

Project: OBC_PFC_control_board.PrjPcb

Source Data From: OBC_PFC_control_board.PrjPcb

Project: OBC_PFC_control_board.PrjPcb

Variant: standard_board

Bill of Materials



#	Designator	Comment	Description	LibRef	SourceLibraryName	Manufacturer	Manufacturer Part Number	Supplier	Supplier Part Number	Supplier 2	Supplier Part Number 2	Quantity
0	BR_LEFT	custom left bracket	Custom made left bracket for San Ace 60 fan series	custom_bracket_San_Ace60_left	specials.SVNDblib			custom part	undefined - lab work			1
1	BR_RIGHT	custom right bracket	Custom made right bracket for San Ace 60 fan series	custom_bracket_San_Ace60_right	specials.SVNDblib			custom part	undefined - lab work			1
2	C11	2u2	NKP film Y1 capacitor 2u2	RE112L122M189	capacitors.SVNDblib	TDK	81123C1222M189	Digi-Key	495-7106-1-ND	Mouser	871-881123C1222M189	1
3	C12, C14, C16, C129, C130, C131	100 nF	MLC capacitor 100nF 25V X7R 20% Murata	GRM189R71E104MA010	capacitors.SVNDblib	Murata	GRM219R71E104MA010	Mouser	81-GRM219R71E104MA010	Murata	GRM219R71E104MA010	6
4	C13, C15, C17	1 uF	MLC capacitor 1uF 25V X7R 10% Murata	GRM219R71E105KAB80	capacitors.SVNDblib	Murata	490-5899-1-ND	Mouser	81-GRM219R71E105KAB80			3
5	C18	100 nF	MLC capacitor 100nF 16V X7R 5% Murata	GRM188R71C103JA010	capacitors.SVNDblib	Murata	GRM188R71C103JA010	Mouser	81-GRM188R71C103JA010	Murata	GRM188R71C103JA010	1
6	C19, C20, C21, C35, C65, C91	470 nF	MLC capacitor 470nF 25V X5R 10% Murata	GRM155R61E474KE10D	capacitors.SVNDblib	Murata	GRM155R61E474KE10D	Mouser	81-GRM155R61E474KE10D	Murata	GRM155R61E474KE10D	6
7	C22, C36, C52, C56, C78, C92	100 nF	MLC capacitor 100nF 50V X7R 10% Murata	GRM155R71H104KE14D	capacitors.SVNDblib	Murata	490-10705-1-ND	Mouser	81-GRM155R71H104KE14D			6
8	C23, C30, C37, C43, C53, C60, C67, C73, C79, C86, C93, C99	2u2	MLC capacitor 2u2 25V X7R 10% Murata	GRM218R71E225KE11L	capacitors.SVNDblib	Murata	GRM218R71E225KE11L	Mouser	81-GRM218R71E225KE11L	Murata	GRM218R71E225KE11L	12
9	C24, C54, C80	250 nF	Cerallink SMD capacitor 250nF 900V TDK	858031925AM062	capacitors.SVNDblib	TDK	858031925AM062	Digi-Key	495-75427-1-ND	Mouser	871-858031925AM062	3
10	C25, C26, C29, C38, C39, C42, C55, C56, C59, C68, C69, C72, C81, C82, C85, C94, C95, C98	100 nF	MLC capacitor 100nF 16V X7R 10% Murata	GRM188R71C104KA01D	capacitors.SVNDblib	Murata	GRM188R71C104KA01D	Digi-Key	490-1532-1-ND	Mouser	81-GRM39X104K16	18
11	C27, C40, C57, C70, C83, C96	2u2	MLC capacitor 2u2 10V X7R 10% Murata	GRM188R71A225KE15D	capacitors.SVNDblib	Murata	GRM188R71A225KE15D	Digi-Key	490-4520-1-ND	Mouser	81-GRM188R71A225KE15	6
12	C31, C44, C51, C74, C87, C100	47 nF	MLC capacitor 47nF 25V X7R 10% Murata	GRM155R71E473KAB80	capacitors.SVNDblib	Murata	GRM155R71E473KAB80	Digi-Key	490-3254-1-ND	Mouser	81-GRM155R71E473KAB80	6
13	C32, C34, C45, C46, C62, C64, C75, C76, C88, C90, C101, C102	470 nF	MLC capacitor 470nF 25V X7R 10% Murata	GRM188R71E474KA12ZD	capacitors.SVNDblib	Murata	GRM188R71E474KA12ZD	Digi-Key	490-3291-1-ND	Mouser	81-GRM188R71E474KA12	12
14	C48, C49, C50, C51	470 uF	ALU electrolyte high current ripple 470uF 450V 20% United Chemicon	E924X15V9417MA50T	capacitors.SVNDblib	United Chemicon	E924X15V9417MA50T	Mouser	661-E924X15V9417MA50			4
15	C104, C105, C106, C110, C111, C112, C116, C117, C118, C122, C123, C124, C128	100 uF	Polymer ALU elco 100uF 35V 30mOhm 20% Würth Elektronik	87515652007	capacitors.SVNDblib	Würth Elektronik	87515652007	Würth Elektronik	87515652007			13
16	C107, C108, C109, C119, C120, C121	4u7	MLC capacitor 4u7 100V X75 10% soft termination Murata	GRJ32DC72A475KE11L	capacitors.SVNDblib	Murata	GRJ32DC72A475KE11L	Digi-Key	490-10955-1-ND	Mouser	81-GRJ32DC72A475KE11	6
17	C113, C114, C115, C154, C155, C156, C157, C158, C159, C160, C161, C162	220 pF	MLC capacitor 220pF 50V X7R 10% Murata	GRM188R71A221KA01D	capacitors.SVNDblib	Murata	GRM188R71A221KA01D	Digi-Key	490-1483-1-ND	Mouser	81-GRM39X221K50D	12
18	C125, C126	100 nF	MLC capacitor 100nF 25V X7R 10% Murata	GRM219R71E104MA010	capacitors.SVNDblib	Murata	GRM219R71E104MA010	Digi-Key	490-12754-1-ND	Mouser	81-GRM219R71E104MA01D	2
19	C127	1 uF	MLC capacitor 1uF 10V X7R 20% Murata	GRM188R71A105MA61D	capacitors.SVNDblib	Murata	GRM188R71A105MA61D	Mouser	81-GRM188R71A105MA61D	Murata	GRM188R71A105MA61D	1
20	C132, C133, C134, C135, C136, C137	68 pF	ALU electrolyte low impedance 68pF 35V 400mOhm 20% Würth Elektronik	86500854011	capacitors.SVNDblib	Würth Elektronik	86500854011	Digi-Key	732-8510-1-ND	Mouser	710-86500854011	6
21	C138, C140	15 uF	ALU electrolyte long life 15uF 450V 20% Würth Elektronik	865061463005	capacitors.SVNDblib	Würth Elektronik	865061463005	Würth Elektronik	865061463005			2
22	C139	1u	MKP Film X1 capacitor 1u 50Vdc TDK	B32914A5105M000	capacitors.SVNDblib	TDK	B32914A5105M000	Digi-Key	832914A5105M000	Mouser	871-832914A5105M	1
23	C141	27 pF	MLC capacitor 27pF 1000V COG 5% Murata	GRM219R71E104MA010	capacitors.SVNDblib	Murata	GRM219R71E104MA010	Digi-Key	490-11628-1-ND	Mouser	81-GRM219R71E104MA01D	1
24	C142, C143, C144	330 uF	Polymer ALU elco 330uF 35V 20mOhm 20% Würth Elektronik	875075661010	capacitors.SVNDblib	Würth Elektronik	875075661010	Würth Elektronik	875075661010			3
25	C145	68 pF	MLC capacitor 68pF 250V COG 5% Murata	GRM219R71E104MA010	capacitors.SVNDblib	Murata	GRM219R71E104MA010	Digi-Key	490-5540-1-ND	Mouser	81-GRM219R71E104MA01D	1
26	C146	100 pF	MLC capacitor 100pF 200V COG 5% Murata	GRM219R71E104MA010	capacitors.SVNDblib	Murata	GRM219R71E104MA010	Mouser	81-GRM219R71E104MA01D	Murata	GRM219R71E104MA01D	1
27	C147	100 nF	MLC capacitor 100nF 50V X7R 10% Murata	GRM188R71H104KA01D	capacitors.SVNDblib	Murata	GRM188R71H104KA01D	Digi-Key	490-1666-1-ND	Mouser	81-GRM400104K50L	1
28	C149	220 pF	MLC capacitor 220pF 25V COG 5% Murata	GRM155R71E1221JA01D	capacitors.SVNDblib	Murata	GRM155R71E1221JA01D	Digi-Key	490-8174-1-ND	Mouser	81-GRM155R71E1221JA01	1
29	C150	6n8	MLC capacitor 6n8 25V X7R 5% Murata	GRM188R71E682JA01D	capacitors.SVNDblib	Murata	GRM188R71E682JA01D	Murata	GRM188R71E682JA01D			1
30	C151	33 nF	MLC capacitor 33nF 25V X7R 10% Murata	GRM188R71E33KA01D	capacitors.SVNDblib	Murata	GRM188R71E33KA01D	Digi-Key	490-1521-1-ND	Mouser	81-GRM39X33K25D	1
31	C152	180 pF	MLC capacitor 180pF 25V COG 5% Murata	GRM155R71E181JA01D	capacitors.SVNDblib	Murata	GRM155R71E181JA01D	Digi-Key	490-6173-1-ND	Mouser	81-GRM155R71E181JA01D	1
32	C153	10 uF	ALU electrolyte low impedance 10uF 35V 2.50Ohm 20% Würth Elektronik	865008540004	capacitors.SVNDblib	Würth Elektronik	865008540004	Digi-Key	732-8503-1-ND	Mouser	710-865008540004	1
33	C163	22 nF	MLC capacitor 22nF 50V X7R 10% Murata	GRM219R71E221KA01D	capacitors.SVNDblib	Murata	GRM219R71E221KA01D	Digi-Key	490-3665-1-ND	Mouser	81-GRM400222K50D	1
34	CP_ACIN_1a, CP_ACIN_2a, CP_ACIN_3a, CP_ACIN_4a, CP_DCOU1_1b, CP_DCOU1_2b, CP_ACIN_1b, CP_ACIN_2b, CP_ACIN_3b, CP_ACIN_4b, CP_DCOU1_1a, CP_DCOU1_2a, CP_FAN1, CP_FAN2, CP_FAN3, CP_FAN4	171825-0100 43375-0001 46235-0001	Crimp female terminal for wires AWG 12-10 Molex Crimp female terminal for wires AWG 16-14 Molex Crimp female terminal for wires AWG 30-26 Molex	171825-0100 43375-0001 46235-0001	connectors.SVNDblib connectors.SVNDblib connectors.SVNDblib	Molex Molex Molex	171825-0100 43375-0001 46235-0001	Digi-Key Digi-Key Digi-Key	WM12411CT-ND WM9174CT-ND WM7082CT-ND	Mouser Mouser Mouser	538-171825-0100 538-43375-0001-CT 538-46235-0001	6 6 4
37	D1, D18	S8AS16HT3G	Switching diode 100V 200mA SOD323 ON Semiconductor	8AS16HT3G	diodes.SVNDblib	ON Semiconductor	S8AS16HT3G	Farnell	2453765	Mouser	863-S8AS16HT3G	2
38	D2, D4, D6, D8, D10, D12, D16, D17	US1MFA	Super Fast diode 1000 V 1 A 75 nS SOD123FA ON Semiconductor	US1MFA	diodes.SVNDblib	ON Semiconductor	US1MFA	Digi-Key	US1MFACT-ND	Mouser	512-US1MFA	8
39	D3, D5, D7, D9, D11, D13	NRV80540T1G	Schottky diode 40 V 0.5A SOD123 ON Semiconductor	NRV80540T1G	diodes.SVNDblib	ON Semiconductor	NRV80540T1G	Digi-Key	NRV80540T1GOSCT-ND	Mouser	863-NRV80540T1G	6
40	D14	MMS252438T	Zener diode 13 V 500 mW SOD123 ON Semiconductor	MMS252438T1G	diodes.SVNDblib	ON Semiconductor	MMS252438T1G	Digi-Key	MMS252438T1GOSCT-ND	Mouser	863-MMS252438T1G	1
41	D15	SMBJ15CA	TVS 15V 600W SMB bidirectional ON Semiconductor	SMBJ15CA	diodes.SVNDblib	ON Semiconductor	SMBJ15CA	Digi-Key	SMBJ15CAFACT-ND	Mouser	512-SMBJ15CA	1
42	D19	MURA120T	Ultra Fast diode 200 V 1 A SMA ON Semiconductor	MURA120T3G	diodes.SVNDblib	ON Semiconductor	MURA120T3G	Farnell	1459147	Mouser	863-MURA120T3G	1
43	D20, D21	MMS252458T	Zener diode 15 V 500 mW SOD123 ON Semiconductor	MMS252458T1G	diodes.SVNDblib	ON Semiconductor	MMS252458T1G	Digi-Key	MMS252458T1GOSCT-ND	Mouser	863-MMS252458T1G	2
44	FAN	Fan 24V 60x60x38mm without ribs	Fan 24VDC 60x60x38mm San Ace 60 Sanyo Denki	90V0624P16051	specials.SVNDblib			Digi-Key	1688-1657-ND	Mouser	978-90V0624P16031	1
45	GR1	Fan finger guard for 60x60mm fans	Fan finger guard for 60x60mm fans Multicomp	MC3286	specials.SVNDblib			Farnell	2292912			1
46	HS_A, HS_B, HS_C	SK 489 100 mm black anodized modified for OBC PFC	Heatsink Fischer Elektronik SK489 100 mm black eloxed - modified for OBC PFC project	5489100A_mod_01	specials.SVNDblib			Fischer Elektronik	SK 489 100 SA			3
47	HS_FB	modified MC33278	Heatsink Multicomp MC33278 42x20x23.7 - modified for OBC PFC project	MC33278_mod_01	specials.SVNDblib			Farnell	1710623			1
48	HS_SR	577202 heatsink for TO220	Heatsink AAVID 577202 19.05mm 24.4°C/W AAVID	57720200006	specials.SVNDblib			Digi-Key	HS107-ND	Mouser	532-577202800	1
49	ISA, ISB, ISC	CKSR 1S-NP	Current transducer CKSR1NP 15A LEM	CKSR 1S-NP	Is.SVNDblib	LEM	CKSR 1S-NP	Digi-Key	398-3096-5-ND	Farnell	2148283	3
50	J_ACIN	46007-3104	PCB right angle connector 4 pins 7.9 mm pitch Molex	460073104	connectors.SVNDblib	Molex	460073104	Digi-Key	0460073104-ND	Mouser	538-46007-3104	1
51	J_ACIN a	44441-2004	Molex Sabre receptacle 4 positions 7.5 mm	44441-2004	connectors.SVNDblib	Molex	44441-2004	Digi-Key	WM18465-ND	Mouser	538-44441-2004	1
52	J_CTR1	610 024 218 21	SMD vertical receptacle 24 pins 2.54 mm Würth Elektronik	61002421821	connectors.SVNDblib	Würth Elektronik	61002421821	Würth Elektronik	61002421821			1
53	J_DCOU1V	691 313 500 002	PCB right angle connector 2 pins 5.08 mm pitch Würth Elektronik	691313500002	connectors.SVNDblib	Würth Elektronik	691313500002	Farnell	1641999	Mouser	710-691313510002	1
54	J_DCOU1V a	691 313 500 002	Cable connector series 351 2pins 5.08 mm Würth Elektronik	691313500002	connectors.SVNDblib	Würth Elektronik	691313500002	Würth Elektronik	691313500002			1
55	J_DCOU1	46007-3102	PCB right angle connector 2 pins 7.9 mm pitch Molex	460073102	connectors.SVNDblib	Molex	460073102	Digi-Key	WM9558-ND	Mouser	538-46007-3102	1
56	J_DCOU1 a	44441-2002	Molex Sabre receptacle 2 positions 7.5 mm	44441-2002	connectors.SVNDblib	Molex	44441-2002	Digi-Key	WM18463-ND	Mouser	538-44441-2002	1
57	J_FAN	43045-0427	PCB vertical connector 4 pins 3.00 mm pitch Molex	430450427	connectors.SVNDblib	Molex	430450427	Digi-Key	WM10667-ND	Mouser	538-43045-0427	1
58	J_HAH, J_HAL, J_HBL, J_HCH, J_HCL	43025-0400	Molex Microfit receptacle 4 positions	43025-0400	connectors.SVNDblib	Molex	43025-0400	Digi-Key	WM1784-ND	Mouser	538-43025-0400	1
59	J_HCL	610 010 218 21	SMD vertical receptacle 10 pins 2.54 mm Würth Elektronik	61001021821	connectors.SVNDblib	Würth Elektronik	61001021821	Würth Elektronik	61001021821			6
60	L1	100 uH	WE PD power inductor SMD 100uH 1.5 A Würth Elektronik	744774101	inductors.SVNDblib	Würth Elektronik	744774101	Digi-Key	732-2989-1-ND	Mouser	710-744774101	1

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61	L5, L6, L7, L8, L9, L10		22 µH	WE TPC power inductor SMD 22µH 0.925A Würth Elektronik	74404320	Würth Elektronik	74404320	Farnell	1635848	Mouser	710-74404320	6
62	LA, LB, LC		450 / 220 µH	PFC inductor 450/220µH 18A Kaschke combined with WE and itacoil	170.808 WE_1TAC0L	Kaschke	170.808 WE_1TAC0L	Kaschke	170.808			3
63	LCMC			Dummy replacement for 6123-X316 CMC from VAC, 3x46mm 1.5mm2 600V AC wire, custom hand made	6123_X316_dummy	Farnell	6123_X316_ITACOIL	Farnell	2528095			1
64	NA, NB, NC	hex nut M5 DIN934	Hex nut M5 DIN934 ISO4032	MS_DIN934	specials.SVNDblib							3
65	N SR	hex nut M3 DIN934	Hex nut M3 DIN934 ISO4032	MS_DIN934	specials.SVNDblib							1
66	O1, O2	SFH615A-3	Optocoupler, high reliability, 5300Vrms Vishay	SFH615A-3007T	transistors.SVNDblib	Vishay	SFH615A-3X007T	Digi-Key	SFH615A-3X007T-ND	Mouser	782-SFH615A-3X007T	2
67	PAH, PAL, PBH, PBL, PCL, PCL	QA01C	Insulated DC-DC converter for IGBT drivers 15V->20V/4V low capacity Mornsun	QA01C	specials.SVNDblib			Mornsun	QA01C			6
68	Q1, Q11	B5S138L	NMOS 50V 0.2A 200mA 3.5Ohm ON Semiconductor	B5S138L1TG	transistors.SVNDblib	ON Semiconductor	B5S138L1TG	Digi-Key	B5S138L1TGOSCT-ND	Mouser	863-B5S138L1TG	2
69	Q2	NCV4333DR2G	Quad low noise zero drift OPAMP ON Semiconductor	NCV4333DR2G	ics.SVNDblib	ON Semiconductor	NCV4333DR2G	Digi-Key	NCV4333DR2GOSCT-ND	Mouser	863-NCV4333DR2G	1
70	Q3	NCV2333DR2G	Dual low noise zero drift OPAMP ON Semiconductor	NCV2333DR2G	ics.SVNDblib	ON Semiconductor	NCV2333DR2G	Digi-Key	NCV2333DR2GOSCT-ND	Mouser	863-NCV2333DR2G	1
71	Q4	NTE2955	PMOS 60V 2.6A 1450Ohm ON Semiconductor	NTE29551TG	transistors.SVNDblib	ON Semiconductor	NTE29551TG	Digi-Key	NTE29551TGOSCT-ND	Mouser	863-NTE29551TG	1
72	Q5	MUN5121DWT1	Dual channel NPN BRT 50 V 100 mA ON Semiconductor	MUN5121DWT1G	transistors.SVNDblib	ON Semiconductor	MUN5121DWT1G	Digi-Key	MUN5121DWT1TGOSCT-ND	Mouser	863-MUN5121DWT1G	1
73	Q6, Q7, Q8	NCV33AS2NT1G	Single low noise zero drift OPAMP ON Semiconductor	NCV33AS2NT1G	ics.SVNDblib	ON Semiconductor	NCV33AS2NT1G	Digi-Key	NCV33AS2NT1TGOSCT-ND	Mouser	863-NCV33AS2NT1G	3
74	Q9, Q10, Q13	FQPF5N90	NMOS 900V 3A 2.3R ON Semiconductor	FQPF5N90	transistors.SVNDblib	ON Semiconductor	FQPF5N90	Digi-Key	FQPF5N90-ND	Mouser	512-FQPF5N90	3
75	Q11	FQPF2210T	NMOS 220V 25A 42mOhm ON Semiconductor	FQPF2210T	transistors.SVNDblib	ON Semiconductor	FQPF2210T	Digi-Key	FQPF2210T-ND	Mouser	512-FQPF2210T	1
76	Q14	MMBT4891L1G	High Current surface mount PNP silicon switching transistor	MMBT4891L1G	transistors.SVNDblib	ON Semiconductor	MMBT4891L1G	Digi-Key	MMBT4891L1GOSCT-ND	Mouser	863-AMBT4891L1G	1
77	Q15	TL431ACDG	Voltage reference 2.5V 1mA ON Semiconductor	TL431ACDG	ics.SVNDblib	ON Semiconductor	TL431ACDG	Digi-Key	TL431ACDR2GOSCT-ND	Mouser	863-TL431ACDG	1
78	QAH, QAL, QBH, QBL, QCL, QCL	NTW080N125C1	SiC NMOS 1200V 36A 80mOhm ON Semiconductor	NTW080N125C1	transistors.SVNDblib	ON Semiconductor	NTW080N125C1	ON Semiconductor	samples only			6
79	RL, R2, R3, R4	68R	Wire wound vertical ceramic resistor 68R 5% 7W TE Connectivity	SQMW768R	resistors.SVNDblib	TE Connectivity	SQMW768R	Digi-Key	A102489-ND	Mouser	279-SQMW768R	4
80	RS	100R	SMD thick film resistor 100R 0603 1% 100 mW Panasonic	ERJ6KF100V	resistors.SVNDblib	Panasonic	ERJ6KF100V	Farnell	2303059			1
81	R6, R11, R13, R23, R27, R33, R39, R47, R51, R59, R63, R71, R75, R111, R112, R136	10k	SMD thick film resistor 10k 0603 1% 100 mW Panasonic	ERJ6KF100V	resistors.SVNDblib	Panasonic	ERJ6KF100V	Digi-Key	P10.0KCT-ND	Mouser	667-ERI-3EKF100ZV	16
82	R7, R19, R31, R43, R55, R67	8k2	SMD thick film resistor 8k2 0805 1% 125 mW Panasonic	ERJ6EF820V	resistors.SVNDblib	Panasonic	ERJ6EF820V	Digi-Key	P8.20KCT-ND	Mouser	667-ERI-6EF820V	6
83	R10, R22, R34, R46, R58, R70, R144	22R	SMD thick film resistor 22R 0805 1% 125 mW Panasonic	ERJ6EF220V	resistors.SVNDblib	Panasonic	ERJ6EF220V	Digi-Key	P22.0KCT-ND	Mouser	667-ERI-6EF220V	7
84	R12, R24, R36, R48, R60, R72	82k	SMD thick film resistor 82k 0603 1% 100 mW Panasonic	ERJ6EF820V	resistors.SVNDblib	Panasonic	ERJ6EF820V	Digi-Key	P82.0KCT-ND	Mouser	667-ERI-3EKF820ZV	6
85	R13, R25, R37, R49, R61, R73	487	SMD thick film resistor 487 0805 5% 125mW 150V Panasonic	ERJ6EY487V	resistors.SVNDblib	Panasonic	ERJ6EY487V	Farnell	2057665	Mouser	667-ERI-6EY487V	6
86	R16, R28, R40, R52, R64, R76, R89, R94, R100, R129	10k	SMD thick film resistor 10k 0805 1% 125 mW Panasonic	ERJ6EF100V	resistors.SVNDblib	Panasonic	ERJ6EF100V	Digi-Key	P10.0KCT-ND	Mouser	667-ERI-6EF100ZV	10
87	R17, R29, R41, R53, R65, R77, R79, R80, R81, R82, R83, R84	0R	SMD thick film resistor 0R 0603 100 mW, AEC-Q200, Panasonic	ERJ3GEY00V	resistors.SVNDblib	Panasonic	ERJ3GEY00V	Digi-Key	P0.0KCT-ND	Mouser	667-ERI-3GEY00V	12
88	R18, R30, R42, R54, R66, R78, R85, R86, R87, R88, R90, R91, R92, R93, R95, R96, R97, R98, R99, R102, R104, R105, R118, R120, R121, R122, R126, R135	113k	SMD thick film resistor 113k 0402 1% 100 mW Panasonic	ERJ2RF113X	resistors.SVNDblib	Panasonic	ERJ2RF113X	Digi-Key	P113KCT-ND	Mouser	667-ERI-2RF113X	6
89	R101, R103, R107, R109	820k	SMD thick film resistor 820k 1206 1% 660 mW Panasonic	ERJ6PF820V	resistors.SVNDblib	Panasonic	ERJ6PF820V	Mouser	667-ERI-P08F820V	Arrow	ERI-P08F820V	22
90	R102, R104, R106, R108, R110, R112, R114, R116, R117	82k	SMD thick film resistor 82k 1206 1% 660 mW Panasonic	ERJ6PF820V	resistors.SVNDblib	Panasonic	ERJ6PF820V	Mouser	667-ERI-P08F820V	Arrow	ERI-P08F820V	4
91	R106	1k	SMD thick film resistor 34k 0603 1% 100 mW Panasonic	ERJ6EF340V	resistors.SVNDblib	Panasonic	ERJ6EF340V	Farnell	2059363	Mouser	667-ERI-3EF340V	1
92	R108	15k	SMD thick film resistor 15k 0805 1% 125 mW Panasonic	ERJ6EF150V	resistors.SVNDblib	Panasonic	ERJ6EF150V	Digi-Key	P15.0KCT-ND	Mouser	667-ERI-6EF150ZV	1
93	R110	1k2	SMD thick film resistor 1k2 0603 1% 100 mW Panasonic	ERJ6EF100V	resistors.SVNDblib	Panasonic	ERJ6EF100V	Farnell	2303150	Mouser	667-ERI-3EF100V	1
94	R113	1k	SMD thick film resistor 1k 0603 1% 100 mW Panasonic	ERJ6EF100V	resistors.SVNDblib	Panasonic	ERJ6EF100V	Farnell	2303145	Mouser	667-ERI-3EF100V	1
95	R114, R115, R116, R117	2k2	SMD thick film resistor 2k2 0603 1% 100 mW Panasonic	ERJ6EF200V	resistors.SVNDblib	Panasonic	ERJ6EF200V	Farnell	2303166	Mouser	667-ERI-3EF200V	4
96	R119	0R	SMD thick film resistor 0R 0805 2A Panasonic	ERJ6GEY00V	resistors.SVNDblib	Panasonic	ERJ6GEY00V	Farnell	2057661	Mouser	667-ERI-6GEY00V	1
97	R123, R124	47R	SMD thick film resistor 47R 1206 1% 660 mW Panasonic	ERJ6PF470V	resistors.SVNDblib	Panasonic	ERJ6PF470V	Mouser	667-ERI-P08F470V			2
98	R125	220R	SMD thick film resistor 220R 0805 1% 125 mW Panasonic	ERJ6EF220V	resistors.SVNDblib	Panasonic	ERJ6EF220V	Digi-Key	P22.0KCT-ND	Mouser	667-ERI-6EF220V	1
99	R127	390R	SMD thick film resistor 390R 0805 1% 125 mW Panasonic	ERJ6EF390V	resistors.SVNDblib	Panasonic	ERJ6EF390V	Digi-Key	P390KCT-ND	Mouser	667-ERI-6EF390V	1
100	R128	100R	SMD thick film resistor 100R 1206 1% 660 mW Panasonic	ERJ6PF100V	resistors.SVNDblib	Panasonic	ERJ6PF100V	Farnell	1750824	Mouser	667-ERI-P08F100V	1
101	R130	220R	SMD thick film resistor 220R 0603 1% 100 mW Panasonic	ERJ6EF220V	resistors.SVNDblib	Panasonic	ERJ6EF220V	Farnell	2303090	Mouser	667-ERI-3EF220V	1
102	R131, R134, R138, R139	6k8	SMD thick film resistor 6k8 1206 1% 660 mW Panasonic	ERJ6PF680V	resistors.SVNDblib	Panasonic	ERJ6PF680V	Mouser	667-ERI-P08F680V			4
103	R132	56k	SMD thick film resistor 56k 0805 1% 125 mW Panasonic	ERJ6EF560V	resistors.SVNDblib	Panasonic	ERJ6EF560V	Digi-Key	P56.0KCT-ND	Mouser	667-ERI-6EF560ZV	1
104	R133	10R	SMD thick film resistor 10R 0805 1% 125 mW Panasonic	ERJ6EF100V	resistors.SVNDblib	Panasonic	ERJ6EF100V	Digi-Key	P10.0KCT-ND	Mouser	667-ERI-6EF100V	1
105	R137	2k2	SMD thick film resistor 2k2 0805 1% 125 mW Panasonic	ERJ6EF200V	resistors.SVNDblib	Panasonic	ERJ6EF200V	Digi-Key	P2.20KCT-ND	Mouser	667-ERI-6EF200V	1
106	R141	8R2	SMD thick film resistor 8R2 0805 5% 125mW 150V Vishay	CRCW08058R20MEAF	resistors.SVNDblib	Vishay Draloric	CRCW08058R20MEAF	Farnell	1739201	Digi-Key	CRCW08058R20MEAF-ND	1
107	R142	390R	SMD thick film resistor 390R 0805 1% 125 mW Panasonic	ERJ6EF390V	resistors.SVNDblib	Panasonic	ERJ6EF390V	Digi-Key	P390KCT-ND	Mouser	667-ERI-6EF390V	1
108	R143, R146	22k	SMD thick film resistor 22k 0805 1% 125 mW Panasonic	ERJ6EF220V	resistors.SVNDblib	Panasonic	ERJ6EF220V	Digi-Key	P22.0KCT-ND	Mouser	667-ERI-6EF220V	2
109	R145	1k	SMD thick film resistor 1k 0805 1% 125 mW Panasonic	ERJ6EF100V	resistors.SVNDblib	Panasonic	ERJ6EF100V	Digi-Key	P1.0KCT-ND	Mouser	667-ERI-6EF100V	1
110	R147	4k7	SMD thick film resistor 4k7 0805 1% 125 mW Panasonic	ERJ6EF470V	resistors.SVNDblib	Panasonic	ERJ6EF470V	Digi-Key	P4.70KCT-ND	Mouser	667-ERI-6EF470V	1
111	R148	6k8	SMD thick film resistor 6k8 0805 1% 125 mW Panasonic	ERJ6EF680V	resistors.SVNDblib	Panasonic	ERJ6EF680V	Digi-Key	P6.80KCT-ND	Mouser	667-ERI-6EF680V	1
112	R149	47k	SMD thick film resistor 47k 0805 1% 125 mW Panasonic	ERJ6EF470V	resistors.SVNDblib	Panasonic	ERJ6EF470V	Digi-Key	P47.0KCT-ND	Mouser	667-ERI-6EF470ZV	1
113	R150	1R	SMD current sense resistor 10hm 1206 1% 500 mW Panasonic	ERJ6RF1R0V	resistors.SVNDblib	Panasonic	ERJ6RF1R0V	Digi-Key	P1.760KCT-ND	Mouser	667-ERI-8RF1R0V	1
114	R151	2k49	SMD thick film resistor 2k49 0805 1% 125 mW Panasonic	ERJ6EF249V	resistors.SVNDblib	Panasonic	ERJ6EF249V	Digi-Key	P2.49KCT-ND	Mouser	667-ERI-6EF249V	1
115	R152, R153, R154, R155, R156, R157, R158, R159, R160, R161, R162, R163, R164, R165, R166, R167, R168, R169	33R	SMD thick film resistor 33R 0603 1% 100 mW Panasonic	ERJ6EF330V	resistors.SVNDblib	Panasonic	ERJ6EF330V	Farnell	2303016	Mouser	667-ERI-3EF330V	18
116	R170	22k	SMD thick film resistor 22k 0603 1% 100 mW Panasonic	ERJ6EF220V	resistors.SVNDblib	Panasonic	ERJ6EF220V	Digi-Key	P22.0KCT-ND	Mouser	667-ERI-3EF220V	1
117	RE1, RE2	20 A (20k VA)	PCB relay 277VAC/1200Vrms 20A 24V coil PTH Panasonic	JTV1AS-PA-24V	switches.SVNDblib	Panasonic	JTV1AS-PA-24V	Digi-Key	255-2818-ND	Mouser	769-JTV1AS-PA-24V	2
118	SFAN3, SFANA	M4x10 DIN7985	Pan head cross screw M4x10 DIN7985	M4x10_DIN7985	specials.SVNDblib							2
119	SPB1, SPB2, SPB3, SPB4, SPB5, SPB6, SPB7, SPB8	Spacer M4 M/F 8/40 HEX7	Steel spacer external/Internal M4x8 thread 40mm Würth Elektronik	971400471	specials.SVNDblib			Digi-Key	732-10482-ND	Würth Elektronik	971400471	8
120	SPM1, SPM2, SPM3, SPM4, SPM5, SPM6, SPM7, SPM8	Spacer M4 M/F 8/25 HEX7	Steel spacer external/Internal M4x8 thread 25mm Würth Elektronik	971250471	specials.SVNDblib			Digi-Key	732-10453-ND	Würth Elektronik	971250471	8
121	SPT1, SPT2, SPT3, SPT4, SPT5, SPT6, SPT7, SPT8	Spacer M4 F/F 70 HEX7	Steel spacer internal/Internal M4x8 thread 70mm Würth Elektronik	970700471	specials.SVNDblib			Digi-Key	732-10678-ND	Würth Elektronik	970700471	8
122	SQAH, SQAL, SQBH, SQBL, SQCH, SQCL	M3x16 DIN7985	Pan head cross screw M3x16 DIN7985	M3x16_DIN7985	specials.SVNDblib							6
123	S, FB1, S, FB2, SFAN1, SFAN2, SHA1, SHA2, SHB1, SHB2, SHC1, SHC2	M3x8 DIN7985	Pan head cross screw M3x8 DIN7985	M3x8_DIN7985	specials.SVNDblib							10
124	S SR	M3x10 DIN7985	Pan head cross screw M3x10 DIN7985	M3x10_DIN7985	specials.SVNDblib							1
125	TR1	760 301 302	Transformer for gate drive one output	760301302	transformers.SVNDblib	Würth Elektronik	760301302	Digi-Key	732-5630-2-ND	Mouser	710-760301302	1
126	TR2	750 315 046	Transformer for DC-DC converter 750 315 046 Würth Elektronik	750315046	transformers.SVNDblib	Würth Elektronik	750315046	Würth Elektronik	750315046			1
127	U1	NC4308A	Secondary side synchronous rectification driver	NC4308ADR2G	ics.SVNDblib	ON Semiconductor	NC4308ADR2G	Digi-Key	NC4308ADR2GOSCT-ND	Mouser	863-NC4308ADR2G	1
128	U2	NCP1220	Flyback/ Forward controller ON Semiconductor	NCP12201TG	ics.SVNDblib	ON Semiconductor	NCP12201TG	Digi-Key	NCP12201TGOSCT-ND	Mouser	863-NCP12201TG	1
129	UDRV_A, H, UDRV_A_L, UDRV_B, H, UDRV_B_L, UDRV_C, H, UDRV_C_L, UISO_A, H, UISO_A_L, UISO_B, H, UISO_B_L, UISO_C, H, UISO_C_L	NCV51705MPX	Single 6A High-Speed Low-Side SiC MOSFET Driver ON Semiconductor	NCV51705MPX	ics.SVNDblib	ON Semiconductor	NCV51705MPX	ON Semiconductor				6
130	UISO_A, H, UISO_A_L, UISO_B, H, UISO_B_L, UISO_C, H, UISO_C_L	ISO7741DW	4 channel digital insulator 5kV 100µs/10V 100 Mbps Texas Instruments	ISO7741DW	ics.SVNDblib	Texas Instruments	ISO7741DW	Digi-Key	296-44620-5-ND	Mouser	595-ISO7741DW	6
131	WHA, WHB, WHC	washer 100x12x1.6	Custom FR4 insulation washer 100x12x1.6 under heatsink SK489/100	custom_100x12x1.6	specials.SVNDblib			custom part	undefined - lab work			3
132	WHAH, WH											

Project: OBC_PFC_control_board.PrjPcb

Source Data From: OBC_PFC_control_board.PrjPcb
 Project: OBC_PFC_control_board.PrjPcb
 Variant: standard_board

Bill of Materials



#	Designator	Comment	Description	LibRef	SourceLibraryName	Manufacturer	Manufacturer Part Number	Supplier	Supplier Part Number	Supplier 2	Supplier Part Number 2	Quantity
1	C1, C2, C3, C4, C5, C8, C9, C10, C11, C16, C18, C19, C22, C23, C24, C25, C26, C27, C28, C29, C30, C32, C34, C40, C66, C105, C106	100 nF	MLC capacitor 100nF 16V X7R 10% Murata	GRM188R71C104KA01D	capacitors.SVNDblib	Murata	GRM188R71C104KA01D	Digi-Key	490-1532-1-ND	Mouser	81-GRM39X104K16	27
2	C6, C7	12 pF	MLC capacitor 12pF 50V COG 2% Murata	GRM1555CH120GA01D	capacitors.SVNDblib	Murata	GRM1555CH120GA01D	Digi-Key	490-6197-1-ND	Mouser	81-GRM1555CH120GA1D	2
3	C12, C13, C14, C33, C35, C102	1 uF	MLC capacitor 1uF 16V X7R 10% Murata	GRM188R71C105KA12D	capacitors.SVNDblib	Murata	GRM188R71C105KA12D	Digi-Key	490-3900-1-ND	Mouser	81-GRM188R71C105KA12	6
4	C15, C20, C21, C36, C41	10 uF	MLC capacitor 10uF 10V X7R 10% Murata	GRM188R71A106KA3D	capacitors.SVNDblib	Murata	GRM188R71A106KA3D	Mouser	81-GRM188R71A106KA3D	Mouser	81-GRM188R71A106KA3D	5
5	C17	22 pF	MLC capacitor 22pF 50V COG 5% Murata	GRM1885C1E022JA01D	capacitors.SVNDblib	Murata	GRM1885C1E022JA01D	Digi-Key	490-1411-1-ND	Mouser	81-GRM35C20J50	1
6	C31	10 nF	MLC capacitor 10nF 16V X7R 10% Murata	GRM188R71C103KA01D	capacitors.SVNDblib	Murata	GRM188R71C103KA01D	Digi-Key	490-1525-1-ND	Mouser	81-GRM188R71C103KA01D	1
7	C37, C38	12 pF	MLC capacitor 12pF 100V COG 5% Murata	GRM1885C2A120JA01D	capacitors.SVNDblib	Murata	GRM1885C2A120JA01D	Digi-Key	490-1329-1-ND	Mouser	81-GRM1885C2A120JA01D	2
8	C39, C42	10 pF	MLC capacitor 10pF 25V COG 5% Murata	GRM1555C1E100JA01D	capacitors.SVNDblib	Murata	GRM1555C1E100JA01D	Digi-Key	490-6168-1-ND	Mouser	81-GRM1555C1E100JA1D	2
9	C43, C51, C56, C57, C58, C59, C60, C61, C62, C63, C64, C65	100 nF	MLC capacitor 100nF 25V X7R 10% Murata	GRM219R71E104KA01D	capacitors.SVNDblib	Murata	GRM219R71E104KA01D	Digi-Key	490-12754-1-ND	Mouser	81-GRM219R71E104KA1D	12
10	C44, C45	1 uF	MLC capacitor 1uF 10V X7R 20% Murata	GRM188R71A105MA61D	capacitors.SVNDblib	Murata	GRM188R71A105MA61D	Mouser	81-GRM188R71A105MA1D	Murata	GRM188R71A105MA61D	2
11	C46, C47, C48, C49, C50, C53, C54, C55	10 nF	MLC capacitor 10nF 25V COG 5% Murata	GRM1885C1E031JA01D	capacitors.SVNDblib	Murata	GRM1885C1E031JA01D	Mouser	81-GRM1885C1E031JA1D	Murata	GRM1885C1E031JA1D	8
12	C52, C82, C83, C90, C91, C98, C99	10 uF	MLC capacitor 10uF 25V X75 10% Murata	GRM218C71E106KE11L	capacitors.SVNDblib	Murata	GRM218C71E106KE11L	Digi-Key	490-10496-1-ND	Mouser	81-GRM218C71E106KE1L	7
13	C67	10 nF	MLC capacitor 10nF 16V X7R 5% Murata	GRM188R71C103JA01D	capacitors.SVNDblib	Murata	GRM188R71C103JA01D	Mouser	81-GRM188R71C103JA1D	Murata	GRM188R71C103JA01D	1
14	C68, C79, C84, C87, C92, C95	100 nF	MLC capacitor 100nF 16V X7R 5% Murata	GRM188R71C104JA01D	capacitors.SVNDblib	Murata	GRM188R71C104JA01D	Digi-Key	490-9731-1-ND	Mouser	81-GRM39X104J16	6
15	C69, C85, C93, C101	100 uF	ALU electrolyte long life 100uF 35V 20% Würth Elektronik	86230557006	capacitors.SVNDblib	Würth Elektronik	86230557006	Digi-Key	732-8299-1-ND	Mouser	710-865230557006	4
16	C78, C86, C94, C103	4u7	MLC capacitor 4u7 100V X7R 10% soft termination Murata	GRM202C72A075KE11L	capacitors.SVNDblib	Murata	GRM202C72A075KE11L	Digi-Key	490-10955-1-ND	Mouser	81-GRM202C72A075KE1L	4
17	C80	4n7	MLC capacitor 4n7 50V COG 5% Murata	GRM1885C1H072JA01D	capacitors.SVNDblib	Murata	GRM1885C1H072JA01D	Digi-Key	490-9669-1-ND	Mouser	81-GRM1885C1H072JA1D	1
18	C81	100 pF	MLC capacitor 100pF 50V COG 5% Murata	GRM1885C1H010JA01D	capacitors.SVNDblib	Murata	GRM1885C1H010JA01D	Digi-Key	490-1427-1-ND	Mouser	81-GRM39C10J50	1
19	C88	1n8	MLC capacitor 1n8 50V COG 5% Murata	GRM1885C1H182JA01D	capacitors.SVNDblib	Murata	GRM1885C1H182JA01D	Digi-Key	490-1457-1-ND	Mouser	81-GRM1885C1H182JA01	1
20	C96	10 pF	MLC capacitor 10pF 50V COG 5% Murata	GRM1885C1H100JA01D	capacitors.SVNDblib	Murata	GRM1885C1H100JA01D	Digi-Key	490-1403-1-ND	Mouser	81-GRM39C100J50	1
21	C96	2n2	MLC capacitor 2n2 50V COG 5% Murata	GRM1885C1H222JA01D	capacitors.SVNDblib	Murata	GRM1885C1H222JA01D	Digi-Key	490-1459-1-ND	Mouser	81-GRM1885C1H222JA01	1
22	C97	12 pF	MLC capacitor 12pF 50V COG 5% Murata	GRM1885C1H120JA01D	capacitors.SVNDblib	Murata	GRM1885C1H120JA01D	Digi-Key	490-1405-1-ND	Mouser	81-GRM39C120J50	1
23	C100	100 uF	Polymer ALU elco 100uF 35V 30mOhm 20% Würth Elektronik	875115652007	capacitors.SVNDblib	Würth Elektronik	875115652007	Würth Elektronik	875115652007			1
24	C104, C107, C108, C109, C110, C111, C112, C113, C114, C115, C116, C117	220 pF	MLC capacitor 220pF 50V X7R 10% Murata	GRM188R71H221KA01D	capacitors.SVNDblib	Murata	GRM188R71H221KA01D	Digi-Key	490-1483-1-ND	Mouser	81-GRM39X221K50D	12
25	D1	SBA516HT3G	Switching diode 100V 200mA SOD323 ON Semiconductor	8BA516HT3G	diodes.SVNDblib	ON Semiconductor	SBA516HT3G	Farnell	863-SBA516HT3G	Mouser	863-SBA516HT3G	1
26	D2	5MA6G5.0	TVS 5V 600W SMA unidirectional Littelfuse	5MA6G5.0	diodes.SVNDblib	Littelfuse	5MA6G5.0	Digi-Key	5MA6G5.0A-ND	Mouser	576-5MA6G5.0A	1
27	D3, D5	BLU-E	SMD LED diode 30 mA BLUE 0603 Würth Elektronik	1500609575000	diodes.SVNDblib	Würth Elektronik	1500609575000	Digi-Key	732-4966-1-ND	Mouser	710-1500609575000	2
28	D4	YELLOW	SMD LED diode 30 mA YELLOW 0603 Würth Elektronik	1500609575000	diodes.SVNDblib	Würth Elektronik	1500609575000	Digi-Key	732-4981-1-ND	Mouser	710-1500609575000	1
29	D6, D7, D8, D9, D10, D11	RED	SMD LED diode 30 mA RED 0603 Würth Elektronik	1500609575000	diodes.SVNDblib	Würth Elektronik	1500609575000	Digi-Key	732-4978-1-ND	Mouser	710-1500609575000	6
30	D12, D14, D16	NSR0340H	Schottky diode 40V 250mA low Vf SOD323 ON Semiconductor	NSR0340HT3G	diodes.SVNDblib	ON Semiconductor	NSR0340HT3G	Digi-Key	NSR0340HT1GOSCT-ND	Mouser	863-NSR0340HT1G	3
31	D13, D15, D17	NRV852040L13G	Schottky diode 40 V 2 A SMB ON Semiconductor	NRV852040L13G	diodes.SVNDblib	ON Semiconductor	NRV852040L13G	Farnell	863-NRV852040L13G	Mouser	863-NRV852040L13G	3
32	D18, D19, D20, D21, D23	GREEN	SMD LED diode 30 mA GREEN 0603 Würth Elektronik	1500609575000	diodes.SVNDblib	Würth Elektronik	1500609575000	Digi-Key	732-4971-1-ND	Mouser	710-1500609575000	5
33	D22	SMB124A	TVS 24V 600W SMB unidirectional ON Semiconductor	SMB124A	diodes.SVNDblib	ON Semiconductor	SMB124A	Digi-Key	SMB124AFSCT-ND	Mouser	512-SMB124A	1
34	D24	SUPER RED	SMD LED diode 30 mA SUPER RED 0603 Würth Elektronik	1500609575000	diodes.SVNDblib	Würth Elektronik	1500609575000	Digi-Key	732-4979-1-ND	Mouser	710-1500609575000	1
39	J_HCH, J_HAL, J_HBL, J_HCH, J_HCH, J_HCH	691 351 500 002	Cable connector series 351 2pins 5.08 mm Würth Elektronik	691351500002	connectors.SVNDblib	Würth Elektronik	691351500002	Würth Elektronik	691351500002			1
38	J	TSW-105-19-G-D	PTH vertical header 2x5 pins 2.54mm 23.368mm height Samtec	TSW-105-19-G-D	connectors.SVNDblib	Samtec	TSW-105-19-G-D	Digi-Key	TSW-105-19-G-D-ND	Farnell	2028431	6
40	J_ISP	610 006 211 21	SMD header 2x3 100mil Würth Elektronik	61000621121	connectors.SVNDblib	Würth Elektronik	61000621121	Würth Elektronik	61000621121			1
41	J_ITAG	621 310 210 21	SMD header 2x5 50mil Würth Elektronik	62131021021	connectors.SVNDblib	Würth Elektronik	62131021021	Würth Elektronik	62131021021			1
42	J_LOAD	618 009 231 321	DE9 right angle PTH Female Würth Elektronik	618009231321	connectors.SVNDblib	Würth Elektronik	618009231321	Würth Elektronik	618009231321			1
43	J_SPARE	610 016 218 21	SMD vertical receptacle 16 pins 2.54 mm Würth Elektronik	61001621821	connectors.SVNDblib	Würth Elektronik	61001621821	Würth Elektronik	61001621821			1
44	J_USB	47346-0001	Micro USB B SMD connector Molex	47346-0001	connectors.SVNDblib	Molex	47346-0001	Farnell	1568026	Mouser	538-47346-0001	1
45	L2, L3, L4, L5	30 Ohm @ 100 MHz	EMI Suppression ferrite bead SMD 30Ohm 3A Würth Elektronik	74279206	inductors.SVNDblib	Würth Elektronik	74279206	Digi-Key	732-1611-2-ND	Mouser	710-74279206	4
46	L6	22 uH	WE PD power inductor SMD 22uH 2 A Würth Elektronik	7440786122	inductors.SVNDblib	Würth Elektronik	7440786122	Digi-Key	732-3300-1-ND	Mouser	710-7440786122	1
47	L7	6uH	WE TPC power inductor SMD 6uH 1.3 A Würth Elektronik	744043006	inductors.SVNDblib	Würth Elektronik	744043006	Digi-Key	732-1101-1-ND	Mouser	710-744043006	1
48	L8	4u7	WE TPC power inductor SMD 4u7 1.5 A Würth Elektronik	744043004	inductors.SVNDblib	Würth Elektronik	744043004	Digi-Key	732-1099-1-ND	Mouser	710-744043004	1
49	L9, L10, L11, L12	22 uH	WE TPC power inductor SMD 22uH 0.925A Würth Elektronik	744043220	inductors.SVNDblib	Würth Elektronik	744043220	Farnell	1635848	Mouser	710-744043220	2
50	L13	33 uH	WE GFH high frequency inductor SMD 33uH 0.21A Würth Elektronik	744029330	inductors.SVNDblib	Würth Elektronik	744029330	Digi-Key	732-7312-1-ND	Mouser	710-744029330	1
51	O1, O2, O3, O4	SFH615A-3	Optocoupler, high reliability, 5300Vrms Vishay	SFH615A-3X007T	transistors.SVNDblib	Vishay	SFH615A-3X007T	Digi-Key	SFH615A-3X007T-ND	Mouser	782-FH615A-3X007T	1
52	P1	MHF352405SP3C	Insulated DC-DC converter 24V-5V Murata	MHF352405SP3C	specials.SVNDblib			Digi-Key	812-2932-5-ND	Mouser	580-MHF352405SP3C	1
53	PB_RST	465 031 772 505	Right angle PTH push button SPDT Würth Elektronik	46503177205	switches.SVNDblib	Würth Elektronik	46503177205	Digi-Key	732-1182-1-ND	Mouser	710-46503177205	1
54	PB_RST_CAP	PB cap - red	Cap for push button red Würth Elektronik	7440650100	specials.SVNDblib	Würth Elektronik	7440650100	Digi-Key	732-1184-1-ND	Mouser	710-7440650100	1
55	Q1	LC03 6R2	Low Capacitance Surface Mount TVS for High-Speed Data Interfaces ON Semiconductor	LC03-6R2G	ics.SVNDblib	ON Semiconductor	LC03-6R2G	Farnell	1703034	Mouser	863-LC03-6R2G	1
56	O2, O3, O4	NCV433DR2G	Quad low noise zero drift OPAMP ON Semiconductor	NCV433DR2G	ics.SVNDblib	ON Semiconductor	NCV433DR2G	Digi-Key	NCV433DR2GOSCT-ND	Mouser	863-NCV433DR2G	3
57	O5, O6, O7	MUN5111T1G	PNP with bias resistors 2x10k 100 mA ON Semiconductor	MUN5111T1G	transistors.SVNDblib	ON Semiconductor	MUN5111T1G	Digi-Key	MUN5111T1GOSCT-ND	Mouser	863-MUN5111T1G	3
58	Q8	NCV233DR2G	Dual low noise zero drift OPAMP ON Semiconductor	NCV233DR2G	ics.SVNDblib	ON Semiconductor	NCV233DR2G	Digi-Key	NCV233DR2G-ND	Mouser	863-NCV233DR2G	3
59	R1, R2, R3, R4, R5, R6, R22, R99, R100, R103, R104, R105, R106, R7, R8, R11, R18, R23, R26, R29, R31, R37, R40, R42, R45, R47, R50, R71, R76, R80, R84, R88, R92, R109, R112, R118, R128	47k	SMD thick film resistor 47k 0603 1% 100 mW Panasonic	ERJ3EK4702V	resistors.SVNDblib	Panasonic	ERJ3EK4702V	Digi-Key	P47.0KHCT-ND	Mouser	667-ERI-3EK4702V	13
60	R9, R10	10k	SMD thick film resistor 10k 0603 1% 100 mW Panasonic	ERJ3EK1002V	resistors.SVNDblib	Panasonic	ERJ3EK1002V	Digi-Key	P10.0KHCT-ND	Mouser	667-ERI-3EK1002V	24
61	R12, R13, R97, R98	22R	SMD thick film resistor 22R 0603 1% 100 mW Panasonic	ERJ3EK220V	resistors.SVNDblib	Panasonic	ERJ3EK220V	Farnell	2302996	Mouser	667-ERI-3EK220V	2
62	R14, R39, R41, R44, R46, R49, R51	6k8	SMD thick film resistor 6k8 0603 1% 100 mW Panasonic	ERJ3EK6801V	resistors.SVNDblib	Panasonic	ERJ3EK6801V	Digi-Key	P6.80KHCT-ND	Mouser	667-ERI-3EK6801V	7
63	R15, R52, R69, R70	4k7	SMD thick film resistor 4k7 0603 1% 100 mW Panasonic	ERJ3EK4701V	resistors.SVNDblib	Panasonic	ERJ3EK4701V	Digi-Key	P4.70KHCT-ND	Mouser	667-ERI-3EK4701V	4
65	R16, R73, R74, R75, R78, R79, R82, R83, R86, R87, R90, R91, R94, R95	100k	SMD thick film resistor 100k 0603 1% 100 mW Panasonic	ERJ3EK1003V	resistors.SVNDblib	Panasonic	ERJ3EK1003V	Digi-Key	P100KHCT-ND	Mouser	667-ERI-3EK1003V	14
66	R17, R21, R110	OR	SMD thick film resistor OR 0603 100 mW, AEC-Q200, Panasonic	ERI-3GEY0R00V	resistors.SVNDblib	Panasonic	ERI-3GEY0R00V	Digi-Key	P0.0GCT-ND	Mouser	667-ERI-3GEY0R00V	3
67	R19, R20	39R	SMD thick film resistor 39R 0603 1% 100 mW Panasonic	ERJ3EK390V	resistors.SVNDblib	Panasonic	ERJ3EK390V	Farnell	2303023	Mouser	667-ERI-3EK390V	2
68	R24, R30, R38, R43, R48, R53, R55, R60, R65, R72, R77, R81, R85, R89, R93, R129	2k2	SMD thick film resistor 2k2 0603 1% 100 mW Panasonic	ERJ3EK2201V	resistors.SVNDblib	Panasonic	ERJ3EK2201V	Farnell	2303166	Mouser	667-ERI-3EK2201V	16
69	R25, R2											

#	Designator	Comment	Description	LibRef	SourceLibraryName	Manufacturer	Manufacturer Part Number	Supplier	Supplier Part Number	Supplier 2	Supplier Part Number 2	Quantity
75	R54, R57, R59, R62, R64, R67	330R	SMD thick film resistor 330R 0603 1% 100 mW Panasonic	ERJ6KF3300V	resistors.SVNDblib	Panasonic	ERJ6KF3300V	Farnell	2303104	Mouser	667-ERI-3EKF3300V	6
76	R56, R58, R61, R63, R66, R68	402R	SMD thick film resistor 402R 0603 1% 100 mW Panasonic	ERJ6KF4020V	resistors.SVNDblib	Panasonic	ERJ6KF4020V	Farnell	2059308	Mouser	667-ERI-3EKF4020V	6
77	R101, R107, R124	1k5	SMD thick film resistor 1k5 0603 1% 100 mW Panasonic	ERJ6KF1051V	resistors.SVNDblib	Panasonic	ERJ6KF1051V	Farnell	2303146	Mouser	667-ERI-3EKF1051V	3
78	R102, R108, R115	12k	SMD thick film resistor 12k 0603 1% 100 mW Panasonic	ERJ6KF1202V	resistors.SVNDblib	Panasonic	ERJ6KF1202V	Farnell	P12.0KCHT-ND	Mouser	667-ERI-3EKF1202V	3
79	R111	3k9	SMD thick film resistor 3k9 0603 1% 100 mW Panasonic	ERJ6KF3901V	resistors.SVNDblib	Panasonic	ERJ6KF3901V	Farnell	2397222	Mouser	667-ERI-3EKF3901V	1
80	R113	220R	SMD thick film resistor 220R 0603 1% 100 mW Panasonic	ERJ6KF2202V	resistors.SVNDblib	Panasonic	ERJ6KF2202V	Farnell	2303090	Mouser	667-ERI-3EKF2202V	1
81	R114	487R	SMD thick film resistor 487R 0603 1% 100 mW Panasonic	ERJ6KF4870V	resistors.SVNDblib	Panasonic	ERJ6KF4870V	Farnell	2303121	Mouser	667-ERI-3EKF4870V	1
82	R116	93R1	SMD thick film resistor 93R1 0603 1% 100 mW Panasonic	ERJ6KF93R1V	resistors.SVNDblib	Panasonic	ERJ6KF93R1V	Farnell	2303056	Mouser	667-ERI-3EKF93R1V	1
83	R117	318R	SMD thick film resistor 318R 0603 1% 100 mW Panasonic	ERJ6KF318R	resistors.SVNDblib	Panasonic	ERJ6KF318R	Farnell	2303014	Mouser	667-ERI-3EKF318R	1
84	R119	100R	SMD thick film resistor 100R 0603 1% 100 mW Panasonic	ERJ6KF1000V	resistors.SVNDblib	Panasonic	ERJ6KF1000V	Farnell	2303059	Mouser	667-ERI-3EKF1000V	1
85	R120	91k	SMD thick film resistor 91k 0603 1% 100 mW Panasonic	ERJ6KF9102V	resistors.SVNDblib	Panasonic	ERJ6KF9102V	Digi-Key	P91.0KCHT-ND	Mouser	667-ERI-3EKF9102V	1
86	R121	20k	SMD thick film resistor 20k 0603 1% 100 mW Panasonic	ERJ6KF2002V	resistors.SVNDblib	Panasonic	ERJ6KF2002V	Digi-Key	P20.0KCHT-ND	Mouser	667-ERI-3EKF2002V	1
87	R122	7k5	SMD thick film resistor 7k5 0603 1% 100 mW Panasonic	ERJ6KF7501V	resistors.SVNDblib	Panasonic	ERJ6KF7501V	Digi-Key	P7.50KCHT-ND	Mouser	667-ERI-3EKF7501V	1
88	R123	150k	SMD thick film resistor 150k 0603 1% 100 mW Panasonic	ERJ6KF1503V	resistors.SVNDblib	Panasonic	ERJ6KF1503V	Digi-Key	P150KCHT-ND	Mouser	667-ERI-3EKF1503V	1
89	R125, R126, R127	0R	SMD thick film resistor 0R 0805 2A Panasonic	ER66GEY0R00V	resistors.SVNDblib	Panasonic	ER66GEY0R00V	Farnell	2057661	Mouser	667-ERI-66EY0R00V	3
90	R130, R131, R132, R133, R134, R135, R136, R137, R138, R139, R140, R141, R142, R143, R144, R145, R146, R147, R148, R149, R150, R151, R152, R153, R154, R155, R156, R157, R158, R159	10R	SMD thick film resistor 10R 0603 1% 100 mW Panasonic	ERJ6KF10R0V	resistors.SVNDblib	Panasonic	ERJ6KF10R0V	Farnell	2302958	Mouser	667-ERI-3EKF10R0V	30
91	R160, R161, R162, R163, R164, R165, R166, R167, R168, R169, R170, R171	33R	SMD thick film resistor 33R 0603 1% 100 mW Panasonic	ERJ6KF33R0V	resistors.SVNDblib	Panasonic	ERJ6KF33R0V	Farnell	2303016	Mouser	667-ERI-3EKF33R0V	12
92	TP1, TP2, TP4, TP6, TP5, TP6, TP8	PURPLE	PTH testpoint eyelet 3.2mm purple Keystone Electronics	5124	connectors.SVNDblib	Keystone Electronics	5124	Digi-Key	36-5124-ND	Mouser	534-5124	6
93	TP1A, TP16, TP21, TP67, TP71, TP75, TP77, TP113	RED	PTH testpoint eyelet 3.2mm red Keystone Electronics	5005	connectors.SVNDblib	Keystone Electronics	5005	Digi-Key	36-5005-ND	Mouser	534-5005	8
94	TP1B, TP2, TP2B, TP3B, TP4, TP18, TP20, TP80, TP96, TP122	BLACK	PTH testpoint eyelet 3.2mm black Keystone Electronics	5006	connectors.SVNDblib	Keystone Electronics	5006	Digi-Key	36-5006-ND	Mouser	534-5006	10
95	TP2A, TP7, TP9, TP22, TP34, TP35, TP46, TP47, TP49, TP68, TP72, TP76, TP81, TP95, TP119	ORANGE	PTH testpoint eyelet 3.2mm orange Keystone Electronics	5008	connectors.SVNDblib	Keystone Electronics	5008	Digi-Key	36-5008-ND	Mouser	534-5008	15
96	TP3, TP15, TP17, TP19, TP23, TP59, TP69, TP73, TP78, TP84, TP87, TP118	BLUE	PTH testpoint eyelet 3.2mm blue Keystone Electronics	5122	connectors.SVNDblib	Keystone Electronics	5122	Digi-Key	36-5122-ND	Mouser	534-5122	12
97	TP3A, TP12, TP13, TP14, TP58, TP61, TP82, TP85, TP89, TP123	GREEN	PTH testpoint eyelet 3.2mm green Keystone Electronics	5121	connectors.SVNDblib	Keystone Electronics	5121	Digi-Key	36-5121-ND	Mouser	534-5121	10
98	TP5, TP6, TP62, TP83, TP124	WHITE	PTH testpoint eyelet 3.2mm white Keystone Electronics	5007	connectors.SVNDblib	Keystone Electronics	5007	Digi-Key	36-5007-ND	Mouser	534-5007	5
99	TP8, TP26, TP43, TP125	GRAY	PTH testpoint eyelet 3.2mm gray Keystone Electronics	5123	connectors.SVNDblib	Keystone Electronics	5123	Digi-Key	36-5123-ND	Mouser	534-5123	4
100	TP10, TP37, TP38, TP50, TP51, TP53, TP88, TP120	YELLOW	PTH testpoint eyelet 3.2mm yellow Keystone Electronics	5009	connectors.SVNDblib	Keystone Electronics	5009	Digi-Key	36-5009-ND	Mouser	534-5009	8
101	TP11, TP40, TP41, TP54, TP55, TP57, TP70, TP74, TP79, TP121	BROWN	PTH testpoint eyelet 3.2mm brown Keystone Electronics	5120	connectors.SVNDblib	Keystone Electronics	5120	Digi-Key	36-5120-ND	Mouser	534-5120	10
102	U1	ATSAM3X8EA-AU	ARM Cortex-M3 running at up to 84 MHz 512kB Flash 64+32kB SRAM Atmel	ATSAM3X8EA-AU	ics.SVNDblib	Atmel	ATSAM3X8EA-AU	Digi-Key	ATSAM3X8EA-AU-ND	Mouser	556-ATSAM3X8EA-AU	1
103	U2	ATmega16U2-MU	Low Power AVR 8-Bit Microcontroller 16 MHz 16kB Flash Atmel	ATmega16U2-MU	ics.SVNDblib	Atmel	ATmega16U2-MU	Digi-Key	ATMEGA16U2-MU-ND	Mouser	556-ATMEGA16U2-MU	1
104	U3, U4	ISO7741DW	4 channel digital isolator 5kV 100kV/us 100 Mbps Texas Instruments	ISO7741DW	ics.SVNDblib	Texas Instruments	ISO7741DW	Digi-Key	296-44620-5-ND	Mouser	595-ISO7741DW	2
105	U5	NCP5085Q33	Low noise LDO with 3V3 output and enable ON Semiconductor	NCP5085Q33TG	ics.SVNDblib	ON Semiconductor	NCP5085Q33TG	Mouser	863-NCP5085Q33TG	Digi-Key	NCP5085Q33TG-ND	1
106	U6, U13	MC74VHC1G08DFT1G	2-Input AND Gate/CMOS Logic Level Shifter ON Semiconductor	MC74VHC1G08DFT1G	ics.SVNDblib	ON Semiconductor	MC74VHC1G08DFT1G	Digi-Key	M74VHC1G08DFT1G08DFT-ND	Mouser	863-M74VHC1G08DFT1G	2
107	U7, U8, U10	MC74ACT74	Dual D-Type Positive Edge-Triggered Flip-Flop with asynchronous set/reset ON Semiconductor	MC74ACT74DR2G	ics.SVNDblib	ON Semiconductor	MC74ACT74DR2G	Digi-Key	863-MC74ACT74DR2G	Mouser	863-MC74ACT74DR2G	3
108	U9	MC74HC30A	8-input NAND gate, high speed ON Semiconductor	MC74HC30ADG	ics.SVNDblib	ON Semiconductor	MC74HC30ADG	Digi-Key	MC74HC30ADG-ND	Mouser	863-MC74HC30ADG	1
109	U11, U12	CAT5172 100k	8-bit digital potentiometer 100k SPI ON Semiconductor	CAT5172B1-00G13	ics.SVNDblib	ON Semiconductor	CAT5172B1-00G13	Digi-Key	CAT5172B1-00G13-ND	Mouser	863-CAT5172B1-00G13	2
110	U14, U15, U16	NCV890100	1.2 A 2 MHz Automotive Buck Switching Regulator ON Semiconductor	NCV890100DR2G	ics.SVNDblib	ON Semiconductor	NCV890100DR2G	Digi-Key	NCV890100DR2G08DFT-ND	Mouser	863-NCV890100DR2G	3
111	U17	REF1933	Low-Drift Low-Power 3.3 and 1.65 V 0.1 % Voltage References Texas Instruments	REF1933ADDC	ics.SVNDblib	Texas Instruments	REF1933ADDC	Digi-Key	296-38444-1-ND	Mouser	595-REF1933ADDC	1
112	X1	16 MHz 30 ppm	XTAL 16MHz 30ppm 12pF TX Corporation	7V-36.000MAHE-T	oscillators.SVNDblib	TXC	7V-36.000MAHE-T	Digi-Key	887-1800-1-ND	Mouser	717-7V-36.000MAHE-T	1
113	X2	12 MHz 30 ppm	XTAL 12MHz 30ppm 12pF TX Corporation	7V-12.000MAHE-T	oscillators.SVNDblib	TXC	7V-12.000MAHE-T	Digi-Key	887-1793-1-ND	Mouser	717-7V-12.000MAHE-T	1
114	X3	32.768 kHz	XTAL 32.768kHz 20ppm 9pF Epson Timing	FC-135 32.7680KA-AC3	oscillators.SVNDblib	Epson	FC-135 32.7680KA-AC3	Digi-Key	SER4085CT-ND	Mouser	732-FC135-32.7680KAAC3	1