

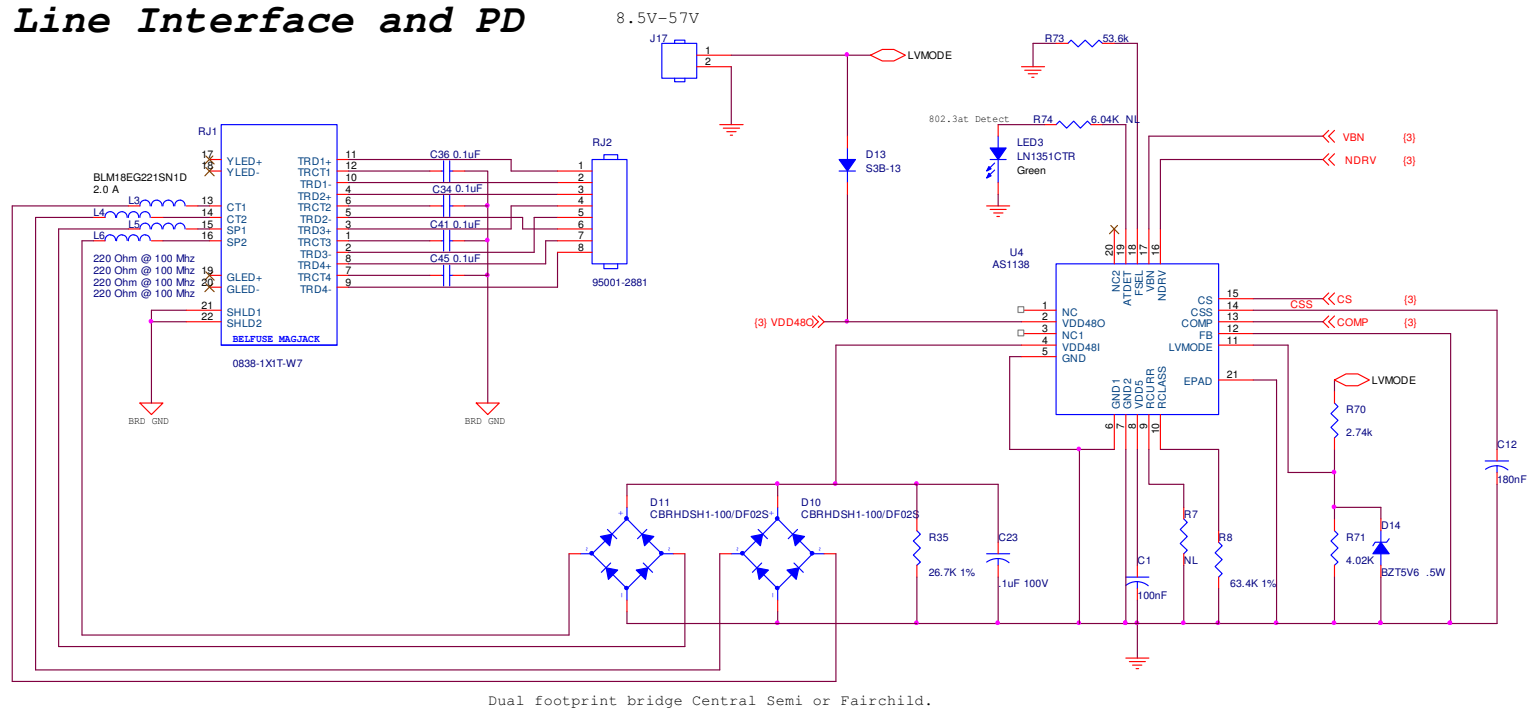
AS1138-EV-SYNC-FL5-30W Reference Design

Platform	Date	Schematic Revision	Schematic Changes and/or Updates
AS1138-ISO-SYNC-FL5-30W, REV. A	01-25-12	REV 0	Initial Full Release

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Title <b>AS1138-EV-SYNC-FL5L-30W</b>				
Size	Document			Rev
B	Number 1			1.1
Date: 01_25_2012		Designer: Akros	Sheet 1 of 3	

Fig1. Cover

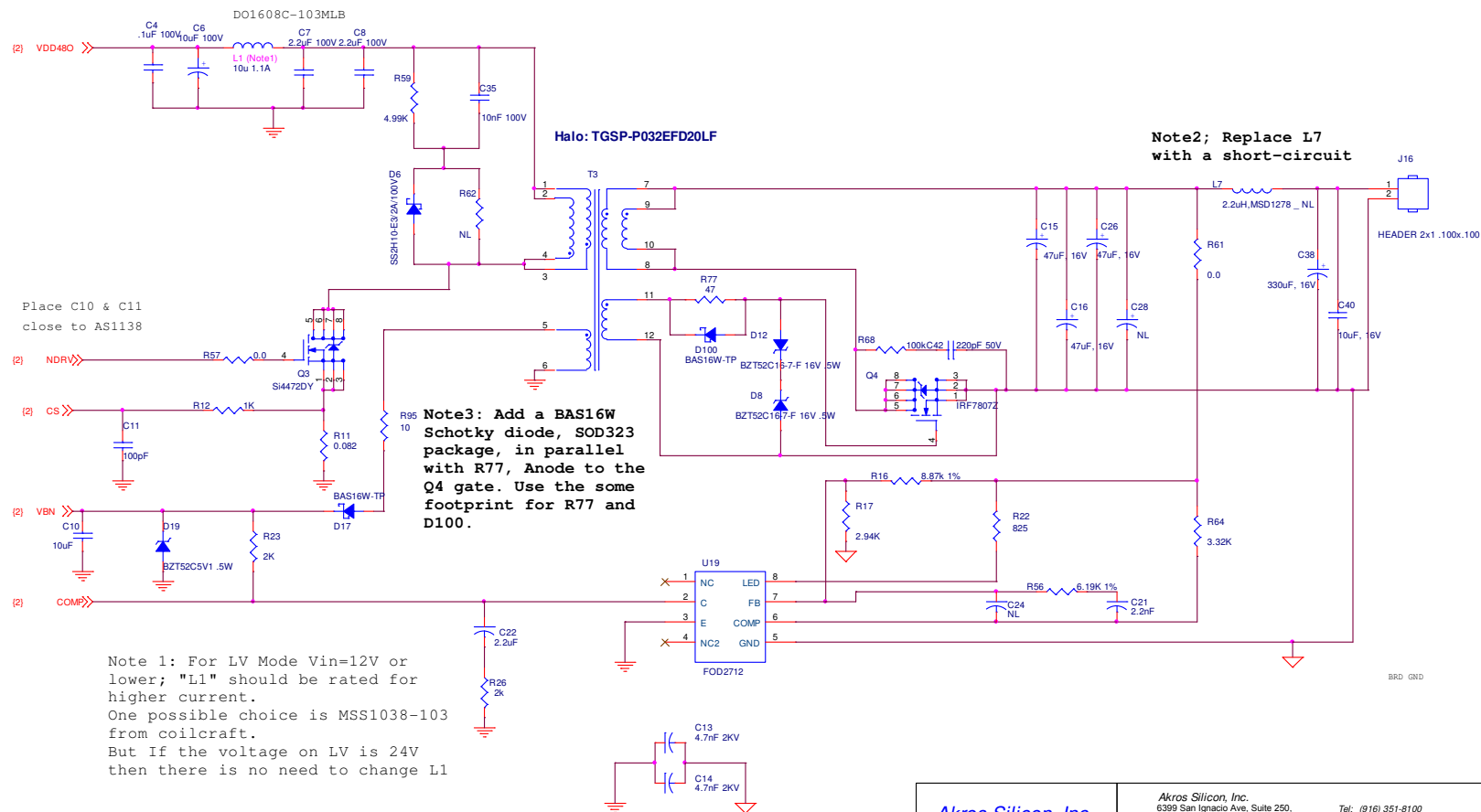
## Line Interface and PD



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Fig2. Line Interface and PD

## DC-DC Converter



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Fig3. DC-DC Converter

Ref. Des.	Value	Tol %	Type	Rating	Tech.	Pkg.	Mfg. P/N	Qty	Description, Digikey or other source PN (Akros Comp. ID)
<b>C1</b>	100nF	5	CERAMIC CAPACITOR	16V	SMT	603	0603YC104JAT2A	1	Digikey P/N:478-3726-1-ND
<b>C10</b>	10uF	10	CERAMIC CAPACITOR	10V	SMT	805	GRM21BR61A106KE19	1	Digikey P/N:490-1709-2-ND
<b>C11</b>	100pF	5	50V		SMT	603	06035A101JAT2A	1	Digikey P/N:478-1175-1-ND
<b>C12</b>	180nF	10	CERAMIC CAPACITOR	10V	SMT	603	ECJ-1VB1A184K	1	Digikey P/N:PCC1907CT-ND
<b>C13,C14</b>	4.7nF 2KV	10	CERAMIC CAPACITOR	2000V	SMT	1812	1812GC472KAT1A	2	Digikey P/N:478-3003-1-ND
<b>C15,C16,C26</b>	47uF, 16V	20	CERAMIC CAPACITOR	16V	SMT	C1210	GRM32ER61C476ME15L	3	Digikey P/N:490-3888-1-ND
<b>C21</b>	2.2nF	10	CERAMIC CAPACITOR	16V	SMT	C0805	ECJ-2VB1H682K	2	Digikey P/N:PCC682BNCT-ND
<b>C34,C36,C41,C45,</b>	0.1uF	5	CERAMIC CAPACITOR	25V	SMT	603	C0603C104J3RAC TU	4	Digikey P/N:399-1282-1-ND
<b>C35</b>	10nF 100V	5	CERAMIC CAPACITOR	100V	SMT	1206	06031C103KAT2A	1	Digikey P/N:478-1205-1-ND
<b>C38</b>	330uF, 16V	20	ELECTROLYTIC CAPACITOR	16V	SMT	CASEF	EEE-FK1C331P	1	Digikey P/N:PCE3789CT-ND
<b>C4,C23</b>	.1uF 100V	10	CERAMIC CAPACITOR	100V	SMT	1206	ECJ-3YB2A104K	2	Digikey P/N:PCC2239CT-ND
<b>C40</b>	10uF, 16V	10	CERAMIC CAPACITOR	16V	SMT	805	GRM21BR61C106KE15L	1	Digikey P/N:490-3886-1-ND
<b>C42</b>	220pF 50V	20	CERAMIC	50V	SMT	C0603	GRM188R71H221	1	Digikey P/N:490-1484-

			CAPACITOR				MA01D		1-ND
<b>C6</b>	10uF 100V	20	ELECTROLYTIC CAPACITOR	100V	SMT	CAPVS-SMT-SIZE-E	ECE-V2AA100UP	1	Digikey P/N:PCE3286C T-ND
<b>C22</b>	2.2uF/16V			16V		805	0805YD225KAT2A		
<b>D10,D11</b>	CBRHDSH1-100/DF02S		DIODE	1A 71V; 1A 200V	SMT	DF-S	CBRHDSH1-100,DF02S	2	Mouser P/N:610-CBRHDSH1-100,Digikey P/N:DF02SDI-ND
<b>D13</b>	DIODESCHO TTKY 100V 3A SMB		DIODE	3A 100V	SMT	D13_SMB	S3B-13	1	Digikey S3BDICT-ND
<b>D14</b>	BZT5V6 .5W		DIODE	5.6V 500 mW	SMT	SMA	BZT52C5V6-7-F	1	Digikey P/N:BZT52C5V6-FDICT-ND
<b>D17, D100 on the R77 existing footprint</b>	BAS16W-TP		DIODE	75V 200 mA	SMT	SOD123	BAS16W-TP	2	Digikey P/N:BAS16W-TP
<b>D19</b>	BZT5V1 .5W		DIODE	5.1V 500 mW	SMT	SMA	BZT52C5V1-7-F	1	Digikey P/N:BZT52C5V1-FDICT-ND
<b>D6</b>	SS2H10-E3		DIODE	2A 100V	SMT	SMA	SS2H10-E3/52T	1	Digikey P/N:SS2H10-E3/52TGITR-ND
<b>D8,D12</b>	BZT52C16-7-F 16V .5W NL		DIODE	16V 500 mW	SMT	BZT52C16-7-F	BZT52C16-7-F	2	Digikey P/N:BZT52C16-FDICT-ND
<b>J16</b>	TERMINAL BLOCK 3.5MM 2POS PCB		Wire to Board, Screw			Through Hole, Right Angle	ED555/2DS	1	Digikey P/N:ED1514-ND
<b>J17</b>	HEADER 2x1 .100x.100		HEADER		THT	REGULAR100x100 HEADER2X1		1	

<b>L1</b> (Note 1)	10u 1.1A	10	INDUC TOR	1.1 A	SMT	L1608	DO1608 C- 103MLB	1	Coilcraft P/N:DO1608C- 103MLB
<b>L3,L4, L5,L6</b>	220 Ohm @ 100 Mhz		FERRI TE CHIP	2A	SMT	603	BLM18E G221SN 1D	4	Digikey P/N:490-3992- 1-ND
<b>Q3</b>	Si4472 DY		N-ch MOSF ET	150V 7.7A	SMT	Q3_SO 8	SI4472D Y-T1-E3	1	Digikey P/N:SI4472DY- T1-E3TR-ND
<b>Q4</b>	IRF780 7Z		N- Chann el	30V 11A	SMT	IRF780 7Z	IRF7807 ZTRPBF	1	Digikey P/N:IRF7807Z PBFCT-ND
<b>R11</b>	0.082	1	Metal Film	1W	SMT	R2512	RL3264R -R082-F	1	Digikey P/N:RL32R.08 2FTR-ND
<b>R12</b>	1K	1	Thick Film	1/10 W	SMT	603	MCR03E ZPFX100 1	1	Digikey P/N:RHM1.00K HCT-ND
<b>R16</b>	8.87k 1%	1	Thick Film	1/10 W	SMT	603	RC0603F R- 078K87L	1	Digikey P/N:311- 8.87KHRCT- ND
<b>R17</b>	2.94K 1%	1	Thick Film	1/10 W	SMT	603	MCR03E ZPFX294 1	1	Digikey P/N:RHM2.94K HCT-ND
<b>R22</b>	825	1	Thick Film	1/10 W	SMT	603	RC0603F R- 07825RL	1	Digikey P/N:311- 825HRTR-ND
<b>R23, R26</b>	2K	5	Thick Film	1/10 W	SMT	603	MCR03E ZPJ202	2	Digikey P/N:RHM2.0K GCT-ND
<b>R77</b>	47	5	Thick Film	1/10 W	SMT	603	MCR03E ZPJ202	2	Digikey P/N:RHM2.0K GCT-ND
<b>R35</b>	26.7K 1%	1	Thick Film	1/10 W	SMT	603	MCR03E ZPFX267 2	1	Digikey P/N:RHM26.7K HCT-ND
<b>R56</b>	6.19K 1%	1	Thick Film	1/10 W	SMT	603	MCR03E ZPFX619 1	1	Digikey P/N:RHM6.19K HCT-ND
<b>R57,</b>	0	1	Thick Film	1/10 W	SMT	603	RC0603F R-070RL	2	Digikey P/N:RC0603FR -070RL-ND
<b>R59</b>	4.99K	1	Thick Film	1/4W	SMT	1206	ERJ- 8ENF499 1V	1	Digikey P/N:P4.99KFT R-ND
<b>R68</b>	100K	1	Thick Film	1/4W	SMT	1206	RC1206F R- 07100KL	1	Digikey P/N:311- 100KFRCT-ND
<b>R61</b>	0	1	Thick Film	1/10 W	SMT	603	RC0603F R-070RL	1	Digikey P/N:RC0603FR -070RL-ND
<b>R64</b>	3.32K	1	Thick Film	1/10 W	SMT	603	MCR03E ZPFX332	1	Digikey P/N:RHM3.32K

							1		HTR-ND
<b>R70</b>	2.74K	1	Thick Film	1/10 W	SMT	603	MCR03E ZPFX274 1	1	Digikey P/N:RHM2.74K HTR-ND
<b>R71</b>	4.02K	5	Thick Film	1/10 W	SMT	603	MCR03E ZPFX402 1	1	Digikey P/N:RHM4.02K HCT-ND
<b>R73</b>	53.6K 1%	1	Thick Film	1/10 W	SMT	603	ERJ-3EKF536 2V	1	Digikey P/N:P53.6KHC T-ND
<b>R8</b>	63.4K 1%	1	Thick Film	1/10 W	SMT	603	ERJ-3EKF634 2V	1	Digikey P/N:P63.4KHC T-ND
<b>R95</b>	10	5	Metal Oxide Film	1/4W	SMT	R0805	ERJ-3EKF10 R0V	1	Digikey P/N:P10.0HCT-ND
<b>RJ2</b>	95001-2881		JACK		THT	RJ45_8PIN	95001-2881	1	Digikey P/N:WM5414-ND
<b>U19</b>	FOD27 12		IC	50m A 30V	SMT	8SOIC	FOD271 2R1V	1	Digikey P/N:FOD2712 R1VCT-ND
<b>RJ1</b>	0838-1X1T-W7		MAGJ ACK			LINE_TXFR	0838-1X1T-W7	1	Belfuse: 0838-1X1T-W7
<b>T3</b>	EFD20 5V 30W					EFD20 - 12PIN-SMT	Halo:TG SP-P032EFD20LF	1	HALO:TGSP-P032EFD20LF
<b>U4</b>	AS113 8					20QFN	AS1138	1	AKROS SILICON: AS1135
<b>C28</b>	47uF, 16V	20	CERAMIC CAPACITOR	16V	SMT	C1210	GRM32E R61C476 ME15L	1	Digikey P/N:490-3888-1-ND
<b>C24</b>	27pF NL	5%	CERAMIC CAPACITOR	50V	SMT	603	ECJ-1VC1H2 70J	1	Digikey P/N:PCC270A CVCT-ND
<b>L7: Replace L7 with a short circuit</b>	2.2uH, MSD12 78 _ NL	20 %	INDUCTOR	14.9 A 0.01 9Ω	SMT	L1278	MSD127 8, DO1608 C-222MLB	1	Coilcraft P/N: DO1608C-222MLB
<b>LED3</b>	LN135 1CTR		DIODE	2.1V	SMT	LED-SMT-1206	LN1351CTR	1	Digikey P/N:P501CT-ND
<b>R62, R7</b>	NL	5	Thick Film	1/10 W	SMT			1	Digikey P/N:

<b>R74</b>	6.04K	1	Thick Film	1/10 W	SMT	603	RC0603F R-076K04L	1	Digikey P/N:311-6.04KHRCT-ND
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Fig4: BOM

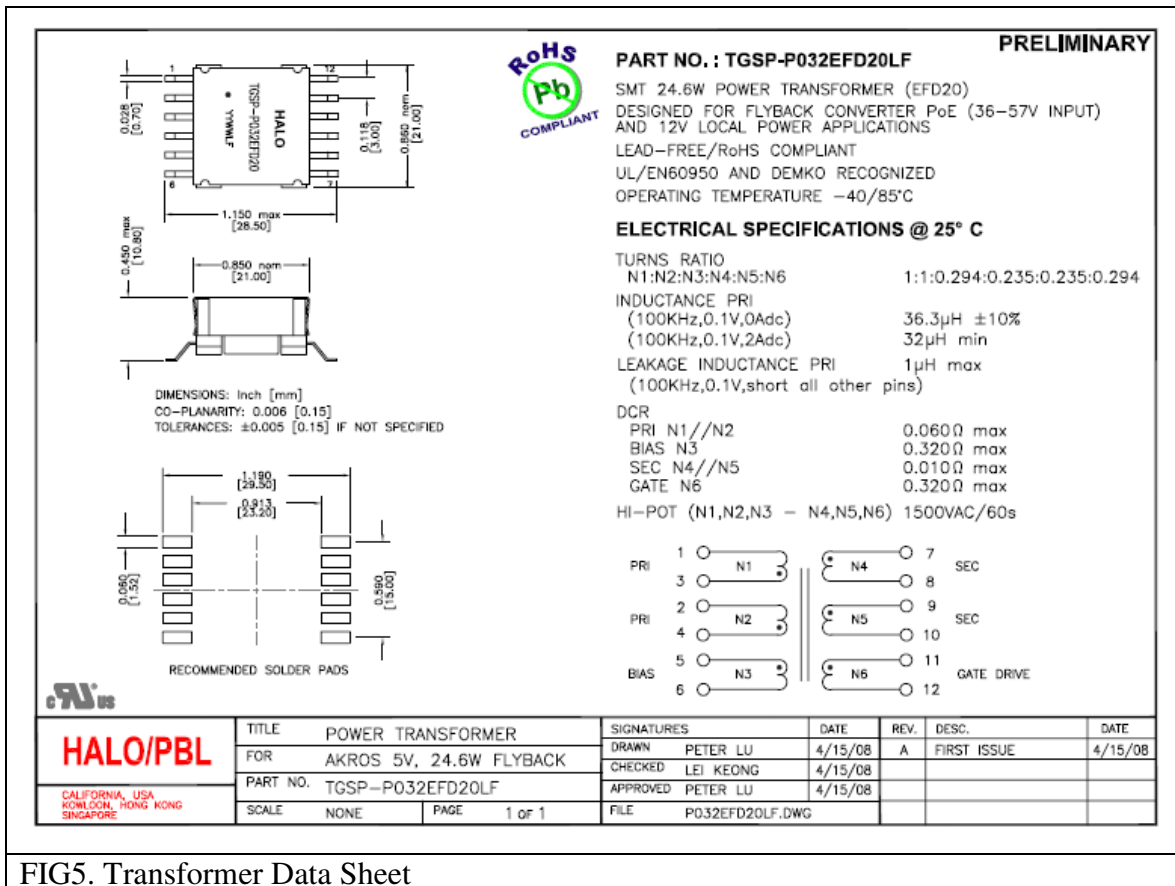


FIG5. Transformer Data Sheet