

Bill of Materials for the LC823450XGEVK Evaluation Kit



Designator	Quantity	Description	Value	Tolerance	Footprint	Manufacturer	Manufacturer Part Number	Substitution Allowed	Lead Free
ANT1	1	Chip antenna	2400-2500MHz	-	8.0x3.0(mm)	TAIYO YUDEN	AH083F245001	No	Yes
C21, C22	2	Capacitor	3pF	±0.25pF	1.6x0.8(mm)	TDK	C1608CH1H030C	Yes	Yes
C32, C33	2	Capacitor	10pF	±0.5pF	1.6x0.8(mm)	TDK	C1608C0G1H100D080AA	Yes	Yes
C110	1	Capacitor	2200pF		1.6x0.8(mm)	Murata KEMET	GCM1885C1H222JA16D C0603C222K2RACTU	Yes	Yes
C111, C121	2	Capacitor	680pF	±10%	1.6x0.8(mm)	TDK KEMET	C1608JB1H681K C0603C681J5GACTU	Yes	Yes
C24, C94, C97, C113, C115, C119, C123	7	Capacitor	1nF	±5%	1.6x0.8(mm)	Murata	GRM1885C1E102JA01D	Yes	Yes
C6, C9	2	Capacitor	10nF	±5%	1.6x0.8(mm)	Murata	GRM1885C1H103JA01D	Yes	Yes
C31	1	Capacitor	15nF	±10%	1.6x0.8(mm)	Murata	GRM188B11H153KA01D	Yes	Yes
C114, C122	2	Capacitor	39nF	±10%	1.0x0.5(mm)	Murata	GRM155R71E393KA88D	Yes	Yes
C2, C3, C5, C8, C10, C11, C12, C13, C14, C15, C16, C17, C18, C19, C20, C23, C25, C26, C27, C28, C29, C35, C36, C37, C38, C39, C40, C42, C44, C46, C47, C48, C49, C50, C51, C52, C54, C56, C58, C59, C61, C63, C65, C71, C72, C73, C78, C79, C92, C93, C95, C96, C108, C116, C120, C124	56	Capacitor	100nF	-20 ~ +80%	1.6x0.8(mm)	Samsung	CL10F104ZA8NNNC	Yes	Yes
C30	1	Capacitor	330nF	±10%	1.6x0.8(mm)	Murata	GRM188B11A334KA61D	Yes	Yes
C45, C76, C77, C80, C81, C82, C83, C84, C85, C86, C87, C88, C98, C99, C100, C101, C102, C103, C104, C105, C106, C107, C117, C118	24	Capacitor	1uF	±20%	1.6x0.8(mm)	Murata	GRM188R61A105MA61D	Yes	Yes
C41, C43, C89, C90, C91	5	Capacitor	2.2uF	±20%	1.6x0.8(mm)	Murata	GRM188R61A225ME34D	Yes	Yes
C112	1	Capacitor	4.7uF	±10%	1.6x0.8(mm)	Murata	GRM188R61A475KE15D	Yes	Yes
C4, C7, C53, C55, C57, C60, C62, C64, C66, C67, C109	11	Capacitor	10uF	±10%	1.6x0.8(mm)	Murata	GRM188R61A106KE69D	Yes	Yes
C1, C34	2	Capacitor	33uF	±20%	3.2x1.6(mm)	TDK	C3216X5R0J336M130AC	Yes	Yes
C68, C69, C70, C74, C75	5	Capacitor	220uF/4V(B2)	±20%	3.3x2.7(mm)	AVX	F950J227MBAAQ2	No	Yes

R2, R4, R6, R7, R9, R11, R13, R15, R19, R23, R26, R28, R29, R30, R31, R32, R34, R36, R44, R45, R46, R47, R48, R50, R56, R57, R63, R64, R91, R92, R93, R95, R98, R99, R100, R108, R113, R118, R120, R123, R124, R125, R126, R127, R128, R133, R135, R136, R137, R138, R143, R145, R165, R166, R167, R168, R175, R183, R184, R185, R188, R191, R192	63	Register	0 ohm	±5%	1.6x0.8(mm)	ROHM	MCR03EZPJ000	Yes	Yes
R169, R179	2	Register	0.5 ohm	±1%	1.6x0.8(mm)	YAGEO	RL0603FR-070R499L	No	Yes
R111, R112	2	Register	4.7 ohm	±1%	1.6x0.8(mm)	KOA	RK73H1JTTD4R70F	Yes	Yes
R77	1	Register	33 ohm	±0.5%	1.6x0.8(mm)	Panasonic	ERJ3RED33R0V	Yes	Yes
R3	1	Register	100 ohm	±0.5%	1.6x0.8(mm)	Panasonic	ERJ3RBD1000V	Yes	Yes
R17	1	Register	560 ohm	±0.5%	1.6x0.8(mm)	Panasonic	ERJ3RBD5600V	Yes	Yes
R69, R70	2	Register	750 ohm	±0.5%	1.6x0.8(mm)	Panasonic	ERJ3RBD7500V	Yes	Yes
R61, R66, R68, R72, R119, R151	6	Register	1k ohm	±0.5%	1.6x0.8(mm)	Panasonic	ERJ3RBD1001V	Yes	Yes
R58, R59, R105, R106	4	Register	2k ohm	±0.5%	1.6x0.8(mm)	KAMAYA ELECTRIC Susumu	RGC1/16C202DTP RR0816P-202-D	Yes	Yes
R152	1	Register	2.2k ohm	±0.5%	1.6x0.8(mm)	Panasonic Vishay	ERJ3RBD2201V CRCW06032K20FKEA	Yes	Yes
R40, R41, R42, R49, R51, R153	6	Register	4.7k ohm	±1%	1.6x0.8(mm)	TE Connectivity ROHM	CRG0603F4K7 MCR03EZPJ472	Yes	Yes
R80, R83	2	Register	5.1k ohm	±0.5%	1.6x0.8(mm)	Panasonic	ERJ3RBD5101V	Yes	Yes
R195	1	Register	6.8k ohm	±5%	1.6x0.8(mm)	ROHM Panasonic	MCR03EZPJ682 ERJPA3F6801V	Yes	Yes
R78, R79, R81, R82, R84, R85, R86, R88, R89, R90, R94, R96, R102, R107, R110, R114, R115, R116, R129, R130, R131, R132, R139, R140, R150, R154, R156, R171, R172, R180, R189	31	Register	10k ohm	±5%	1.6x0.8(mm)	Panasonic	MCR03EZPJ103	Yes	Yes
R181, R182, R186, R187	4	Register	10k ohm 0.1%	±0.1%	1.6x0.8(mm)	Panasonic	ERA3YEB103V	Yes	Yes
R27	1	Register	12k ohm 1%	±0.5%	1.6x0.8(mm)	Panasonic	ERJ3RBD1202V	Yes	Yes
R160	1	Register	16.9k ohm	±0.1%	1.6x0.8(mm)	Panasonic Vishay	ERA3AEB1692V CRCW060368K0FKEA	Yes	Yes
R159	1	Register	20k ohm	±0.5%	1.6x0.8(mm)	Panasonic ROHM	ERJ3RBD2002V MCR03EZPJ203	Yes	Yes
R155	1	Register	22k ohm	±0.5%	1.6x0.8(mm)	Panasonic Susumu	ERJ3RBD2202V RR0816P-223-D	Yes	Yes

R141, R142, R144	3	Register	33k ohm	±1%	1.6x0.8(mm)	Panasonic	ERJP03F3302V	Yes	Yes
R24	1	Register	39k ohm	±0.5%	1.6x0.8(mm)	Panasonic TE Connectivity	ERJ3RBD3902V RK73H1JTTD3902F	Yes	Yes
R161	1	Register	45.3k ohm	±0.1%	1.6x0.8(mm)	TE Connectivity Vishay	RN73C1J45K3B CRCW060345K3FKEA	Yes	Yes
R20, R21, R22, R33, R35, R37, R38, R39, R53, R54, R55, R62, R75, R76, R103, R104, R134, R147, R157, R158, R163, R164, R178, R193, R194	25	Register	47k ohm	±5%	1.6x0.8(mm)	ROHM	MCR03EZPJ473	Yes	Yes
R25	1	Register	68k ohm	±0.5%	1.6x0.8(mm)	Panasonic Vishay	ERJ3RBD6802V CRCW060368K0FKEA	Yes	Yes
R97, R117, R121, R122, R162, R170, R177	7	Register	100k ohm	±0.5%	1.6x0.8(mm)	Panasonic	ERJ3RBD1003V	Yes	Yes
R146	1	Register	330k ohm	±0.5%	1.6x0.8(mm)	Panasonic KOA	ERJ3RED3303V RK73B1JTTD334J	Yes	Yes
R173, R174	2	Register	402k ohm	±1%	1.6x0.8(mm)	KOA	RK73H1JTTD4023F	Yes	Yes
R43, R60, R65, R67, R71, R87, R109	7	Register	470k ohm	±5%	1.6x0.8(mm)	Panasonic	MCR03EZPJ474	Yes	Yes
R1, R148	2	Register	1M ohm	±0.5%	1.6x0.8(mm)	Panasonic Bourns	ERJ3RED1004V CR0603-FX-1004ELF	Yes	Yes
R18	1	Register	10M ohm	±1%	1.6x0.8(mm)	KAMAYA ELECTRIC	RMC1/16K106FTP	Yes	Yes
R5, R8, R10, R12, R14, R16, R52, R73, R74, R101, R149, R176, R190	13	Register	Not used	-	1.6x0.8(mm)	-	-	-	-
L1, L4, L5, L6, L7, L8, L9, L11	8	Noise filter	1k ohm at 100MHz 300m ohm at DC	±25%	1.6x0.8(mm)	TDK	MPZ1608S102ATA00	Yes	Yes
L2, L3	2	Inductor	47uH	±20%	1.6x0.8(mm)	TDK	GLFR1608T470M-LR	No	Yes
L10	1	Inductor	4.7uH	±20%	1.6x0.8(mm)	TDK	GLFR1608T4R7M-LR	Yes	Yes
D1, D2, D4	3	Varistor	12V	-	1.6x0.8(mm)	TDK	AVR-M1608C120MT6AB	Yes	Yes
D5, D6, D7, D8, D11, D12, D13, D14, D15, D16, D17, D18, D19, D20, D21, D22, D23, D24	18	Varistor	8V	-	1.0x0.5(mm)	TDK	AVR-M1005C080MTACB	Yes	Yes
D3, D25	2	Diode	1A	-	SOD-123FL	ON Semiconductor	MBR120VLSF	No	Yes
D9	1	LED	GREEN	-	1.6x0.8(mm)	ROHM	SML-D12P	Yes	Yes
D10	1	LED	RED	-	1.6x0.8(mm)	ROHM	SML-D12U	Yes	Yes
RSW1, RSW2	2	Rotary switch	1pole 4 contacts	-	-	COPAL	CS-4-14NTA	No	Yes
SW1, SW2, SW3, SW4, SW5, SW6, SW7	7	Tact switch	1.57N	-	-	ALPS	SKQYPAE010	No	Yes
TP1, TP2	2	Test pin	-	-	-	Sunhayato	SHK-3-G	No	Yes
CN1	1	USB A connector	max 30m ohm	-	-	Fci	87583-2010BLF	No	Yes
CN2	1	AC adapter	under 30m ohm	-	-	Marushin Electric	MJ-179P	No	Yes
CN3	1	USB micro B connector	30m ohm (100mA)	-	-	HIROSE ELECTRIC	ZX62R-B-5P	No	Yes
CN4	1	Extend connector	30pin	-	-	HIROSE ELECTRIC	DF40C-30DP-0.4V(51)	No	Yes

CN5	1	micro SD slot	PUSH-PUSH 100m ohm (1mA)	-	-	HIROSE ELECTRIC	DM3AT-SF-PEJM5	No	Yes
CN6, CN7	2	Audio connector	3.5 JACK	-	-	HOSIDEN	HSJ1636-011020	No	Yes
CN8	1	SW-DP connector	20pins	-	-	HIROSE ELECTRIC	HIF3FC-20PA-2.54DSA(71)	No	Yes
CN9	1	UART connector	7pins	-	-	HIROSE ELECTRIC	MDF7- 7P-2.54DS	No	Yes
JP1, JP2, JP3, JP4, JP5, JP6, JP7, JP8, JP9, JP10, JP11, JP12, JP13, JP14, JP15, JP16, JP17, JP18, JP19, JP20, JP21, JP22, JP23, JP24	24	Jumper post	1A, max 20m ohm(100mA)	-	-	Hirosugi-Keiki	PSM-720153	No	Yes
Q1, Q2, Q5	3	Digital Transistor	NPN- 10k/10k	-	3pin SC-75	ON Semiconductor	DTC114EE	No	Yes
Q3, Q4	2	FET	20V, 22m ohm, 8A, N-channel	-	MCPH6	ON Semiconductor	MCH6448	No	Yes
Q6, Q8	2	FET	-20V,-5.5A P-channel	-	3pin SOT-23	ON Semiconductor	NTR3A30PZ	No	Yes
Q7, Q9	2	FET	30V,50mohm, 4A, N-channel	-	CPH3	ON Semiconductor	CPH3448-TL-H	No	Yes
Q10	1	Digital Transistor	NPN-Dual 47k/47k	-	EMT6	ROHM	EMH15	No	Yes
U2	1	Power Switch IC	0.66A 2.7-5.5v	-	R-PDSO-G8	Texas Instruments	TPS2021D	No	Yes
U1	1	CPU	-	-	WLCSP154	ON Semiconductor	LC823450XDTBG	No	Yes
U3	1	eMMC	8G/4GByte 3.3v, 1.8/3.3v	-	VFBGA153	Micron Technology Toshiba	MTFC8GACAAAM THGBMDG5D1LBAITH2J	No	Yes
U4	1	Serial Flash Memory	128Mbit 3.3v	-	8-SOP	Macronix International	MX25L12835FM2I-10G	No	Yes
U5	1	Acceleration sensor	10bit triaxial 3.3v	-	LGA12	Bosch Sensortec	BMA250E	No	Yes
U6	1	Audio codec	3.3v	-	TQFP48	CIRRUS LOGIC	WM8776SEFT/V	No	Yes
U7, U8	2	Digital Mic	3.3v, 0.65mA 120dBSPL	-	HLGA 6LD	STMicroelectronics	MP45DT02	No	Yes
U9	1	BlueTooth IC	version 4.0	-	5.0x4.5(mm)	Murata	LBMA15Q1BX	No	Yes
U10	1	LCD module	48x128dots 3.3v, 1mA	-	-	AKIZUKI DENSHI TSUSHO	AQM1248A_RN	No	Yes
U11, U12, U13	3	Reset IC	0.9v detection	-	SOT-23-5	RICOH	R3118N091A	No	Yes
U14	1	LDO	3.3-1.8V	-	TSOP-5	ON Semiconductor	NCP600SNADJT1G	No	Yes
U15	1	LDO	3.3V	-	HVSOF5	ROHM	BU33TA2WHFV	No	Yes
U16	1	LDO	1.1V	-	SSON004X1010	ROHM	BU11UA3WNVX	No	Yes
U17	1	LDO	1.8V	-	SSON004X1216	ROHM	BU18TA2WNVX	No	Yes
U18	1	LDO	1.5V	-	SSON004X1216	ROHM	BU15TA2WNVX	No	Yes
U19	1	DC-DC	1.0-1.2V	-	VCSP50L2	ROHM	BD9122GUL	No	Yes
U20, U22	2	Instrumentation amplifier	80 Gain 1.8-5.5v	-	8pins SOT-23	Analog Devices	AD8293G80	No	Yes
U21	1	LDO	1.0V	-	SSOP5	ROHM	BU10TD3WG	No	Yes
X1	1	Xtal Oscillation	24.000000MHz	±30ppm	1.6x1.2(mm)	RIVER ELETEC	FCX-07L LF J52165	Yes	Yes
X2	1	Xtal Oscillation	32.768000kHz	±20ppm	2.0x1.2(mm)	RIVER ELETEC	TFX-03 LF J52166	Yes	Yes

Attachments

-	22	Jumper Switch	1A 30mΩ	-	-	Hirosugi-Keiki	JS-7	No	Yes
---	----	---------------	---------	---	---	----------------	------	----	-----

-	4	Bumpon 4 corners in the back	0.315" DIA Black	-	-	3M RS Pro	SJ5076 248-502	Yes	Yes
-	1	USB-cable	A-MiniB	-	-	RS Pro Switch Science	790-3678 10344	Yes	Yes
-	1	USB-cable	A-MicroB	-	-	RS Pro Switch Science	790-3656 10351	Yes	Yes
-	1	Micro SD Card	4GB	-	-	Kingston Transcend	SDC4/4G TS4GUSDHC4	Yes	Yes
-	1	USB-UART I/F board	-	-	-	Sunhayato	M-FT232	No	Yes