



Bill of Materials for the SEC-EPS-12V-APM19-GEVB Reference Design Board (Power Board)

Designator(Main Board)	Quantity	Description	Value	Tolerance	Footprint	Manufacturer	Manufacturer Part Number	Substitution Allowed	Lead Free
U30	1	IC, Secondary Side LLC Controller with SR Control, SOP16				onsemi	NCV4390DR2G	No	Yes
U48	1	IC, Quad Operational Amplifier, Rail to Rail I/O, SOP14				onsemi	NCV33204DR2G	No	Yes
U23, U24	2	IC, Quad 2-Input Multiplexer, SOP16				onsemi	NLV74AC157DR2G	No	Yes
U33	1	IC, Hex Inverter, SOP14				onsemi	NLV74HC04ADR2G	No	Yes
U80	1	IC, Buck Regulator, SOP8				onsemi	NCP3170BDR2G	No	Yes
Q31, Q32	2	N-Channel Small Signal MOSFET 60V, 7.5Ω, SOT-23-3L				onsemi	2V7002LT1G	No	Yes
Q33	1	Transistor, PNP, -40 V, 2.0 A, SOT-23-3L				onsemi	NSV40200LT1G	No	Yes
Q34	1	Transistor, NPN, 40 V, 0.2 A, SOT-23-3L				onsemi	MMBT3904LT1G	No	Yes
D32, D33, D34	3	Switching Diode 0.2A 100V, SOD323				onsemi	BAS16H	No	Yes
CC, CV, Power	3	LED D=5mm THT Green				WURTH	151051VS04000	No	Yes
R30, R65	2	Chip resistor 0805 10ohm-J				Any	10	Yes	Yes
R6, R8	2	Chip resistor 0805 100ohm-J				Any	100	Yes	Yes
R12, R13, R86	3	Chip resistor 0805 220ohm-J				Any	220	Yes	Yes
R41, R43, R45, R47	4	Chip resistor 0805 470ohm-J				Any	470	Yes	Yes
R20, R22	2	Chip resistor 0805 1Kohm-J				Any	1K	Yes	Yes
R40, R42, R44, R46	4	Chip resistor 0805 1.2Kohm-J				Any	1.2K	Yes	Yes
R85	1	Chip resistor 0805 1.5Kohm-J				Any	1.5K	Yes	Yes
R1, R2, R11, R49, R51, R52, R53, R55	8	Chip resistor 0805 2.2Kohm-J				Any	2.2K	Yes	Yes
R54, R71	2	Chip resistor 0805 4.7Kohm-J				Any	4.7K	Yes	Yes
R4, R5, R83	3	Chip resistor 0805 4.75Kohm-F				Any	4.75K	Yes	Yes
R7	1	Chip resistor 0805 6.2Kohm-J				Any	6.2K	Yes	Yes
R33, R37, R48, R59, R61, R62, R63, R64, R66, R80	10	Chip resistor 0805 10Kohm-J				Any	10K	Yes	Yes
R9, R10	2	Chip resistor 0805 12.7Kohm-F				Any	12.7K	Yes	Yes
R3, R34, R36,	2	Chip resistor 0805 20Kohm-J				Any	20K	Yes	Yes
R35	1	Chip resistor 0805 24Kohm-J				Any	24K	Yes	Yes
R67	1	Chip resistor 0805 30Kohm-J				Any	30K	Yes	Yes
R32	1	Chip resistor 0805 51Kohm-J				Any	51K	Yes	Yes
R56	1	Chip resistor 0805 68Kohm-J				Any	68K	Yes	Yes
R38	1	Chip resistor 0805 82Kohm-J				Any	82K	Yes	Yes
R21	1	Chip resistor 0805 120Kohm-J				Any	120K	Yes	Yes
R58	1	Chip resistor 0805 150Kohm-J				Any	150K	Yes	Yes
R50	1	Chip resistor 0805 200Kohm-J				Any	200K	Yes	Yes
R31	1	Chip resistor 0805 1Mohm-J				Any	1M	Yes	Yes
R19	1	Chip resistor 1206 100ohm-J				Any	100	Yes	Yes
C6, C7, C38	3	MLCC 0805-50V-10pF-J-NP0				WURTH	885012007051	Yes	Yes
C6, C7, C38	3	MLCC 0805-250V-10pF-J-NP0				Murata	GCM21A5C2E100JX01	Yes	Yes
C3, C4, C5, C9, C10, C11, C12, C21	8	MLCC 0805-450V-100pF-J-NP0				TDK	CGA4C4C0G2W101J	Yes	Yes
C3, C4, C5, C9, C10, C11, C12, C21	8	MLCC 0805-450V-100pF-J-NP0				Murata	GCM21A5C2J101JX01	Yes	Yes
C33, C37, C39	3	MLCC 0805-450V-471J-NP0				TDK	CGA4C4C0G2W471J	Yes	Yes
C33, C37, C39	3	MLCC 0805-450V-471J-NP0				Murata	GCM21A5C2J471JX01	Yes	Yes
C1, C2, C16, C45	4	MLCC 0805-100V-102J-NP0				TDK	CGA4C2C0G2A102J	Yes	Yes
C35	1	MLCC 0805-50V-222J-NP0				TDK	CGA4C2C0G1H222J	Yes	Yes
C82	1	MLCC 0805-50V-103J-NP0				TDK	CGA4C2C0G1H103J	Yes	Yes
C82	1	MLCC 0805-250V-103J-NP0				Murata	GCM21B5C2E103JX0A	Yes	Yes
C34	1	MLCC 0805-50V-223J-NP0				TDK	CGA4J2C0G1H223J125AA	Yes	Yes
C34	1	MLCC 0805-50V-223J-NP0				Murata	GCM21B5C1H223JA16	Yes	Yes
C8, C13, C14, C15, C30, C32, C41, C44, C81, C83	10	MLCC 0805-100V-104K-X7R				TDK	CGA4J2X7R2A104K	Yes	Yes
C8, C13, C14, C15, C30, C32, C41, C44, C81, C83	10	MLCC 0805-100V-104K-X7R				Murata	GCM21BR72A104KA37L	Yes	Yes
C36	1	MLCC 0805-50V-105K-X7R				TDK	CGA4J3X7R1H105K125AB	Yes	Yes
C36	1	MLCC 0805-50V-105K-X7R				Murata	GCM21BR71H105KA03L	Yes	Yes
C25, C26, C31, C43	4	MLCC 0805-25V-225K-X7R				TDK	CGA4J3X7R1E225K	Yes	Yes
C25, C26, C31, C43	4	MLCC 0805-25V-225K-X7R				Murata	GCM21BR71E225KA73L	Yes	Yes
C80, C84	2	MLCC 1206-25V-106K-X7R				TDK	CGA5L1X7R1E106K	Yes	Yes
C80, C84	2	MLCC 1206-25V-106K-X7R				Murata	GCM31CC71E106KA03	Yes	Yes
C60	1	MLCC 1210-25V-226K-X7R				TDK	CGA6P3X7R1E226M250AB	Yes	Yes

C60	1	MLCC 1210-25V-226K-X7R				Murata	GCM32EC71E226KE36	Yes	Yes
L80	1	SMD Inductor 7X7X3.5mm-22uH-1.6A				WURTH	784778220	Yes	Yes
L80	1	SMD Inductor 7X7X4.5mm-22uH-1.7A				TDK	SPM7045VT-220M-D	Yes	Yes
L80	1	SMD Inductor 7X7X4.5mm-22uH-2.9A				Panasonic	ETOP4M220KFM	Yes	Yes
L80	1	SMD Inductor 7X6X2.8mm-22uH-2.5A				Sunlord	AMP0603H220MT	Yes	Yes
IOH1	1	WR-PHD Socket Header, THT, pitch 2.54mm, Single Row, Vertical, 10pin				WURTH	61301011821	No	Yes
IOL1_POWER_MCU	2	WR-PHD Socket Header, THT, pitch 2.54mm, Single Row, Vertical, 8pin				WURTH	61300811821	No	Yes
AD1	1	WR-PHD Socket Header, THT, pitch 2.54mm, Single Row, Vertical, 6pin				WURTH	61300611821	No	Yes
J1	1	WR-PHD Pin Header, THT, pitch 2.54mm, Single Row, Vertical, 3pin				WURTH	61300311121	No	Yes
FAULT, HSAA, HSAB, HSUA, HSUB, LSAA, LSAB, LSUA, LSUB	9	WR-PHD Pin Header, THT, pitch 2.54mm, Single Row, Vertical, 2pin				WURTH	61300211121	No	Yes
To_Power_Board	1	WR-PHD Socket Header, THT, pitch 2.54mm, Dual Row, Vertical, 26pin				WURTH	61302621821	No	Yes
+, -, SELECT	3	WS-TATV THT Tact Switch 6x6mm, height 5mm, 260gf				WURTH	4.30156E+11	No	Yes
+12V	1	Low Voltage Power Supply Connector				Any	PWR2.5	No	Yes

Note: When reference designators are replicated in adjacent rows, this means that substitutions of these parts are possible from the listed manufacturers.



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Designator(Main Board)	Quantity	Description	Value	Tolerance	Footprint	Manufacturer	Manufacturer Part Number	Substitution Allowed	Lead Free
U180,	1	IC 12-Bit Low Power SAR ADC, SSop-8				onsemi	NCD98010XDPT3G	No	Yes
U200, U201	2	IC High Speed Quad-Channel Digital Isolator, SOIC-16W				onsemi	NCID9401	No	Yes
U20, U30, U40, U50, U120, U130, U140, U150	8	IC +/-8A Galvanic Isolated Gate Driver, SOIC-16W				onsemi	NCV57000DWR2G	No	Yes
U60, U70,	2	IC 800V Switcher, 100KHz, PDIP-7				onsemi	FSL538APG	No	Yes
U90,	1	IC 1000V Switcher, 50KHz, PDIP-7				onsemi	FSL4110LRN	No	Yes
U110,	1	IC Buck Switcher, 1.2 A, 2 MHz, SO8EP				onsemi	NCV890100PDR2G	No	Yes
U93,	1	IC LDO 400mA, 3.3V, SOT-223				onsemi	NCV4274CST33T3G	No	Yes
U4, U81, U181, U211	4	IC Shunt Regulator, SOT23-3L				onsemi	SC431AVSNT1G	No	Yes
U82,	1	IC Shunt Regulator, Sop-8				onsemi	NCV431AIDR2G	No	Yes
U92,	1	IC LDO, 3.3V, 50 mA, Ultra-Low Iq, SC-88A (SC70-5)				onsemi	NCV8715SQ33T2G	No	Yes
U6,	1	IC Current Sense Amplifier, SC70-6				onsemi	NCV210SQT2G	No	Yes
U160,	1	IC Quad, Single Supply Comparator, Sop-14				onsemi	NCV2901DR2G	No	Yes
U91,	1	IC RRO OP Amplifier, SOT-23 5L				onsemi	NCV2003SN2T1G	No	Yes
Q20, Q30, Q40, Q50	4	SIC MOSFET 40mΩ 1200V, TO-247				onsemi	NVHL040N120SC1	No	Yes
Q120, Q130, Q140, Q150	4	SIC MOSFET 20mΩ 900V, TO-247				onsemi	NVHL020N090SC1	No	Yes
Q81	1	MOSFET 600V 11.5 Ω, TO92				onsemi	FQN1N60CTA	No	Yes
Q200	1	Transistor 40V 0.6A NPN, SOT23				onsemi	SMMBT401LT1G	No	Yes
Q160, Q201	2	Transistor 40V 0.6A PNP, SOT23				onsemi	SMMBT2907ALT1G	No	Yes
D71, D99, D120, D130, D140, D150	6	Diode 600V 1A 75nS, SOD-123FL				onsemi	NRVUS1JFA	No	Yes
D60, D73	2	Diode 1000V 1A, SMA				onsemi	NRVA400T3G	No	Yes
D20, D30, D40, D50, D66, D90	6	Diode 1000V 1.5A 75nS, SMA				onsemi	NRVUS2MA	No	Yes
D63, D74	2	Diode 100V 0.8A 150nS, SOD-123FL				onsemi	NRVHPRS1BFA	No	Yes
D76, D78, D80, D86, D100, D102	6	Schottky Diode 2A 150V, SOD-123FL				onsemi	NRVBS215FA	No	Yes
D111	1	Schottky Diode 1A 20V, SOD-123FL				onsemi	NRVB120VLSFT1G	No	Yes
D75	1	Schottky Diode 3A 60V, SOD-123FL				onsemi	NRVBSS36FA	No	Yes
D211	2	Schottky Diode Dual 0.2A 30V, SOT-23-3L				onsemi	NSVBAT54SWT1G	No	Yes
D70, D91, D110, D191, D192, D194	6	Switching Diode 0.2A 100V, SOD323				onsemi	BAS16H	No	Yes
D77, D79, D81, D101, D103	5	ZENER Diode 0.5W 4.7V, SOD123				onsemi	SZMMSZ4V7T1G	No	Yes
Power	1	LED D=5mm THT Green				WURTH	151051VS04000	No	Yes
Fault	1	LED D=5mm THT Red				WURTH	151051RS11000	No	Yes
R24, R34, R44, R54, R63, R73, R124, R134, R144, R154	10	Chip resistor 0805 2.2ohm-J				Any		Yes	Yes
R25, R35, R37, R38, R45, R55, R57, R58, R125, R135, R137, R138, R145, R155, R157, R158	16	Chip resistor 0805 4.7ohm-J				Any		Yes	Yes
R171, R189, R207, R232	4	Chip resistor 0805 10ohm-J				Any		Yes	Yes
R26, R36, R46, R56, R111, R126, R136, R146, R156, R187, R188, R202, R203, R205, R208	15	Chip resistor 0805 100ohm-J				Any		Yes	Yes
R113	1	Chip resistor 0805 300ohm-J				Any		Yes	Yes
R177, R178	2	Chip resistor 0805 330ohm-J				Any		Yes	Yes
R190	1	Chip resistor 0805 470ohm-J				Any		Yes	Yes
R20, R30, R40, R50, R120, R130, R140, R150, R167, R200, R211, R219	12	Chip resistor 0805 1Kohm-J				Any		Yes	Yes
R162,	1	Chip resistor 0805 1.8Kohm-J				Any		Yes	Yes
R4, R27, R39, R47, R59, R112, R127, R139, R147, R159, R166, R172, R193, R240,	14	Chip resistor 0805 2.2Kohm-J				Any		Yes	Yes
R85, R87, R88, R89, R165, R209	6	Chip resistor 0805 4.7Kohm-J				Any		Yes	Yes
R6, R164,	2	Chip resistor 0805 4.75Kohm-F				Any		Yes	Yes
R5	1	Chip resistor 0805 6.65Kohm-F				Any		Yes	Yes
R23, R33, R43, R53, R64, R83, R110, R123, R133, R143, R153, R161, R163, R210, R212, R217	16	Chip resistor 0805 10Kohm-J				Any		Yes	Yes
R168,	1	Chip resistor 0805 11.5Kohm-F				Any		Yes	Yes
R169	1	Chip resistor 0805 12Kohm-J				Any		Yes	Yes
R91, R92, R184	3	Chip resistor 0805 12.7Kohm-F				Any		Yes	Yes
R72, R82	2	Chip resistor 0805 20Kohm-J				Any		Yes	Yes
R160	1	Chip resistor 0805 27Kohm-J				Any		Yes	Yes

R86	1	Chip resistor 0805 39Kohm-J			Any		Yes	Yes
R66, R67	2	Chip resistor 0805 43Kohm-J			Any		Yes	Yes
R68	1	Chip resistor 0805 56Kohm-J			Any		Yes	Yes
R62, R70, R90	3	Chip resistor 0805 100Kohm-J			Any		Yes	Yes
R65	1	Chip resistor 0805 220Kohm-J			Any		Yes	Yes
R21, R22, R31, R32, R41, R42, R51, R52, R121, R122, R131, R132, R141, R142, R151, R152	16	Chip resistor 1206 4.7ohm-J			Any		Yes	Yes
R10, R11	2	Chip resistor 1206 100ohm-J			Any		Yes	Yes
R15, R16	2	Chip resistor 1206 150ohm-J			Any		Yes	Yes
R213	1	Chip resistor 1206 1Kohm-J			Any		Yes	Yes
R76, R77, R78, R79, R80, R81	6	Chip resistor 1206 2.2Kohm-J			Any		Yes	Yes
R100, R101, R102, R103	4	Chip resistor 1206 3.9Kohm-J			Any		Yes	Yes
R71, R84	2	Chip resistor 1206 47Kohm-J			Any		Yes	Yes
R12, R13, R14	3	Chip resistor 1206 150Kohm-J			Any		Yes	Yes
R60, R61, R74, R75	4	Chip resistor 1206 470Kohm-J			Any		Yes	Yes
R93, R94, R95, R96, R97, R98, R105, R106, R180, R181, R182, R183, R195, R196, R197, R250, R251, R252	18	Chip resistor 1206 1Mohm-J			Any		Yes	Yes
R260, R261, R262	3	Chip resistor 1206 3Mohm-J			Any		Yes	Yes
R230, R231	2	Chip resistor 2512 2mohm-F			SART	SMA25A2FR002T	Yes	Yes
R230, R231	2	Chip resistor 2512 2mohm-F			Panasonic	ERJMS4SF2M0*	Yes	Yes
C11, C12, C21, C26, C27, C31, C36, C37, C41, C46, C47, C51, C56, C57, C121, C126, C127, C131, C136, C137, C141, C146, C147, C151, C156, C157, C180, C183, C184, C202, C205, C208, C210	33	MLCC 0805-450V-100pF-J-NP0			TDK	CGA4C4C0G2W101J	Yes	Yes
C11, C12, C21, C26, C27, C31, C36, C37, C41, C46, C47, C51, C56, C57, C121, C126, C127, C131, C136, C137, C141, C146, C147, C151, C156, C157, C180, C183, C184, C202, C205, C208, C210	33	MLCC 0805-450V-100pF-J-NP0			Murata	GCM21A5C2J101JX01	Yes	Yes
C64, C163	2	MLCC 0805-450V-471J-NP0			TDK	CGA4C4C0G2W471J	Yes	Yes
C64, C163	2	MLCC 0805-450V-471J-NP0			Murata	GCM21A5C2J471JX01	Yes	Yes
C62, C66, C72, C73, C88, C164, C169, C204, C239, C240	10	MLCC 0805-100V-102J-NP0			TDK	CGA4C2C0G2A102J	No	Yes
C112	1	MLCC 0805-50V-222J-NP0			TDK	CGA4C2C0G1H222J	No	Yes
C65, C69, C85	3	MLCC 0805-50V-223J-NP0			TDK	CGA4J2C0G1H223J125AA	Yes	Yes
C65, C69, C85	3	MLCC 0805-50V-223J-NP0			Murata	GCM21B5C1H223JA16	Yes	Yes
C7, C8, C24, C34, C44, C54, C61, C70, C92, C111, C113, C124, C134, C144, C154, C160, C161, C162, C170, C181, C182, C203, C212, C217	24	MLCC 0805-100V-104K-X7R			TDK	CGA4J2X7R2A104K	Yes	Yes
C7, C8, C24, C34, C44, C54, C61, C70, C92, C111, C113, C124, C134, C144, C154, C160, C161, C162, C170, C181, C182, C203, C212, C217	24	MLCC 0805-100V-104K-X7R			Murata	GCM21BR72A104KA37L	Yes	Yes
C22, C32, C42, C52, C91, C93, C122, C132, C142, C152, C201, C206	12	MLCC 0805-50V-105K-X7R			TDK	CGA4J3X7R1H105K125AB	Yes	Yes
C22, C32, C42, C52, C91, C93, C122, C132, C142, C152, C201, C206	12	MLCC 0805-50V-105K-X7R			Murata	GCM21BR71H105KA03L	Yes	Yes
C25, C35, C45, C55, C125, C135, C145, C155	8	MLCC 0805-25V-225K-X7R			TDK	CGA4J3X7R1E225K	Yes	Yes
C25, C35, C45, C55, C125, C135, C145, C155	8	MLCC 0805-25V-225K-X7R			Murata	GCM21BR71E225KA73L	Yes	Yes
C100, C102	2	MLCC 1206-50V-475K-X7R			TDK	CGA5L3X7R1H475K	Yes	Yes
C100, C102	2	MLCC 1206-50V-475K-X7R			Murata	GCM31CC71H475KA03	Yes	Yes
C5, C74, C77, C79, C80, C87, C90, C110, C114, C115	10	MLCC 1206-25V-106K-X7R			TDK	CGA5L1X7R1E106K	Yes	Yes
C5, C74, C77, C79, C80, C87, C90, C110, C114, C115	10	MLCC 1206-25V-106K-X7R			Murata	GCM31CC71E106KA03	Yes	Yes
C63	1	MLCC 1206-50V-104J-C0G			TDK	CGA5L2C0G1H104J160AA	Yes	Yes
C63	1	MLCC 1206-50V-104J-C0G			Murata	GCM31C5C1H104JA16	Yes	Yes
C60, C75, C214, C260, C261	5	MLCC 1206-630V-222K-X7R			TDK	CGA5H4X7R2J222K	Yes	Yes
C60, C75, C214, C260, C261	5	MLCC 1206-630V-222K-X7R			Murata	GCJ31BR72J222KXJ1	Yes	Yes
C20, C23, C30, C33, C40, C43, C50, C53, C86, C116, C120, C123, C130, C133, C140, C143, C150, C153	18	MLCC 1210-25V-226K-X7R			TDK	CGA6P3X7R1E226M250AB	Yes	Yes
C20, C23, C30, C33, C40, C43, C50, C53, C86, C116, C120, C123, C130, C133, C140, C143, C150, C153	18	MLCC 1210-25V-226K-X7R			Murata	GCM32EC71E226KE36	Yes	Yes
C67	1	MLCC 1210-630V-154K-X7T			TDK	CGA6M1X7T2J154K200AC	Yes	Yes
C67	1	MLCC 1210-630V-154K-X7T			Murata	GC355DD72J154KX01	Yes	Yes
C68, C99, C128, C129, C148, C229	6	MLCC 2220-630V-105M-X7T			TDK	CAA572X7T2J105M	Yes	Yes
C68, C99, C128, C129, C148, C229	6	MLCC 2220-630V-105M-X7T			Murata	KC355D7LQ105MV01	Yes	Yes
C76	1	MLCC 2220-35V-157M-X7T			TDK	CAA573X7R1E157M	No	Yes
C1, C10	2	THT Film Capacitor 1uF, 1100V			Panasonic	ECWFG1B105J	Yes	Yes
C1, C10	2	THT Film Capacitor X2 470nF, 1000V			WURTH	890493427007CS	Yes	Yes
C6	1	Film Cap 800V 30uF PP			Panasonic	EZPV80306MTB	No	Yes
C2, C3	2	E-Cap 450V-680uF-105 (35X57mm)			WURTH	8.61141E+11	Yes	Yes
C2, C3	2	E-Cap 450V-680uF-105 (35X57mm)			TDK	B43508A5687M062	Yes	Yes
CT10	1	Current Transformer EE13/7/4			WURTH	750316796	No	Yes
CT20	1	Current Transformer EE13/6/6			WURTH	750344930	No	Yes

T60	1	Auxiliary Power Transformer B to G PQ2620/14p				WURTH	750344929	No	Yes
T70	1	Auxiliary Power Transformer G to B PQ2620/14p				WURTH	750344928	No	Yes
T71, T72	2	Pulse Transformer EE13/6/6/ 1:1 10-Terminal, THT				WURTH	750344931	No	Yes
T41	1	Pulse Transformer EE8 56:1 4-Terminal, THT				WURTH	750345072	No	Yes
L190	1	SMD Inductor 3225-100uH-0.12A				TDK	NLCV32T-101K-EFD	Yes	Yes
L190	1	SMD Inductor 3225-100uH-0.26A				Murata	LQH3NPH101MMEL	Yes	Yes
L190	1	SMD Inductor 3225-100uH-0.3A				WURTH	74403042101	Yes	Yes
L90	1	Radial Leaded Inductor 1014, 2200 uH, 0.48 A				WURTH	7447480222	No	Yes
L110	1	SMD Inductor 7X7X3.5mm-22uH-1.6A				WURTH	784778220	Yes	Yes
L110	1	SMD Inductor 7X7X4.5mm-22uH-1.7A				TDK	SPM7045VT-220M-D	Yes	Yes
L110	1	SMD Inductor 7X7X4.5mm-22uH-2.9A				Panasonic	ETQP4M220KFM	Yes	Yes
L110	1	SMD Inductor 7X6X2.8mm-22uH-2.5A				Sunlord	AMP0603H220MT	Yes	Yes
Outside of the board	1	Main transformer				Sunlord	ATWPPQ655462B202T	Yes	Yes
Outside of the board	1	Main transformer				Magsonder	PTX6R6K-17025-r	Yes	Yes
Control Interface	1	Male Box Header WR-BHD, THT, Vertical, 2.54 mm, 26 pins				WURTH	61202621621	No	Yes
VBUS+, VBUS-, VBAT+, VBAT-, TransUA, TransUB, TransAA, TransAB	8	Connector 5mm Screw type, 200X300mil				WURTH	74760050	No	Yes
FAN1, FAN2	2	Connector 2.54mm 2Pin				Any	Header 4	Yes	Yes
HS1, HS2	2	Heat Sink				Any	80x60x20	Yes	Yes
HS1, HS2	2	FAN 60X60X25mm 12V 0.27A				DELTA	AFB0612SH	No	Yes

Note: When reference designators are replicated in adjacent rows, this means that substitutions of these parts are possible from the listed manufacturers.



Bill of Materials for the SEC-6K6W-CLLC-GEVK Reference Design Board (Power Board)

Designator (Main Board)	Quantity	Description	Value	Tolerance	Footprint	Manufacturer	Manufacturer Part Number	Substitution Allowed	Lead Free
<b>3 Row Resonant Capacitor Board</b>									
C1, C2, C3, C4, C5, C6, C7, C9, C10, C11, C21, C22, C23, C24, C25, C26, C28, C29, C30, C31, C41, C42, C43, C44, C45, C46, C48, C49, C50, C51,	30	MLCC 1210-1000V-223J-C0G				TDK	CGA6P1C0G3A223JT0Y0N	Yes	Yes
C1, C2, C3, C4, C5, C6, C7, C9, C10, C11, C21, C22, C23, C24, C25, C26, C28, C29, C30, C31, C41, C42, C43, C44, C45, C46, C48, C49, C50, C51,	30	MLCC 1210-630V-223J-C0G				Murata	GCM32E5C2J223JX03L	Yes	Yes
<b>1 Row Resonant Capacitor Board</b>									
C1, C2, C3, C4, C5, C6, C7, C8, C9, C10, C11, C12	12	MLCC 1210-1000V-223J-C0G				TDK	CGA6P1C0G3A223JT0Y0N	Yes	Yes
C1, C2, C3, C4, C5, C6, C7, C8, C9, C10, C11, C12	12	MLCC 1210-630V-223J-C0G				Murata	GCM32E5C2J223JX03L	Yes	Yes

Note: When reference designators are replicated in adjacent rows, this means that substitutions of these parts are possible from the listed manufacturers.