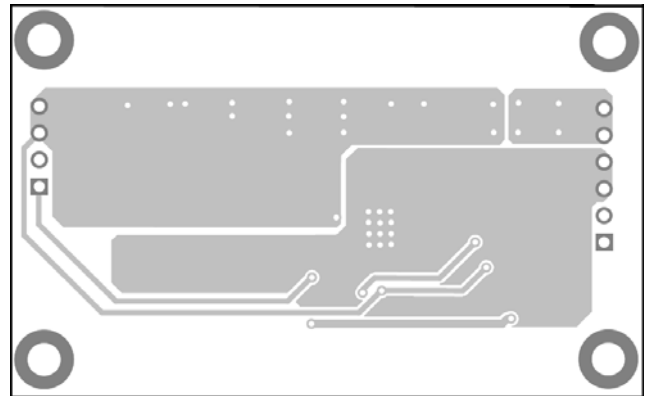
### PRINTED CIRCUIT BOARD LAYOUT



Top Silkscreen



Top Layer



Bottom Layer

## QUICK START

1. Attach input voltage  $43 \leq V_{IN} \leq 53V$  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.

**NOTICE:** The information in this document is subject to change without notice. Please contact MPS for current specifications. Users should warrant and guarantee that third party Intellectual Property rights are not infringed upon when integrating MPS products into any application. MPS will not assume any legal responsibility for any said applications.