Bill of Material

Part Number: 2FR EVK

Part	Quantity	Type of component	Manufacturer part number	Value, incl. Rating, Tolerance and Material	Temperature Range	Package	Manufacturer	Digikey #, if existing	Notes (including alternative components)
ANT	0	PCB shape							
C1	1	Ceramic capacitor, MLC	CC0603MKX5R6BB226	22uF,>=10V,20%, X5R/X7R		0603	Yageo		
C4	1	Ceramic capacitor, MLC	GRM0335C1E2R2WA01D or GRM0335C1H2R2BA01D	2.2pF, +-0.1pF, >=25V, C0G/NP0		0201	Murata		
C5, C6, C7, C8, C9, C15, C16, C33, C47, C58	0	Ceramic							
C11, C12, C13, C17, C18, C19, C20, C22, C29, C32, C34, C37, C40, C41	14	Ceramic capacitor, MLC	CC0603KRX5R6BB106	10uF, >=10V, 10-20%, X5R		0603	Yageo		
C14, C21, C23, C24, C25, C26, C27, C28, C30, C31, C35, C36, C38, C39, C42, C45, C46, C48, C49, C50, C54, C56, C57	23	Ceramic capacitor, MLC	CC0402KRX7R8BB104	100nF, >=25V, 10%, X7R		0402	Yageo		
C43, C44	2	Ceramic capacitor, MLC	CC0402JRNPO9BN470	47pF,>=50V,5%, NP0/COG		0402	Yageo		
C52	1	Ceramic capacitor, MLC	GRM0335C1HR80WA01D or GRM0335C1HR80BA01	0.8pF, +-0.05pF, >=25V, C0G/NP0		0201	Murata		
C51, C55	2	Ceramic capacitor, MLC	CC0402KRX5R6BB225	2.2uF, >=10V, 10-20%, X5R/X7R		0402	Yageo		
D1, D2	2	Signal diode, Schottky	RB521S30T1G	30V, 200mA, Vf=500mV		SC-79, SOD-523	ON Semi.	RB521S30T1GOSCT-ND	
D3, D4, D5	3	ESD Diode, USB	RClamp0854P.TCT			6-UFDFN Exposed Pa	Semtech	RCLAMP0854P.TCTC	Alternative: PUSBM5V5X4-TL
D6	1	ESD Diode	PRTR5V0U2X,215			SOT-143	Nexperia USA Inc.	568-4140-2-ND	
D7	1	ESD Diode	SRV05-4.TCT			SOT23-6			
J1, J2	2	Coax connector, u.fl.	1909763-1			SMT	TE Connectivity AM	A118077TR-ND	
J3, J4, J5, J8	4	Header list, female	FHA1850Y08ABA32 PPPC081LFBN-RC	8x1 pos, 100 mil pitch, pinlist (female)		through hole	Ruiya, Sullins or ger	S7041-ND	Alt. SSW-108-01-G-S
J6	1	Header list, female	FHA1850Y10ABA32 PPPC101LFBN-RC SSW-110-01-G-S	10x1 pos, 100 mil pitch, pinlist (female)		through hole	Ruiya, Sullins or generic		
J7	1	Header list, female	FHA1850Y06ABA32 PPPC061LFBN-RC SSW-106-01-G-S	6x1 pos, 100 mil pitch, pinlist (female)		through hole	Ruiya, Sullins or generic		
J9	1	Header list, right angle, female	FHB2850Y06AAA32 PPPC062LJBN-RC	6x2 pos, 100 mil pitch, right angle, pinlist (female)		through hole	Ruiya, Sullins or generic		
J10	1	Header list, female	FHB2850Y04AAA32 PPPC042LJBN-RC SSW-104-01-G-D	4x2 pos, 100 mil pitch, right angle, pinlist (female)		through hole	Ruiya, Sullins or generic		
J11	1	Pin list	J302-1-10P-SMT-D	5x2 pin, 50mil pitch, with shroud (JTAG connector)		through hole	Junhao		
J12	1	USB2.0 microAB receptacle	ZX62D-AB-5P8(30)	reverse pinning		SMT	Hirose	H125271TR-ND	
J13	1	USB C connector	1054500101			SMT	Molex	WM12856CT-ND	https://www.molex.com/pdm_docs/sd/1054500101_sd.pdf
J14	1	Ethernet RJ45 with magnetics	HY931168C			through hole	Hanrun		
J15	1	Pin list	21N12564-40S10B-01G-6/3 PEC12SAAN	12x1 pos, 100 mil pitch, pinlist (male)		through hole	JVE, Sullins or generic		
J16	1	Pin list	21N22564-80S10B-01G-6/3	23x2 pos, 100 mil pitch, pinlist (male)		through hole	JVE, Sullins or generic		
J17	1	Pin list	21N12564-40S10B-01G-6/3 PEC06SAAN	6x1 pos, 100 mil pitch, pinlist (male)		through hole	JVE, Sullins or generic		
J18	1	Pin list	21N12564-40S10B-01G-6/3 PEC05SAAN	5x1 pos, 100 mil pitch, pinlist (male)		through hole	JVE, Sullins or generic		
JP1, JP3, JP13, JP17, JP21, JP24	6	Pin list	21N12564-40S10B-01G-6/3 PEC02SAAN	2x1 pos, 100 mil pitch, pinlist (male)		through hole	JVE, Sullins or gene	S1012E-02-ND	
JP2, JP4, JP5, JP6, JP7, JP8, JP9, JP11, JP12, JP14, JP16, JP18, JP19, JP20, JP25, JP26	16	Pin list	21N12564-40S10B-01G-6/3 PEC03SAAN	3x1 pos, 100 mil pitch, pinlist (male)		through hole	JVE, Sullins or gene	S1012E-03-ND	
JP10	1	Pin list	21N22564-80S10B-01G-6/3	2x2 pos, 100 mil pitch, pinlist (male)		through hole	JVE, Sullins or generic		
JP15	1	Pin list	21N22564-80S10B-01G-6/3	5x2 pos, 100 mil pitch, pinlist (male)		through hole	JVE, Sullins or generic		
JP22	1	Pin list	21N22564-80S10B-01G-6/3	3x2 pos, 100 mil pitch, pinlist (male)		through hole	JVE, Sullins or generic		
JP23	1	Pin list	21N22564-80S10B-01G-6/3	4x2 pos, 100 mil pitch, pinlist (male)		through hole	JVE, Sullins or generic		
L1, L2, L4, L7	4	Ferrite inductor	BLM18KG221SN1D	220ohm@100MHz, <2.2A, <50mOhm		0603	Murata	490-5255-2-ND	
L3	1	Common mode Choke	DLW21HN900SQ2L	90 ohm imp. <350mOhm		2x1.2 mm	Murata	490-1064-2-ND	
L5	1	Inductor	LQP03TN3N0B02D	3.0nH, +-0.1nH		0201	Murata	490-6727-2-ND	
L6	1	Inductor	LQP03TN5N6H02D	5.6nH, +-0.1nH		0201	Murata	490-6734-2-ND	
L8	0	Inductor							
LED1	1	RGB-LED	HDL-3528RGB-2	RGB		SMD 3528, 4-pin	XIN RUN Opto-Elec	754-1123-1-ND	
LED2, LED5	2	LED	HT19-2132SURC or APT1608SURCK	Red		0603	Harvatek or Kingbrig	754-1118-1-ND	
LED3, LED4, LED6	3	LED	HT19-2132SYGC or APT1608MGC	Green		0603	Harvatek or Kingbrig	568-10309-1-ND	
Q1, Q2	2	Mosfet, n-channel	BSS138PW,115	60V, 320mA, 1.6Ohm		SC-70, SOT-323	NXP		

R1, R4, R8, R9, R13, R14, R16, R29, R37, R41, R42, R43, R44, R45, R82, R83, R85, R102, R104, R121, R126, R128, R130, R133, R134, R135, R139, R143, R144, R147, R148, R159, R160	0	Resistor							
R2, R3, R119, R120, R161, R162	6	Resistor	RC0201JR-070RL	0 ohm, 5%		0201	Yageo		
R5, R15, R78, R79, R87, R101, R107, R108, R131	9	Resistor	RC0402FR-0710KL	10 kohm, 1-5%		0402	Yageo		
R6, R7	2	Resistor	RC0402FR-0749K9L	49.9-50 kohm, 1-5%		0402	Yageo		
R10, R11, R12, R17, R18, R19, R20, R21, R22, R23, R24, R25, R26, R27, R28, R30, R31, R32, R33, R34, R35, R36, R38, R39, R40, R46, R47, R48, R49, R50, R51, R52, R53, R54, R55, R56, R57, R58, R59, R72, R74, R77, R81, R105, R106, R117, R118, R150, R151, R152, R153, R154, R155, R156, R157, R158	56	Resistor	RC0402JR-070RL	0 ohm, 5%		0402	Yageo		
R60, R61, R62, R63, R64, R65, R66, R67, R80, R84, R86	11	Resistor	RC0402FR-07100RL	100 ohm, 1-5%		0402	Yageo		
R68, R69, R92, R93, R94, R95, R96, R97, R98, R114, R115, R129, R132, R138	14	Resistor	RC0402FR-075K1L	5.1 kohm, 1%		0402	Yageo		
R70, R109, R110, R113, R116	5	Resistor	RC0402FR-07470RL	470 ohm, 1-5%		0402	Yageo		
R71, R145, R146	3	Resistor	RC0402FR-07270RL	270 ohm, 1-5%		0402	Yageo		
R73	1	Resistor	RC0402FR-072K2L	2.2 kohm, 1-5%		0402	Yageo		
R75, R76, R99	3	Resistor	RC0402FR-071K5L	1.5 kohm, 1%		0402	Yageo		
R88, R89, R90, R91	4	Resistor	RC0402FR-0749R9L	49.9-50 ohm, 1-5%		0402	Yageo		
R100, R103	2	Resistor	RC0402FR-07100KL	100 kohm, 1-5%		0402	Yageo		
R111, R112	2	Resistor	RC0402FR-0727RL	27 ohm, 1-5%		0402	Yageo		
R122, R123, R125, R127, R136, R137, R140, R141, R142, R149	10	Resistor	RC0402FR-071KL	1 kohm, 1-5%		0402	Yageo		
R124	1	Resistor	RC0402FR-076K49L	6.49 kohm, 1%		0402	Yageo		
SJ1	1	Resistor	RC0402JR-070RL	0 ohm, 5%		0402	Yageo		Mounted in 1-2 position
SJ2	0	Jumper, default connected							
SW1, SW2, SW3	3	Push-button switch	KMR221GLFS			SMT	C&K Components		
TP_xxx	0	Test pads							
TP_3V3	1	Test point, red	5005			THT	Keystone Electronic	36-5005-ND	
TP_GND	1	Test point, black	5006			THT	Keystone Electronic	36-5006-ND	
U1	1	LBES0ZZ2FR module					Murata		
U2	0	PIR sensor	IRS-D200ST00R1			"LGA8" see DS for details	Murata		
U3	1	Logic, 1-gate, buffer OD	74LVC1G07GW			5-TSSOP, SC-70-5, S	Nexperia USA Inc.	1727-3099-2-ND	
U4	1	Logic, 1-gate, inverter	74LVC1G04GW			5-TSSOP, SC-70-5, S	Nexperia USA Inc.		
U5	1	Power distribution switch (USB)	STMPS2151STR or AP2151AW-7			SOT-23-5, SC-74A, SOT-753			
U6	1	Voltage regulator, LDO	XC6227C331PR-G	3.3V, 700mA		SOT-89-5, TO-243AA	Torex		
U7	1	Voltage regulator, LDO	XC6214P182PR-G	1.8V, 500MA				768-1135-1-ND	
U8	1	UART-to-USB bridge	FT230XS-R			16-SSOP (0.154", 3.90	FTDI		
U9	1	Temperature sensor	STS40-CD1B-R3			4-DFN (1.5x1.5mm)	Sensirion AG	1649-STS40-CD1B-R3CT-ND	
U10	1	Ethernet-Phy	KSZ8081RNBIA-TR or KSZ8081RNBCA-TR			32-QFN (5x5mm)	Microship	576-4176-1-ND	
U11	0	QSPI flash	MX25U51245GZ4I00			8-WSON (8x6 mm)	Maconix	1092-1217-ND	
Y1	1	Crystal	ECS-.327-12.5-34B-TR or ST3215SB32768H5HPWA/	32.768KHz, 12.5pF, 70kohm, fund.		3.2 x 1.5 mm	ECS Inc. Or AVX Corp/Kyocera Corp	XC1617TR-ND or 478-5428-1-ND	