

Renesas Electronics Corporation

RAA306012 Evaluation Board Rev1.02 BOM (RTK0EM00F0B00022BJ)

No	Parts Name	Parts Designator		Quantity		Description	Manufacturer	Note
	Item	Mount	Unmount	Mount	Unmount	Part Number (Product Spec)		
1	RAA306012	U1	-	1	-	RAA306012GNP	Renesas	
2	Comparator	CMP301	-	1	-	NJM2903CRB1 UPC277MP-KAA BA82903YFVM-C	JRC Renesas ROHM	Alternate parts Alternate parts
3	Amplifier (phase current detection)	AMP301,AMP302	-	2	-	READ2302GSP READ2304GSP	Renesas Renesas	Alternate parts
4	3.3VLDO	U302	-	1	-	ISL9005AIRNZ-T	Renesas	
5	5.0VLDO	U301	-	1	-	NCP781BMN050TAG	ON Semiconductor	
6	MOSFET	Q1,Q2,Q3,Q4,Q5, Q6	-	6	-	TPH12008NH (80V,24A) TPH7R506NH (60V,22A) TPH9R506PL (60V,34A) TPH7R006PL (60V,60A) TPH2R506PL (60V,100A) TPH14006NH (60V,34A) TPH1R306PL (60V,100A)	TOSHIBA TOSHIBA TOSHIBA TOSHIBA TOSHIBA TOSHIBA	Default Part Compatible Parts (Change by application specifications.)
7	FUSE	FU1	-	1	-	8020.0607.H(30A) 8020.0602.H(10A) 8020.0603.H(12A) 8020.0604.H(15A) 8020.0605.H(20A) 8020.0606.H(25A) 8020.0608.H(40A) 8020.0609.H(50A)	Schurter Inc. Schurter Inc. Schurter Inc. Schurter Inc. Schurter Inc. Schurter Inc. Schurter Inc.	Default Part Compatible Parts (Change by application specifications.)
8	Fuse terminal	TB1,TB2	-	2	-	01020071Z	Littelfuse	
9	LED	LED0,LED1,LED2,LED3,LED4, LED5,LED6	-	7	-	SML-311UTT86	ROHM	
10	Coil (33uH>2A)	L1	-	1	-	SPM6545VT-330M-D XAL6060-333MEC	TDK Coilcraft	Alternate parts
11	Power terminal (RED)	J1,J2	-	2	-	TM052_RED	MSK	
12	Power terminal (BLACK)	J3,J4	-	2	-	TM052_BLACK	MSK	
13	Motor terminal	U,V,W	-	3	-	63849-1 63824-1	TEConnectivity TEConnectivity	Alternate parts
14	Connector (1*2) SMD	JP101,JP102,JP103,JP301,JP302, JP303,JP304	-	7	-	TSM-103-01-L-SV	SAMTEC	
15	Connector (1*3) SMD	-	TP_UART,TP_I2C	-	2	A2-4PA-2.54DSA	HIROSE	
16	Connector (1*4)	-	CNC	-	1	TSW-104-07-L-S	SAMTEC	
17	Connector (1*4) with guide	-	CN_UART,CN_I2C	-	2	B4B-XH-A(LF)(SN)	JST	
18	Connector (1*5)	-	TP_VOL	-	1	A2-5PA-2.54DSA	HIROSE	
19	Connector (1*5) with guide	-	CN_VOL	-	1	B5B-XH-A(LF)(SN)	JST	
20	Connector (1*6)	-	TP_SPI,TP_HALL	-	2	A2-6PA-2.54DSA	HRS	
21	Connector (1*6) with guide	CN_HALL	CN_SPI	1	1	B6B-XH-A(LF)(SN)	JST	
22	Connector (1*8)	-	CN_ANA,TP_ANA, CN_DIG1,TP_DIG1, CN_DIG2,TP_DIG2, CN_DIG3,TP_DIG3, CN_LED,TP_LED	-	10	A2-8PA-2.54DSA	HRS	
23	Connector (2*4)	ICS_SEL	-	1	-	TSM-104-01-L-DV	SAMTEC	
24	Connector (2*10)	-	CN_EXT_MOS	-	1	A1-20PA-2.54DSA	HRS	
25	Connector (2*20)	CNA,CNB	-	2	-	30340-6002HB	3M	
26	Chip capacitor (33pF/>10V/0603m-1005m)	C302,C308,C314	-	3	-	GRM0335C1E330JA01D(0603m)	Murata	
27	Chip capacitor (100pF/>10V/0603m-1005m)	C304,C310,C316	-	3	-	GRM0335C1E101JA01(0603m)	Murata	
28	Chip capacitor (330pF/>10V/0603m-1005m)	C15,C16,C17	-	3	-	GRM0335C1E331JA01D(0603m)	Murata	

**Renesas Electronics Corporation**

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	Item	Mount	Unmount	Mount	Unmount	Part Number (Product Spec)		
29	Chip capacitor (1000pF/>10V/0603m-1005m)	C319,C320,C330,C331,C332	-	5	-	GRM0335C1E102JA01D(0603m)	Murata	
30	Chip capacitor (2200pF/>10V/0603m-1005m)	C1	C2,C301,C303,C305,C306, C307,C309,C311,C312,C313, C315,C317,C318	1	13	GRM033R61A222KA01D(0603m)	Murata	
31	Chip capacitor (0.01uF/>10V/0603m-1005m)		C12,C13,C14,C328	-	4	GRM033R61A103KA01D(0603m)	Murata	
32	Chip capacitor (0.022uF/>10V/0603m-1005m)	C351,C352,C353	-	3	-	GRM033R61A223KE84D(0603m)	Murata	
33	Chip capacitor (0.1uF/>10V/0603m-1005m)	C101,C102,C103,C104,C105, C106,C321,C322,C323	C327	9	1	GRM033R61E104KE14(0603m)	Murata	
34	Chip capacitor (1uF/>10V/1005m-1608m)	C325,C326,C329	-	3	-	MCASL105SB5105KFNA01(1005m) MCASL105SB5105KFNA1J(1005m) MMASL105SB5105KFNA01(1005m)	YUDEN YUDEN YUDEN	
35	Chip capacitor (10uF/>10V/1608m-2012m)	-	C29	-	1	GRM188D71A106MA73(1608m)	Murata	
36	Chip capacitor (22uF/>10V/1608m-2012m)	C18,C19	-	2	-	GRM21BD71A226ME44(2012m)	Murata	
37	Chip capacitor (4.7uF/25V/1005m-1608m)	C9	-	1	-	GRM188C81E475KE11(1608m)	Murata	
38	Chip capacitor (10uF/25V/2012m-3225m)	C3	-	1	-	CGA4J1X7S1E106K125AC(2012m)	Murata	
39	Chip capacitor (1000pF/100V/1005m-1608m)	-	C28	-	1	GRM1885C2A102JA01(1608m)	Murata	
40	Chip capacitor (4700pF/100V/1005m-1608m)	-	C21,C22,C23	-	3	GRM155R72A472KA01(1005M)	Murata	
41	Chip capacitor (0.1uF/100V/1005m-1608m)	C5,C24	-	2	-	GRM155R62A104KE14(1005m)	Murata	
42	Chip capacitor (0.22uF/100V/1608m-2012m)	C4	-	1	-	GRM21AR72A224KAC5K(2012m)	Murata	
43	Chip capacitor (1uF/>100V/2012m-3216m)	C324	-	1	-	GRM21BC72A105KE01L(2012)	Murata	
44	Chip capacitor (10uF/100V/3216m-3225m)	C6,C7,C25	C26,C27	3	2	GRM32EC72A106KE05(3225m)	Murata	
45	Chip capacitor (10uF/100V/3225m-5750m)	-	C8	-	1	GRM32EC72A106KE05(3225m)	Murata	
46	Electrolytic capacitor (220uF/100V) SMD	C10	-	1	-	EEEFK2A221AM EEVFK2A221M UCD2A221MNQ1MS	Panasonic Panasonic Nichicon	 Alternate parts Alternate parts
47	Electrolytic capacitor (220uF/100V) DIP	-	C11	-	1	EEUFS2A221	Panasonic	
48	Chip resistor(0Ω/1005m-1608m)	R15,R16,R17,R18,R19, R20,R21,R22,R34,R35, R36,R37,R42,R54,R60, R61,R62,R63,R64,R65, R66,R67,R68,R69,R70, R71,R72,R73,R74,R75, R76,R77,R78,R79,R80, R81,R82,R83,R84,R85, R86,R87,R99,R100,R101, R102,R103,R104,R105,R107, R108,R109,R110,R111,R112, R113,R114,R115,R116,R117, R118,R119,R120,R121,R122, R123,R124,R125,R126,R127, R128,R129,R130,R131,R132, R133,R134,R135,R136,R137, R138,R139,R140,R141,R142, R143,R144,R145,R146,R147, R148,R149,R150,R151,R153, R161,R162,R163,R164,R165, R166,R175,R335,R336,R337, R338,R339,R340,R341,R364, R366,R368,R370,R371,R374	R23,R24,R25,R26,R27, R52,R58,R59,R88,R89, R90,R91,R92,R93,R94, R95,R96,R97,R98,R106, R152,R155,R156,R157,R158, R351,R354,R357,R360,R361, R362,R363,R365,R367,R369, R372	115	36	RK73Z1JTTD(1608m) RC0603JR-130RL	KOA YAGEO	
49	Chip resistor(50m/6432m-10052m/3W)	SR1,SR2,SR3,SR4	-	4	-	CRA2512-FZ-R050ELF(50m/6432m/3W)	Bourns Inc.	
	Chip resistor(50m/6432m-10052m/3W)	-	SR1,SR2,SR3,SR4	-	4	WSL3921L5000FEA(0.5mΩ/10052m/3W)	Vishay	Alternate parts
50	Chip resistor(5.1Ω/1005m-1608m)	R6,R7,R8	-	3	-	RK73B1JTTD5R1J(1608)	KOA	
51	Chip resistor(100Ω/1005m-1608m)	R322,R323	-	2	-	RK73B1ETTP101J(1005m)	KOA	
52	Chip resistor(200Ω/1005m-1608m)	R307,R314,R321,R332,R333, R334	-	6	-	RK73B1ETTP201J(1005m)	KOA	

**Renesas Electronics Corporation**

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	Item	Mount	Unmount	Mount	Unmount	Part Number (Product Spec)		
53	Chip resistor(510Ω/1005m-1608m)	R176	-	1	-	RK73B1ETTP511J(1005m)	KOA	
54	Chip resistor(1kΩ/1005m-1608m)	R28,R29,R30,R177,R192, R193	R55,R56,R57,R172,R173, R174	6	6	RK73B1ETTP102J(1005m) RC0402JR-071KL(1005m)	KOA YAGEO	
55	Chip resistor(1.8kΩ/1005m-1608m)	R306,R313,R320	-	3	-	RK73B1ETTP182J(1005m)	KOA	
56	Chip resistor(2kΩ/1005m-1608m)	R197,R303,R304,R310,R311, R317,R318,R352,R355,R358 R194,	-	11	-	RK73B1ETTP202J(1005m)	KOA	
57	Chip resistor(3.48kΩ/1005m-1608m/1%)	R3	-	1	-	RK73H1ETTP3481F(1005m) ERJ-2RKF3481X(1005m)	KOA Panasonic	Alternate parts
58	Chip resistor(6.8kΩ/1005m-1608m)	R53,R180,R181,R182,R183, R184,R185	-	7	-	RK73B1ETTP682J(100m)	KOA	
59	Chip resistor(10kΩ/1005m-1608m)	R31,R32,R33,R186,R187, R189,R190,R302,R309,R316, R324,R325,R326,R327,R328, R329,R330,R331	R170,R171,R188,R191	18	4	RK73B1ETTP103J(1005m)	KOA	
60	Chip resistor(20kΩ/1005m-1608m)	R179,R301,R305,R308,R312, R315,R319	-	7	-	RK73B1ETTP203J(1005m)	KOA	
61	Chip resistor(39kΩ/1005m-1608m/1%)	R1	-	1	-	RK73H1ETTP3902F(1005m) ERJ-2RKF3902X(1005m)	KOA Panasonic	Alternate parts
62	Chip resistor(48.7kΩ/1005m-1608m/1%)	R2	-	1	-	RK73H1ETTP4872F(1005m) ERJ-2RKF4872X(1005m)	KOA Panasonic	Alternate parts
63	Chip resistor(91kΩ/1005m-1608m/1%)	R5	-	1	-	RK73H1ETTP9102F(1005m) ERJ-2RKF9102X(1005m)	KOA Panasonic	Alternate parts
64	Chip resistor(100kΩ/1005m-1608m)	R9,R10,R11,R12,R13, R14	-	6	-	RK73B1ETTP104J(1005m)	KOA	
65	Chip resistor(160kΩ/1005m-1608m/1%)	R4	-	1	-	RK73H1ETTP1603F(1005m) ERJ-2RKF1603X(1005m)	KOA Panasonic	Alternate parts
66	Chip resistor(470kΩ/1005m-1608m)	R178,R195,R196,R353,R356, R359,R373	-	7	-	RK73B1ETTP474J(1005m)	KOA	
67	Potentiometer (10Kohm)	VR101	-	1	-	RK09L114001T	ALPS	
68	Variable resistor (10Kohm)	VR301	-	1	-	ST4ETB103	Nidec Copal	
69	Thermistor	Z101	-	1	-	NXFT15XH103FEAB050 NXFT15XH103FEAB025	MIRATA MIRATA	
70	Toggle switch	SW101,SW102	-	2	-	ATE1D-2M3-10-Z	Nidec Copal	
71	Varistor diode	-	VS1	-	1	V120MLA1210N	Littelfuse	
72	Zener diode	ZD1,ZD2,ZD3,ZD4,ZD5, ZD6	-	6	-	MM5Z18V	Onsemi	
73	Zener diode (13V, 1W)	-	ZD7	-	1	SML4743-E3/61 1SMB5928BT3G	Vishay ON Semiconductor	Alternate parts
74	Diode (single, 80V or100V/2A)	D2,D3,D4	-	3	-	B280-13-F(80V) B2100-13-F(100V)	Diodes Incorporated Diodes Incorporated	Alternate parts
75	Diode (series,SOT-323,>150mA,>20V)	D101,D102,D301,D302,D303, D304,D305,D306,D307,D308, D309,D351,D352,D353	-	14	-	BAV99WT1G BAV99W-7-F BAV99W,115	ON Semiconductor DiodesZetex Nexperia	Alternate parts Alternate parts
76	Diode (0.6V 100V/2A)	D1	-	1	-	STPS5H100AF NRV TSA4100E	STMicroelectronics ON-SEMI	Alternate parts
77	Ferrite bead	FB1	-	1	-	MPZ1608S102ATA00	TDK	
78	Test terminal	TP_GND1,TP_GND2,TP_GND3,TP_GND4	-	4	-	JP-1	MAC8	
79	Test terminal	-	TP1,TP2,TP_49_S	-	3	LC-22-G	MAC8	
80	Potentiometer knob	VR101	-	1	-	1101	Davies Molding	
81	Jumper cap	JP101,JP102,JP103,JP301,JP302, JP303,ICS_SEL(x4)	-	10	-	SNT-100-BK-T 251-8503 HIF3GA-2.54SP	SAMTEC RS-PRO HIROSE	Alternate parts Alternate parts

## Revision History

Revision	Date	Description
1.00	Oct.11.2023	·Initial release