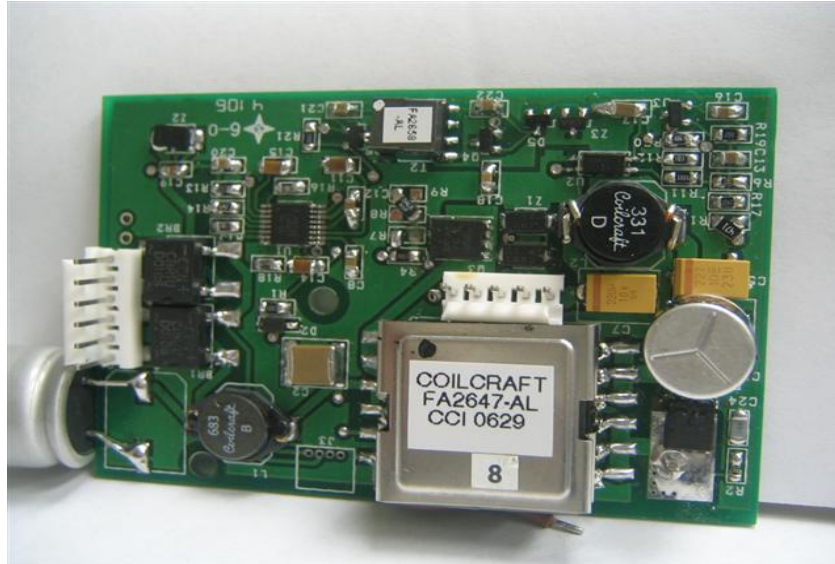


BDPOE512 Specifications



Boundary Devices requires all power injectors used with Boundary Devices POE products to be IEEE 802.3af compliant and have proper current and voltage limits specified by the 802.3af spec. The Powered Device controller that is used on the BDPOE512 product is TI part number TPS2376-H and has the thermal shut down feature.

POWER INTERFACE

Input voltage

VIN Applied to the power pins of connector J1: 0 TO 57 V

Operating voltage after startup 41-57 V

Rising input voltage: 40.5 V

Detection voltage 1.4 10.1 V

Classification voltage 10.2 23 V

Classification current 2.2 2.4 2.8 mA

DC/DC CONVERTER

Output voltage $41\text{ V} < V_{IN} < 57\text{ V}$, Up to full load 4.75 TO 5.25 V

Output voltage $41\text{ V} < V_{IN} < 57\text{ V}$, Up to full load 10.5 TO 13.5 V

Output current $41\text{ V} < V_{IN} < 57\text{ V}$ 5 V @ 3 A

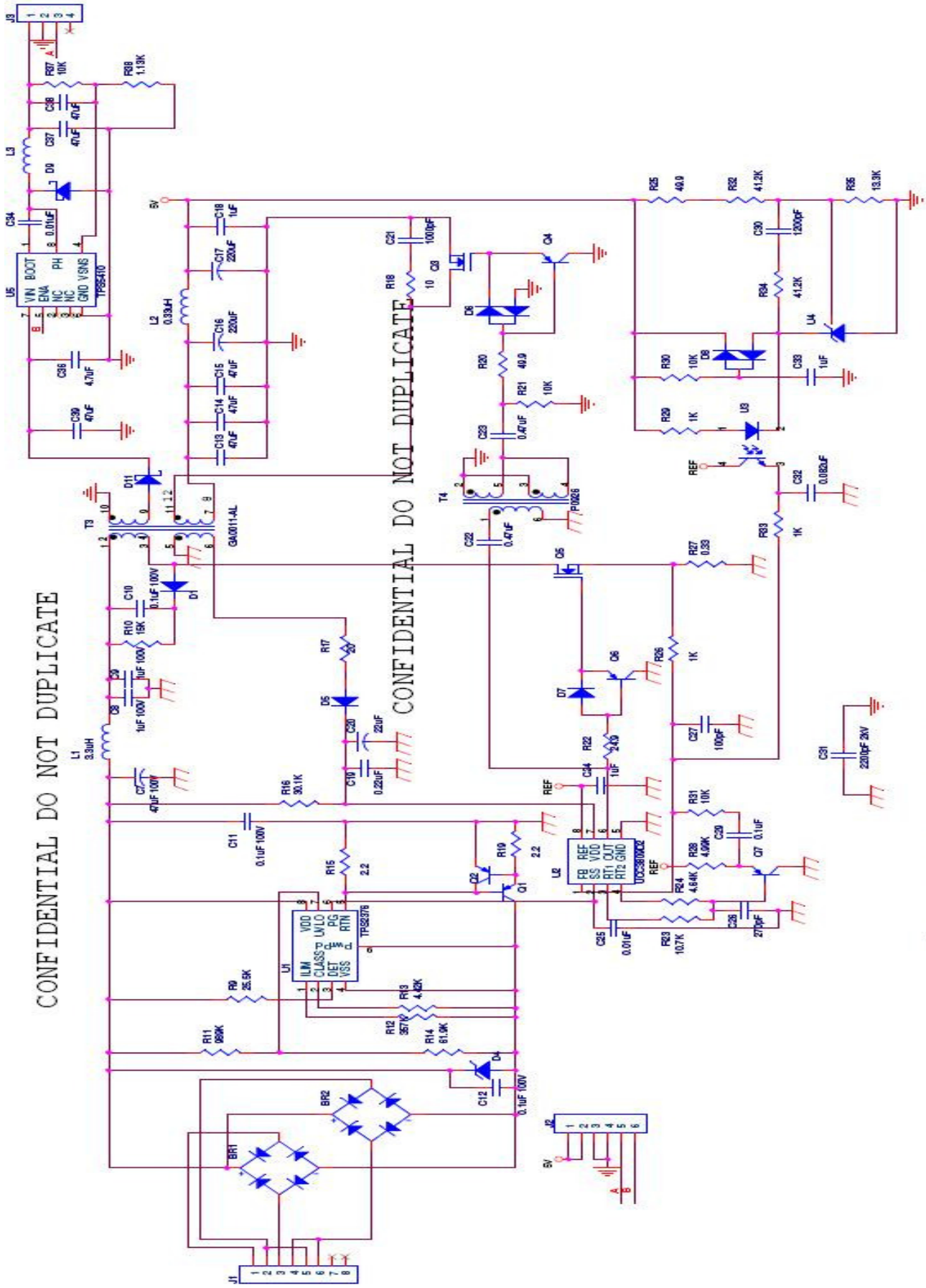
Output current $41\text{ V} < V_{IN} < 57\text{ V}$ 12V @ 800 mA

Efficiency, end-to-end $V_{IN} = 48\text{ V}$, Load = 15 WATTS APPROXIMATELY 83%



BLOCK DIAGRAM FOR BOUNDARY DEVICES POWER OVER ETHERNET MODULE
MODEL BDPOE512

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BD POE 512 BOM rev. 1.4

COU NT	RefDes	Value	Description	Size	Part Number
1	C7	47uF	Capacitor, Aluminum, 100V, 20%	0.543 x 0.543	EEVFK2A470Q
2	C8, C9	1uF	Capacitor, Ceramic, 100V, X7R, 10%	1210	Std
4	C10, C11, C12,C29	0.1uF	Capacitor, Ceramic, 100V, X7R, 10%	0805	Std
3	C13, C14, C15	47uF	Capacitor, Ceramic, 10V, X5R, 15%	1210	Std
2	C16,C17	220uF	Capacitor, Tant 220uF 10V		TCSCS1A227K-DAR
3	C18, C24, C33	1uF	Capacitor, Ceramic, 16V, X7R, 10%	0603	Std
1	C19	0.22uF	Capacitor, Ceramic, 25V, X7R, 10%	0603	Std
1	C20	22uF	Capacitor, Aluminum, 25V, ±20%	0.201x0.262 in	EEVFK1E220R
1	C21	1000pF	Capacitor, Ceramic, 50V, X7R, 10%	0603	Std
2	C22, C23	0.47uF	Capacitor, Ceramic, 25V, X7R, 10%	0805	Std
1	C25	0.01uF	Capacitor, Ceramic, 50V, X7R, 10%	0603	Std
1	C26	270pF	Capacitor, Ceramic, 50V, X7R, 10%	0603	Std
1	C27	100pF	Capacitor, Ceramic, 50V, X7R, 10%	0603	Std
0	C28	Not Used	Capacitor, Ceramic, 50V, X7R, 10%	0603	Std
1	C30	2400pF	Capacitor, Ceramic, 50V, X7R, 10%	0603	Std
1	C31	2200pF	Capacitor, Ceramic, 2kV, X7R, 10%	1812	Std
1	C32	0.082uF	Capacitor, Ceramic, 50V, X7R, 10%	0603	Std
1	C34	0.01uF	Capacitor, Ceramic, 25V, X7R, 10%	0603	Std
2	C36,C39	22uF	Capacitor 22uF 35V		EEEHB1V220SP
2	C37,C38	47uF	Capacitor 47uF Tant 25V		
1	D1,D11	MURA120	Diode, Rectifier, 1A, 200V	SMA	MURA120
2	D2, D3	HD01-T	Bridge Rectifier, 400V, 0.8A, Glass Passivated, SMD	MINI DIP4	HD01-T
1	D4	SMAJ58A	Diode, SMT TVS 400W, 4.3-A, 58-V	SMA	SMAJ58A
2	D5, D7	BAS16-V	Diode, Switching, 150-mA, 75-V, 350mW	SOT23	BAS16
2	D6, D8	BAV99	Diode, Dual Ultra Fast, Series, 200-mA, 70-V	SOT23	BAV99
1	D9		3 AMP SCHOTTKEY DIODE		B340A
1	J1	4 PIN			
1	J2	6 PIN			
1	J3	4 PIN	4 PIN CONNECTOR MOLEX PART 53048-0410		53048-0410
1	L1	3.3uH	Inductor, SMT, 2A, 80milliohm	0.26x0.09 inch	DO1608-332
1	L2	0.33uH	Inductor, SMT, 6.26A, 7.4milliohm	0.300 sq"	DR74-R33
1	L3	68uH	INDuctor, SMT, 2A		MSS1260
1	Q1	BCP53T1	Bipolar, PNP, 100-V, 1.5-A, 1.5-W	SOT-223	BCP53T1
1	Q2		Transistor, PNP, -60V, -600mA, 225-W	SOT23	MMBT2907ALT1
1	Q3	Si7848DP	MOSFET, NChannel, 60V, 15.8 A, 11milliohm	PWRPAK S0-8	Si7848DP
3	Q4, Q6, Q7	MMBT3906	Bipolar, PNP, 40-V, 200-mA, 225-mW	SOT23	MMBT3906LT1
1	Q5	Si7450DP	MOSFET, NChannel, 200V, 5.3A, 90 milliohm	PWRPAK S0-8	Si7450DP

1	R9	25.5K	Resistor, Chip, 1/16W, 1%	0603	Std
1	R10	15K	Resistor, Chip, 1W, 1%	2512	Std
1	R11	909K	Resistor, Chip, 1/16W, 1%	0603	Std
1	R12	357K	Resistor, Chip, 1/16W, 1%	0603	Std
1	R13	4.42k	Resistor, Chip, 1/16W, 1%	0603	Std
1	R14	61.9K	Resistor, Chip, 1/16W, 1%	0603	Std
1	R15	2.2	Resistor, Chip, 1W, 5%	2512	Std
1	R16	30.1K	Resistor, Chip, 1/10W, 1%	0805	Std
1	R17	30	Resistor, Chip, 1/16W, 1%	0603	Std
1	R18	10	Resistor, Chip, 1/2W, 1%	2010	Std
1	R19	2.2	Resistor, Chip, 1/4W, 1%	1210	Std
2	R20, R25	49.9	Resistor, Chip, 1/16W, 1%	0603	Std
4	R21, R30, R31,R37	10K	Resistor, Chip, 1/16W, 1%	0603	Std
1	R22	24.9	Resistor, Chip, 1/16W, 1%	0603	Std
1	R23	10.7K	Resistor, Chip, 1/16W, 1%	0603	Std
1	R24	4.64K	Resistor, Chip, 1/16W, 1%	0603	Std
3	R26, R29, R33	1K	Resistor, Chip, 1/16W, 1%	0603	Std
1	R27	0.33	Resistor, Chip, 1W, 1%	2010	Std
1	R28	4.99K	Resistor, Chip, 1/16W, 1%	0603	Std
2	R32, R34	41.2K	Resistor, Chip, 1/16W, 1%	0603	Std
1	R35	13.3K	Resistor, Chip, 1/16W, 1%	0603	Std
1	R38	1.13K	REsistor, Chip, 1/16W, 1%	0603	STd
1	T3	GA0011-AL	Transformer, SMT For PoE/PD, xW, zzA	0.810x1.181 in	
1	T4	330uH	Transformer, Driver, 330uH Ip, 1500V isolation	0.210x0.210 in	P0926
1	U1		IC, IEEE 802.3af Power Device Controller	S0-8 PowerPad	TPS2376DDA-H
1	U2	UCC3809D2	IC, Economy Primary-Side Controller, xx-V Startup	SO8	UCC3809D-2
1	U3	TCMT1107	IC, Photocoupler	MF4	TCMT1107
1	U4		IC, Shunt Regulator, 1.24-V ref, 6-V, 10-mA, 1%	SOT23-5	TLV431ACDBVR
1	U5	TPS5410D	IC, dc/dc Regulators,		
1	N/A	N/A	PCB, 2-Layer, 4.750" x 2.440" x .062"		PR567A
1	N/A	N/A	Shunt		Sullins
4	N/A	N/A	Rubber Bumber		SPC Technology

Notes

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1. These assemblies are ESD sensitive, ESD precautions shall be observed.
 2. These assemblies must be clean and free from flux and all contaminants.
Use of no clean flux is not acceptable.
 3. These assemblies must comply with workmanship standards IPC-A-610 Class 2.
 4. Ref designators marked with an asterisk (***) cannot be substituted.
All other components can be substituted with equivalent MFG's components.
 5. Bumpers, to be installed on bottom of PCB, at four corners,
of four sides, and approximate center of board.