

Designator(Main Board)	Quantity	Description	Value	Tolerance	Footprint	Manufacturer	Manufacturer Part Number	Substitution Allowed	Lead Free
C1 C2 C3 C9 C10	5	CAP CER 22UF 25V X7R 1210	22uF			Murata	GRM32ER71E226ME15	Yes	Yes
C4 C14 C17	3	CAP CER 10NF 50V C0G 0603	10nF			Murata	GRM1885C1H103JA01	Yes	Yes
C5 C12 C82 C84 C89 C97 C98 C99	8	CAP CER 10UF 35V X5R 0603	10uF			Murata	GRM188R6YA106MA73	Yes	Yes
C6 C13	2	CAP CER 1UF 16V X5R 0402	1uF			Murata	GRM155R61C105KA12	Yes	Yes
C7 C11 C15 C43 C48 C50 C51 C57 C58 C60 C61 C62 C66 C67 C73 C74 C75 C76 C77 C78 C83	21	CAP CER 1UF 25V X7R 0603	1uF			Murata	GCM188R71E105KA64	Yes	Yes
C8 C19	2	CAP CER 4.7UF 6.3V X5R 0402	4.7uF			Murata	GRM155R60J475ME47D	Yes	Yes
C16 C24 C25	3	CAP CER 2.2UF 50V X5R 0603	2.2uF			Murata	GRT188R61H225KE13	Yes	Yes
C18 C26 C106	3	CAP CER 0.1UF 100V X7R 0603	0.1uF			Murata	GRM188R72A104KA35D	Yes	Yes
C20 C90	2	CAP CER 0.22UF 250V X7R 1210	0.22uF			Murata	GCJ32DR72E224KXJ1	Yes	Yes
C21	1	CAP CER 1UF 250V X7R 2220	1uF			Murata	GRJ55DR72E105KWJ1	Yes	Yes
C22	0	DNI	DNI					Yes	Yes
C23 C29 C32 C47 C53 C86	6	CAP CER 1UF 50V X5R 0603	1uF			Murata	GRT188R61H105KE13D	Yes	Yes
C27	1	CAP CER 2200PF 50V X7R 0402	2.2nF			Murata	GCM155R71H222KA37D	Yes	Yes
C28	1	CAP CER 330pF 50V X7R 0402	330pF			Murata	GRM155R71H331JA01	Yes	Yes
C30 C49 C52 C54 C59 C65 C68	7	CAP CER 1000PF 50V X7R 0402	10nF			Murata	GRM155R71H103KA88	Yes	Yes
C31	1	CAP CER 0.22UF 10V X7R 0402	0.22uF			Murata	GRM155R71A224KE01D	Yes	Yes
C33 C34 C35 C36	4	CAP ALUM 220UF 20% 160V RADIAL	220uF			Panasonic	EEU-EE2C221	Yes	Yes
C37 C38 C39 C40 C41 C42	6	CAP CER 2.2UF 250V X7R 2220 Metal Terminal	2.2uF			Murata	KRM55TR72E225MH01	Yes	Yes
C44 C45 C46	3	CAP CER 1000PF 250V X7R 0805	1nF			Murata	GCJ21AR72E102KXJ1	Yes	Yes
C55	1	CAP CER 1000PF 50V C0G/NP0 0603	1nF			Murata	GRM1885C1H102JA01J	Yes	Yes
C56 C79 C80	3	CAP CER 2.2NF 50V C0G 0603	2.2nF			Murata	GRM1885C1H222JA01	Yes	Yes
C63 C70 C71	3	CAP CER 4.7pF 50V C0G/NP0 0402	4.7pF			Murata	GJM1555C1H4R7CB01D	Yes	Yes
C64	1	CAP CER 22PF 50V C0G/NP0 0402	22pF			Murata	GCM1555C1H220JA16	Yes	Yes
C69	1	CAP CER 100PF 50V NP0 0603	100pF			TDK	C1608C0G1H101J080AA	Yes	Yes
C72	0	DNI	DNI			DNI	DNI	Yes	Yes

C81 C85	0	DNI	DNI			DNI	DNI	Yes	Yes
C87	1	CAP CER 330PF 100V C0G 0603	330pF			Murata	GCM1885C2A331JA16	Yes	Yes
C88	1	CAP CER 0.1UF 50V X7R 0402	0.1uF			Murata	GRM155R71H104ME14	Yes	Yes
C91 C92 C93	3	CAP CER 1uF 100V X7S 0805	1uF			Murata	GRM21BC72A105KE01	Yes	Yes
C94 C95 C96 C102 C103 C104	0	DNI	DNI					Yes	Yes
C100 C101 C105	3	CAP CER 470pF 50V X7R 0402	470pF			Murata	GCM155R71H471KA37D	Yes	Yes
C107	1	CAP CER 10UF 25V X5R 0603	10uF			Murata	GRT188R61E106ME13	Yes	Yes
D1	1	Green LED	150060GS75000			Würth Elektronik	150060GS75000	Yes	Yes
D2	1	Schottky Barrier Diode, 1A	S115FA			ON Semiconductor	S115FA	Yes	Yes
D3	1	Red LED	150060RS75000			Würth Elektronik	150060RS75000	Yes	Yes
D4 D5 D6	3	30 V Schottky Diode	NSR05F30NX			ON Semiconductor	NSR05F30NXT5G	Yes	Yes
D7	1	SOD-323 Schottky Diode	BAT54			ON Semiconductor	BAT54HT1G	Yes	Yes
D8	1	Surface Mount Schottky Power Rectifier	MBR130			ON Semiconductor	MBR130T1G	Yes	Yes
J1 J2 J3 J4 J5 J6 J7 J8 J12 J13 J14 J15 J19 J20 J21 J22 J23 J27 J30 J31 J32 J43 J44 J45	24	Standard 1x2pin 100mil Pitch Header	613 002 111 21			Würth Elektronik	613 002 111 21	Yes	Yes
J9	1	Standard 1x3pin 100mil Pitch Header (I2C Specific)	613 003 111 21			Würth Elektronik	613 003 111 21	Yes	Yes
J10 J11 J37 J38	4	PLASTIC HEXAGON NUT M3	709940300			Würth	709940300	Yes	Yes
J16 J26	2	PAN HEAD SCREW_M3 X 5MM CROSS SL, Offset 3D Model 13mm	97790503211			Würth	97790503211	Yes	Yes
J17 J25	2	PLASTIC SPACER STUD METRIC THREAD M3 13MM F-F	970130365			Würth	970130365	Yes	Yes
J18 J24	2	Board-to-board mezzanine connector, 120pos, 0.8mm pitch, 11.7mm height w/pegs	10139781-123402LF			Amphenol	10139781-123402LF	Yes	Yes
J28 J29 J33 J34 J35	5	Würth WP-THRSH REDCUBE 9-pin shank terminal 85A M4 thread	74651194			Würth	74651194	Yes	Yes
J36	1	5pin Screw Terminal 100mil pitch 16-30AWG 150V 10A	282834-5			TE Connectivity	282834-5	Yes	Yes
J39 J40 J46 J47	4	PLASTIC SPACER STUD METRIC THREAD M3 15MM F-M	971150365			Würth	971150365	Yes	Yes
J41 J42	2	PAN HEAD SCREW_M3 X 5MM CROSS SL	97790503211			Würth	97790503211	Yes	Yes
JP1	0	DNI	DNI			DNI	DNI	Yes	Yes
L1	1	Panasonic Auto 100uH Shielded Inductor 2.1A 333mOhm	100uH			Panasonic	ETQ-P5M101YGK	Yes	Yes
L2	1	FIXED IND 10uH 500mA 400mOhm	10uH			Murata	LQW32FT100M0HL	Yes	Yes
NT1	0	DNI	DNI					Yes	Yes
Q1 Q2	2	Single N-Channel Shielded Gate PowerTrench MOSFET, 150 V, 9.4 A, 134mOhm	FDMC86244			ON Semiconductor	FDMC86244	Yes	Yes
Q3 Q4 Q5 Q6 Q7 Q8	6	N-Channel Shielded Gate PowerTrench 150V, 7.9mOhm, 95.6A	NTMFS7D5N15MC			ON Semiconductor	NTMFS7D5N15MC	Yes	Yes
Q9 Q10 Q11 Q12	4	Small Signal MOSFET 60V 115mA 7.5 Ohm Single N-Channel SOT-23	2N7002L			ON Semiconductor	2N7002L	Yes	Yes
R1 R2 R95 R101 R103 R105	6	RES SMD 4.75K OHM 1% 1/10W 0603	4.75K			Vishay Dale	CRCW06034K75FKEA	Yes	Yes

R3 R4 R5 R8 R9 R11 R12 R14 R17 R18 R19 R20 R34 R44 R45 R46 R48 R50 R53 R64 R65 R66 R67 R68 R76 R77 R92 R96 R117 R119 R120 R121 R125 R126 R127 R128 R132 R133	38	RES SMD 10K OHM 1% 1/10W 0603	10K			Vishay Dale	CRCW060310K0FKEA	Yes	Yes
R6 R72	2	RES SMD 35.7K OHM 1% 1/10W 0603	35.7K			Vishay Dale	CRCW060335K7FKEA	Yes	Yes
R7 R10 R13 R15	4	RES SMD 464K OHM 1% 1/10W 0603	464K			Vishay Dale	CRCW0603464KFKEA	Yes	Yes
R16	0	DNI	DNI					Yes	Yes
R21 R29	2	RES SMD 10K OHM 1% 1/16W 0402	10K			Vishay Dale	CRCW040210K0FKED	Yes	Yes
R22	1	RES SMD 10K OHM 1% 1/2W 0805	10K			Panasonic	ERJ-P06F1002V	Yes	Yes
R23	1	RES SMD 40.2K OHM 1% 1/16W 0402	40.2K			Vishay Dale	CRCW040240K2FKED	Yes	Yes
R24 R26 R73 R82 R106 R107 R108 R115 R116 R118 R122 R123 R124	13	RES SMD 0 OHM JUMPER 1/10W 0603	0			Vishay Dale	CRCW06030000Z0EA	Yes	Yes
R25	1	RES SMD 422K OHM 1% 1/10W 0603	422K			Vishay Dale	CRCW0603422KFKEA	Yes	Yes
R27	1	RES SMD 2.67K OHM 1% 1/16W 0402	2.67K			Vishay Dale	CRCW04022K67FKED	Yes	Yes
R28	1	RES SMD 5.11K OHM 1% 1/16W 0402	5.11K			Vishay Dale	CRCW04025K11FKED	Yes	Yes
R30	1	RES SMD 9.09K OHM 1% 1/16W 0402	9.09K			Vishay Dale	CRCW04029K09FKED	Yes	Yes
R31	1	RES SMD 1.5K OHM 1% 1/16W 0402	1.5K			Vishay Dale	CRCW04021K50FKED	Yes	Yes
R32	1	RES SMD 69.8K OHM 1% 1/16W 0402	69.8K			Vishay Dale	CRCW040269K8FKED	Yes	Yes
R33	1	RES SMD 23.2K OHM 1% 1/16W 0402	23.2K			Vishay Dale	CRCW040223K2FKED	Yes	Yes
R35 R36 R37	3	RES 750m OHM 1% 1/2W 1206	750m			Yageo	RL1206FR-7W0R75L	Yes	Yes
R38 R39 R40	4	Terminal Sense Resistor 0.004 Ohm 1% 3W	0.004			Vishay Dale	WSL36374L000FEA	Yes	Yes
R41	0	DNI	DNI			DNI	DNI	Yes	Yes
R42 R43 R69	3	RES SMD 100K OHM 1% 1/10W 0603	100K			Vishay Dale	CRCW0603100KFKEA	Yes	Yes
R47	0	DNI	DNI			DNI	DNI	Yes	Yes
R49 R55 R78 R79 R83 R84	6	RES SMD 40.2K OHM 0.1% 1/10W 0603	40.2K			Panasonic	ERA-3AEB4022V	Yes	Yes
R51	1	RES SMD 150K OHM 1% 1/10W 0603	150K			Vishay Dale	CRCW0603150KFKEA	Yes	Yes
R52	1	RES SMD 21.5K OHM 1% 1/10W 0603	21.5K			Vishay Dale	CRCW060321K5FKEA	Yes	Yes
R54 R61 R80 R81 R87 R88 R99	8	RES SMD 10K OHM 0.1% 1/10W 0603	10K			Panasonic	ERA-3AEB103V	Yes	Yes
R56	1	RES SMD 16.5K OHM 1% 1/10W 0603	16.5K			Vishay Dale	CRCW060316K5FKEA	Yes	Yes
R57 R58 R85 R86 R89 R90	6	RES SMD 33.2 OHM 1% 1/10W 0603	33.2			Vishay Dale	CRCW060333R2FKEA	Yes	Yes
R59 R70 R71 R98	4	RES SMD 24.9K OHM 1% 1/10W 0603	24.9K			Vishay Dale	CRCW060324K9FKEA	Yes	Yes
R60	1	RES SMD 15.4K OHM 1% 1/10W 0603	15.4K			Vishay Dale	CRCW060315K4FKEA	Yes	Yes
R62	1	RES SMD 13K OHM 1% 1/10W 0603	13K			Vishay Dale	CRCW060313K0FKEA	Yes	Yes
R63	1	RES SMD 2K OHM 1% 1/10W 0603	2K			Vishay Dale	CRCW06032K00FKEA	Yes	Yes
R74	1	RES SMD 11.5K OHM 1% 1/10W 0603	11.5K			Vishay Dale	CRCW060311K5FKEA	Yes	Yes
R75 R109 R110 R111 R129 R130 R131	0	DNI	DNI					Yes	Yes
R91 R97	2	RES SMD 100 OHM 1% 1/10W 0603	100			Vishay Dale	CRCW0603100R0FKEA	Yes	Yes
R93	1	RES SMD 53.6K OHM 1% 1/10W 0603	53.6K			Vishay Dale	CRCW060353K6FKEA	Yes	Yes
R94	1	RES SMD 10 OHM 1% 1/16W 0402	10			Vishay Dale	CRCW040210R0FKED	Yes	Yes
R102	1	RES SMD 93.1K OHM 1% 1/10W 0603	93.1K			Vishay Dale	CRCW060393K1FKEA	Yes	Yes
R104	1	RES SMD 10.7K OHM 1% 1/10W 0603	10.7K			Vishay Dale	CRCW060310K7FKEA	Yes	Yes
R112 R113 R114	3	RES SMD 4.02 OHM 1% 1/8W 0805	4.02			Vishay Dale	CRCW08054R02FKEA	Yes	Yes
R134	1	RES SMD 47.5K OHM 1% 1/10W 0603	47.5K			Vishay Dale	CRCW060347K5FKEA	Yes	Yes
SW1 SW2	2	MINI SLIDE SWITCH	450301014042			Würth Elektronik	450301014042	Yes	Yes
TP1 TP2 TP3 TP4 TP5 TP6 TP7 TP8 TP9 TP10 TP11 TP12 TP13 TP14 TP15 TP16 TP17 TP18 TP19 TP20 TP21 TP23 TP24 TP25 TP26 TP27 TP28 TP29 TP30 TP31 TP33 TP34 TP35 TP36 TP37 TP38 TP39 TP41 TP42 TP43 TP44 TP45 TP46 TP47 TP49 TP50 TP51 TP52 TP53 TP54 TP55 TP56 TP57 TP58 TP59 TP60 TP61 TP62 TP63 TP64 TP65 TP66 TP67 TP68 TP69 TP70 TP74	0	DNI	DNI					Yes	Yes
TP22 TP48 TP71 TP72 TP73	0	DNI	DNI					Yes	Yes
TP32 TP40	2	PC TEST POINT COMPACT	5016			Keystone	5016	Yes	Yes
TP75 TP76 TP77	3	Passive Probe Tip Tektronix P5050 (Tan) Tip	DNI					Yes	Yes
U2	1	28V / 5A Rated Load Switch with OVP, Low On-resistance, integrated TVS	FPF3380			ON Semiconductor	FPF3380UCX	Yes	Yes
U4	1	Adjustable Output Voltage Regulator, LDO, Ultra Low Noise, Ultra Low Iq, 500 mA	NCP705			ON Semiconductor	NCP705MTADJTCG	Yes	Yes
U5	1	3.3V Voltage Regulator, LDO, Ultra Low Noise, Ultra Low Iq, 500 mA	NCP705			ON Semiconductor	NCP705MT33TCG	Yes	Yes

U6	1	Negative LDO Regulator, 100 mA, Adjustable output, Pb free	MIC5270			Microchip	MIC5270YM5-TR	Yes	Yes
U7	1	IC REG SWTCHD CAP INV 50MA 6TSOP	NCP1729			ON Semiconductor	NCP1729SN35T1G	Yes	Yes
U8	1	3MHz, 125uA Low Power Op Amp Rail-to-Rail Input/Output Single	NCS20061SQ3			ON Semiconductor	NCS20061SQ3T2G	Yes	Yes
U9	1	100 V Synchronous Buck Controller	NCP1034			ON Semiconductor	NCP1034DR2G	Yes	Yes
U10	1	Digital Temperature Sensor with 2-wire Interface	NCT375			ON Semiconductor	NCT375MNR2G	Yes	Yes
U11	1	2-Input NOR Gate with Open Drain Output 2.0-5.5V	MC74VHC1G03			ON Semiconductor	MC74VHC1G03DFT1G	Yes	Yes
U12	1	LDO Regulator, 100 mA, 18V max input, 1 uA IQ 5V output	NCP711ASN500			ON Semiconductor	NCP711ASN500T1G	Yes	Yes
U13	1	Comparator, High Speed, 50 ns, 1.8V-5.5V, Rail-to-Rail Input/Output Open Drain	NCS2252SQ2			ON Semiconductor	NCS2252SQ2T2G	Yes	Yes
U14 U18 U19	3	Precision Operational Amplifier, Low Offset, 10MHz, Rail-to-Rail Input/Output	NCS20166			ON Semiconductor	NCS20166SN2T1G	Yes	Yes
U15 U20 U21	3	Precision Operational Amplifier, 25uV Offset, Zero-Drift, 36 V Supply, 2 MHz Single	NCS21911			ON Semiconductor	NCS21911SN2T1G	Yes	Yes
U16 U17 U1 U23 U3	5	3MHz, 125uA Low Power Op Amp Rail-to-Rail Input/Output Dual	NCS20062			ON Semiconductor	NCS20062DMR2G	Yes	Yes
U22	1	Non-sync Boost Converter, 1.6MHz, 1A, 2.7-5.5V VIN, 20V max output	FAN5331			ON Semiconductor	FAN5331SX	Yes	Yes
U24	1	150V, 100mA Very High Voltage Linear Regulator 1.23V-15V adjustable output	NCP781BMNADJ			ON Semiconductor	NCP781BMNADJTAG	Yes	Yes
U25 U26 U27	3	NCP81075 High Voltage High and Low Side Driver	NCP81075			ON Semiconductor	NCP81075DR2G	Yes	Yes