

## PROJECT NAME: STEVAL-ISA172V2

## BILL OF MATERIALS

Item	Quantity	Reference	Part / Value	Voltage / Watt / Ampere	Type / TECHNOLOGY informations	Tolerance	Package	Manufacturer	Manufacturer's ordering code / Orderable Part Number	Additional Notes
1	1	C1	100nF	630V	Y2 CAP		rad750X250ls325h39	VISHAY	BFC233610104	
2	3	C2,C3,C10	470uF	25V	ELEC. CAP		CapAluminiumG	Panasonic	EEEEBE471UAP	
3	2	C4,C7	100uF 16V	16V	ELEC CAP		capAluminiumC	PANASONIC	EEUFT1C101AR	
4	2	C9,C127	100uF 20V	20V	Tantaliu		TANTALIODE	AVX	TAJD107K020RNU	
5	1	C5	2.2nF	250V	Emi suppression Y1		cap12x7x10	MURATA	DE1E3KX222MA4BL01	
6	1	C6	22uF	25V	ELEC CAP		capAluminiumC	PANASONIC	EEEFK1E220R	
7	2	C8,C11	33nF	50V	X7R CERAMIC CAP		smc0805	ANY		
8	1	C12	3.3nF	50V	X7R CERAMIC CAP		smc0805	ANY		
9	4	C13,C15,C121,C122	10nF	300V	Emi suppression(MKP) Y1	20%	rad725x250ls600H40	EPCOS	B32022A3103M	
10	1	C14	220nF	305V	FILM CAP X2	20%	rad1000x350ls750H39	EPCOS	B32923C3224M	
11	1	C120	470nF	305V	FILM CAP X2		rad725x350ls600H40	EPCOS	B32922C3474M000	
12	3	C123	33nF	300V	FILM CAP X2	20%	rad475x200ls400H39	EPCOS	B32921C3333M	
13	1	C16	Not Assembly	450V	FILM CAP	10%	rad725x250ls600H40	EPCOS	B32522N6474K189	Not Assembly
14	2	C17,C18	470nF	450V	FILM CAP	10%	rad725x250ls600H40	EPCOS	B32522N6474K189	
15	1	C19	100pF	50V	SMD X7R CERAMIC CAP	10%	smc0805	ANY		
16	1	C20	100nF	50V	SMD X7R CERAMIC CAP	10%	smc0805	ANY		
17	2	C22,C23	N.A.	50V	SMD X7R CERAMIC CAP	10%	smc0805	ANY		
18	1	C142	N.A.	50V	SMD X7R CERAMIC CAP	10%	smc0805	ANY		
19	1	C24	N.A. 1nF300VDC	300VDC	Emi suppression(MKP) Y1	10%	rad475x200ls400H39	Epcos	B32021A31	Not Assembly
20	4	C25,C26,C27,C28	470u	450V	ELEC. CAP		CPCYL1D1350ls400H78	Cornell-Dubilier	SLP471M450H4P3	
21	2	C29,C30	100pF	50V	SMD X7R CERAMIC CAP		smc0805	ANY		
22	1	C33	100pF	50V	SMD X7R CERAMIC CAP		smc0805	ANY		
23	4	C34,C42,C43,C47	470p	50V	SMD X7R CERAMIC CAP		smc0603	ANY		
24	4	C38,C39,C40,C41	100p	50V	SMD X7R CERAMIC CAP		smc0603	ANY		
25	20	C35,C44,C45,C69,C71,C75,C76,C77,C78,C79,C84,C85,C87,C91,C92,C93,C94,C95,C96,C99	100nF	50V	SMD X7R CERAMIC CAP		smc0603			
26	3	C54,C55,C56	56p	25V	X7R SMD CERAMIC	10%	smc0603	ANY	ANY	
27	1	C48	470n	630V DC	POLY FILM CAP		rad1000x425ls750H39	EPCOS	B32653A6474J000	
28	1	C49	10n	630V DC	FILM CAP		rad300x125ls200H39	EPCOS	B32529C8103J189	
29	6	C50,C51,C52,C53,C129,C131	470u	63V DC	ELCTR. CAP		cpCYld500ls225h34	UNITED CHEMI CON	ELX2630ELL471MK30S	
30	3	C57,C100,C101	100p	50V	X7R SMD CERAMIC	10%	smc0805	ANY	ANY	
31	2	C58,C62	100nF	100V	Cap Polypropylene film	10%	rad300x125ls200H39	EPCOS	B32529C1104J189	
32	7	C59,C60,C63,C64,C67,C68,C102	100p	16V	X7R SMD CERAMIC	10%	smc0805	ANY	ANY	
33	4	C70,C72,C86,C88	22pF	25V	SMD X7R CERAMIC CAP		smc0603			
34	2	C73,C89	10nF	25V	SMD X7R CERAMIC CAP		smc0603			
35	7	C21,C37,C61,C65,C66,C74,C90.	1uF	50V	SMD X7R CERAMIC CAP		smc0603	ANY		
	2	C36,C143	100pF	50V	SMD X7R CERAMIC CAP		smc0603	ANY		
36	1	C80	2.2nF	25V	SMD X7R CERAMIC CAP		smc0603	ANY	NOT ASSEMBLY	
	1	C81	2.2nF	25V	SMD X7R CERAMIC CAP		smc0603	ANY		
37	4	C82,C83,C97,C98	47pF	25V			smc0603			
38	2	C103,C104	15pF	25V			smc0603			
39	2	C105,C106,	3,3uF	250V	Cap Polypropylene film		cap31X15XD27M5	EPCOS	B32654A3335K	
40	1	C114	33nF	630V	Cap Polypropylene film		rad750X350ls600h39	EPCOS	B32922C3333M	
41	1	C115	33nF	630V	Cap Polypropylene film		rad750X350ls600h39	EPCOS	B32922C3333M	
42	6	C116,C117,C118,C119,C128,C130	1uF	100V	X7S		SMC1206	TDK C3216X7R2A105M160AA	TDK	
43	2	C124,C125	100nF	400V	Cap Polypropylene film		rad300x125ls200H39	EPCOS	B32521C6104K	

44	5	C107,C108,C109,C110,C111	470nF	50V	X7R SMD CERAMIC		SMC0805	ANY	
45	1	C126	1uF	305V	Emi suppression(MKP) X2		cap31X15XD27M5	EPCOS	B32924C3105K189
46	1	D1	PKC-136	160V, 1.5W	ASD TRANSIL AND BLOCKING DIODE		DO15	ST	PKC-136
47	1	D2	STTH102A	1A,20V	SCHOTTKY DIODE		SMA	ST	STTH102A
48	1	D3	STPS1L40U	1A,40V	SCHOTTKY DIODE		SMB	ST	STPS1L40U
49	4	D4,D5,D76,D77	STPS1150A	150V,1A	SMALL SIG. SCHOTTKY		SMA	ST	STPS1150A
50	9	D6,D12,D13,D14,D15,D21, D22,D28,D29	STPS1L30	30V,100mA	SMALL SIGNAL SCHOTTKY		SMA	ST	STPS1L30A
51	1	D7	40A/600V		RECT. BRIDGE 1000V, 35V		BridgeVishayPB4006	VISHAY	PB4006-E3/45
52	2	D8,D9	STPSC1006D	600V, 18A	HV SIC DIODE		TO220AC	ST	STPSC1006D
53	4	D10,D11,D43,D75	STPS1H100A	1A, 100V	SCHOTTKY DIODE		SMA	ST	STPS1H100A
54	6	D16,D17,D18,D19,D26, D27	MMSZ4705	500mW, 18V	ZENER DIODE		sod123	VISHAY	MMSZ4705-V-GS08
55	8	D24,D25,D30,D31, D35,D36,D37,D38	BAT754	30V,0.1A	Double Diodes		smsot23123	NXP	BAT754
56	1	D20	LL1N4148		Rectifier diode		SOD80 (minimelf)	Any	
57	2	D23,D32	STTH12R06G	600V,12A	ULTRAFAST HIGH VOLTAGE		D2PACK	ST	STTH12R06G
58	6	D33,D34,D39,D40,D41, D42	MMSZ4705	500mW, 18V	ZENER DIODE		sod123	VISHAY	MMSZ4705-V-GS08
59	2	D46,D54	Green LED		LED		smdled32x28		
60	2	D47,D55	Blue LED		LED		smdled32x28		
61	1	D48	BAT754	30V,0.1A	Diode		smsot23123	NXP	BAT754
62	12	D49,D50,D51,D52, D53,D56,D57,D58,D59, D60,D79,D80	BAT754	30V,0.1A	Diode		smsot23123	NXP	BAT754
63	4	D63,D64,D65,D66	STTH16L06C	60V 16A	Diode clamp		D2PACK	ST	STTH16L06C
64	2	D68,D72	STPS340U	40V 3A	Diode		SMB	ST	STPS340U
65	4	D67,D69,D70,D71	TZMC16-GS08	16V, 500mA	ZENER DIODE		smdo213ac21	Vishay	TZMC16-GS08
66	2	D74,D78	Diode zener	15V 1W	ZENER DIODE		powerdi123	DIODES INC.	DFLZ15-7
67	1	D73	TS756	If 3A Ifsm 400A	Diode rectifier		DO-201AD	Vishay	GI-756-E3/54
68	1	F1 + Clip	25A/600V	600V, 25A	ULTRA FAST FUSE		fuse10X38M + Clip Bussman	SIBA + Bussmann	60-033-05 25A + 1A3400-09
69	2	F2,F3	FAN	48V, 16W	48V COOLING FAN 66X60X38		mor2X381	Sanjo Denki	9G0648C101
70	2	Grid protection for fan						EBMPAPST	LZ28CP
71	1	F5	Fuse + Fuse Case 5X20	2A	Fuse + profile 5X20	Box low	Fuse + Fuse Case 5X20	MultiComp	MCHTC-100M+ 70-001-40 2A
72	2	HT1,HT2	HEAT-SINK	53X35X250	Type 78075		HEATSINKAAVID	AAVID THERMALLOY	Type 78075
73	5	IC1,IC2,IC3,IC4,IC5	PM8834	4A	PWM DRIVER		sog0508wg244I200	ST	PM8834
74	1	T4	TP40001	N1/N2=5, 2kW, 48V OUT, 425v IN	HF TRANSFORMER 100kHz, 1,5uH cap 160pF Prim/ 1/2 Sec		NucleoPQ40/40 PL-11 Gap0	PIEMME ELEKTRA-srl Italy	TP40001
75	1	J1	VIN	30A,600V	3WAY CONNECTOR		mors3x9,52	Phoenix Contact	1714984
76	1	J2	CON2	24A,500V	2WAY CONNECTOR		Mors2X762S	Camdeboss	CTB0118/2
77	1	J3	CON2				MORS2X1016m	MultiComp	MC0000232
78	1	J4	CON2				mor2X381	Multicomp	MC000044
79	2	J5-J8	PMBUS-IZC		Strip Line Male 3X2,54 mm		siptm3003	Any	Any

80	2	J6,J10	GND CON		Through Hole Vertical		siptm4004molex		22-04-1041	
81	2	J7,J9	STRIP LINE		Strip Line Male 4X 2,54 mm		siptm4004	Any		
82	3	J11,J15,J16	Jumper		Power Jumper		JUMP1M5	Harwin Inc	D3080-05	
83	1	J12	Jumper		Strip line male 2,54mm + Jumper		SIPTM2002	Any		
84										
85	1	L1	1uH	2.6A	HF INDCUTOR		IndCoilcraftME3210	COILCRAFT	ME3220-102ML	
86	1	L2	CHOKE	25A	CM CHOKE 2 x 1.7mH 25A , R36	30%	PIEMME	PIEMME ELEKTRA-srl Italy	LT36054	
87	1	L13	CHOKE	25A	CM CHOKE 2 x 1mH	30%	Wurth7448262510	WURTH	7448262510	
88	2	L3,L4	140 uH	26A, 60kHz	PFC INDUCTOR CHOKE	30%		MAGNETICA	18340002	
89	1	L5	15uH	50A,160kHz	R40 AL81 Megaflux FS-157060-2 CK400060	30%	FS-157060-2		LT40063	
90	1	L6	CHOKE CM14	30uH, 9A	LEAKAGE INDUCTOR	30%		PIEMME ELEKTRA-srl Italy	LT33039	
91	2	L7,L8	Ferrite Bead	300mA			smL0805			
92	2	L9,L10	220uH	1,6A	INDUCTOR		Inductor1110220	Bourns	1110-221K-RC	
93	2	L11,L12			Pulse Trasformer		PULSETRASF196375	OEP	PT6	
94	1	L14	3900uH	0,5A	INDUCTOR		INDuelc15	PANASONIC	ELC15E392L	
95	2	M1,M2	STP24N60DM2		MDmesh M2 Power MOSFET		TO220AB	STM	STP24N60DM2	
96	2	M3,M4	STU2N62K3		Mosfet		TO126	STM	STU2N62K3	
97	1	MOV1	VARISTOR	1kV,22kA	METAL OXIDE VARISTOR		Var12X7X28	LITTLEFUSE	V25S385P	
98	1	OPT01	Optocoupler				Soic4	SHARP	PC817X2NIPOF	
99	1	Q15	2STN1360	30V 1.5A	Low voltage fast-switching NPN power transistor		smsot23123	ST	2STN1360	
100	4	Q9,Q9A,Q10,Q10A	STW48N60M2-4	600V, 42A	MDmesh M2 Power MOSFET		TO247-4	ST	STW48N60M2-4	
101	4	Q1,Q2,Q3,Q4	STW35N60DM2	600V, 36A	MDmesh DM2 Power MOSFET		TO-247	ST	STW35N60DM2	
102		Isolation sheet	Green sheet		High Flow 300P		Isolation mosfet sheet			
103	4	Q11,Q12,Q13,Q14	STW75NF20	N-channel 200 V, 0.028 Ohm typ., 75 A, STripFET(TM) II with fast recovery diode	STRIP FET™		maxTO247	ST	STW75NF20	
104	1	Q16	STD12NF06LT4	100V, 6A	STRIPFET		smDPAK	ST	STD12NF06LT4	
105	1	RL1	RELAY SPST	26A	12VDC SPST		releTE112H2MG	TE CONNECTIVITY / OEG	PCFN-112H2MG,000	
106	1	RSENSE1	2mOhm	3W	3W CURRENT SENSING RESISTOR		RsensOHMITEESC3FR002	OHMITE	CS3FR002E	
107	1	R1	2.2	1/4W	SMD	1%	smr1206	ANY		
108	1	R2	3.3	1/4W	SMD	1%	smr1206	ANY		
109	8	R30,R32,R184,R185,R188, R192,R193,R194	0	1/4W	SMD	1%	smr1206	ANY		
110	1	R3	N.A	1/4W	SMD	1%	smr1206	ANY		
111	1	R4	220	1/8W	SMD	1%	smr0805	ANY		
112	2	R5,R25	1k	1/8W	SMD	1%	smr0805	ANY		
113	2	R201,R202	1,5k	1/4W	SMD	1%	smr1206	ANY		
114	1	R6	2.2K	1/8W	SMD	1%	smr0805	ANY		
115	1	R7	82k	1/8W	SMD	1%	smr0805	ANY		
116	1	R8	47k	1/4W	SMD	1%	smr1206	ANY		
117	1	R9	8.2k	1/4W	SMD	1%	smr1206	ANY		
118	1	R10	2k	1/8W	SMD	1%	smr0805	ANY		
119	1	R12	47	1/4W	THICK FILM SMD RES	1%	smr1206	ANY	ANY	
120	1	R13	NTC 10 OHM		DISCK 26mm	20%	ResVert10W	EPCOS	B57464S0100M00	
121	9	R14,R15,R16,R19,R20, R21,R22,R23,R24	470k	1/4W	THICK FILM SMD RES	1%	smr1206	YAGEO	RC1206FR-07470KL	
122	3	R17,R18,R165	10k	1/8W	THICK FILM SMD RES	1%	smr0805	ANY	ANY	
123	1	R26	5k	1/8W	THICK FILM SMD RES	1%	smr0805	ANY	ANY	
124	3	R27,R28,R33	180K	1/4W	THICK FILM RES	1%	smr1206	ANY		
125	2	R29,R31	200	1/4W	SMD THICK FILM RES	1%	smr1206	ANY		
126	2	R34,R35	4,7K	1/4W	SMD THICK FILM RES	1%	smr1206	ANY		

127	1	R36	100	1/4W	THICK FILM RES	1%	smr1206	ANY		
128	1	R37	3,6K	1/4W	THICK FILM RES	1%	smr1206	ANY		
129	1	R38	Not Assembly			1%	smr1206			Not Assembly
130	4	R39,R40,R41,R42	Not Assembly	1/4W	THICK FILM RES	1%	smr1206			Not Assembly
131	1	R11,	10	1/4W	SMD THICK FILM RES	1%	smr1206	ANY		
132	4	R43, R44,R45,R46,	33	1/4W	SMD THICK FILM RES	1%	smr1206	ANY		
133	2	R47,R48	10k	1/16W	SMD THICK FILM RES		smr0603	ANY		
134	2	R49,R56	100	1/16W	SMD THICK FILM RES	1%	smr0603	ANY		
135	2	R50,R57	470	1/16W	SMD THICK FILM RES	1%	smr0603	ANY		
136	2	R51,R58	27k	1/16W	SMD THICK FILM RES	1%	smr0603	ANY		
137	2	R52,R53	330	1/16W	SMD THICK FILM RES	1%	smr0603	ANY		
138	2	R54,R55	100k	1/16W	SMD THICK FILM RES	5%	smr0603	ANY		
139	1	R59	10	1/16W	SMD THICK FILM RES	1%	smr0603	ANY		
140	2	R60,R65	39	1/16W	SMD THICK FILM RES	1%	smr0603	ANY		
141	2	R61,R66	820	1/16W	SMD THICK FILM RES	1%	smr0603	ANY		
142	2	R62,R67	47	1/16W	SMD THICK FILM RES	1%	smr0603	ANY		
143	11	R63,R64,R68,R69,R70, R126, R127,R128, R134,R159,R160	0	1/16W	SMD THICK FILM RES	1%	smr0603	ANY		
144	1	R71	200	1/8W	SMD	1%	SMR0805	ANY		
145	1	R72	18	1/8W	SMD THICK FILM RES	1%	smr0805	ANY		
146	2	R99,R105	33	1/8W	SMD THICK FILM RES	1%	smr0805	ANY		
147	8	R73,R74,R75,R76,R79, R82,R83,R196	3.3	1/4W	SMD THICK FILM RES	1%	SMR1206	ANY		
148	1	R109	51	1/4W	SMD THICK FILM RES	1%	smr1206	ANY		
149	8	R77,R78,R85,R86,R197, R198, R199,R200	10k	1/4W	SMD THICK FILM RES	1%	SMR1206	ANY		
150	1	R80	3.3	1/4W	SMD	1%	SMR1206	ANY		
151	3	R81,R87,R88	360k	1/4W	SMD THICK FILM RES	1%	SMR1206	ANY		
152	3	R84,R89,R90	1k	1/4W	SMD	1%	SMR1206	ANY		
153	1	R91	22k	1/4W	SMD THICK FILM RES	1%	SMR1206	ANY		
154	5	R92,R93,R95,R96,R195	10k	1/4W	SMD	1%	SMR1206	ANY		
155	2	R94,R97	6,04K	1/4W	SMD THICK FILM RES	1%	SMR1206	Panasonic		BRJ8ENF6041V
156	3	R98,R104,R113	10k	1/8W	SMD THICK FILM RES	1%	smr0805	ANY		
157	4	R112,R114,R115,R117	8.2	1/8W	SMD THICK FILM RES	1%	smr0805	ANY		
158	3	R100,R101,R107	330	1/8W	SMD	1%	smr0805	ANY		
159	4	R102,R103,R175,R176	100k	1/8W	SMD	5%	smr0805	ANY		
160	3	R106,R116,R118	330	1/8W	SMD THICK FILM RES	1%	smr0805	ANY		
161	1	R108	0 (n.c.)	1/4W	SMD THICK FILM RES	1%	smr1206	ANY		
162	4	R110,R111,R119,R120	100k	1/8W	SMD THICK FILM RES	1%	smr0805	ANY		
163	4	R121,R122,R140,R141	4.7k	1/16W	SMD THICK FILM RES	1%	smr0603	ANY		
164	3	R123,R138,R142	10k	1/16W	SMD THICK FILM RES	1%	smr0603	ANY		
165	4	R124,R129,R143,R145	620	1/16W	SMD THICK FILM RES	1%	smr0603	ANY		
166	6	R130,R131,R144,R154,R155, R156	470	1/16W	SMD THICK FILM RES	1%	smr0603	ANY		
167	1	R132	470R	1/16W	SMD THICK FILM RES	1%	smr0603	ANY		
168	2	R133,R157	100R	1/16W	SMD THICK FILM RES	1%	smr0603	ANY		
169	9	R135,R146,R147,R148,R149, R150,R151,R152,R153,	OR	1/16W	SMD THICK FILM RES	1%	smr0603	ANY		
170	1	R158	13k	1/16W	SMD THICK FILM RES	1%	smr0603	ANY		
171	2	R136,R137	330	1/16W	SMD THICK FILM RES	1%	smr0603	ANY		
172	1	R139	2k	1/16W	SMD THICK FILM RES	1%	smr0603	ANY		
173	1	R161	4k3	1/16W	SMD THICK FILM RES	1%	smr0603	ANY		
174	1	R162	1k	1/16W	SMD THICK FILM RES	1%	smr0603	ANY		
175	4	R167,R168,R173,R177	2R2	1/4W	SMD THICK FILM RES	1%	SMR1206	ANY		
176	2	R169,R178	10K	1/4W	SMD THICK FILM RES	1%	SMR1206	ANY		
177	2	R170,R172	4R7	1/8W	SMD THICK FILM RES	1%	SMR0805	ANY		
178	2	R171,R174	100	1/8W	SMD THICK FILM RES	1%	SMR0805	ANY		
179	2	R179,R180	NOT ASSEMBLY	1/16W	SMD THICK FILM RES	1%	smr0603	ANY		NOT ASSEMBLY

180	1	R186	10K	1W	SMD THICK FILM RES	5%	smr2512	ANY		
181	3	R189,R190,R191	470K	1W	SMD THICK FILM RES	5%	smr2512	ANY		
182	4	R203,R204,R205,R206	0	1/4W	SMD THICK FILM RES	1%	SMR1206	ANY	Not ASSEMBLED in case of 4lead STW56N60M2-4 use	
183	1	R207	0 N.A.	1/8W	SMD THICK FILM RES	1%	SMR0805	ANY	NOT ASSEMBLED	
184	2	R208,R209	1	1/8W	SMD THICK FILM RES	1%	SMR0805	ANY		
185	2	R210,R211	0.1	1/2W	SMD THICK FILM RES	1%	SMR1206	Vishay or Any	WSL1206R1000FEK or Any	
186	48	7,TP8,TP9,TP10,TP11,TP12,TP13,TP14,TP15,TP16,TP17,TP18,TP19,TP20,TP21,TP23,TP24,TP25,TP27,TP28,TP29,TP30,TP31,TP32,TP33,TP34,TP37,TP38,TP39,TP40,TP41,TP42,TP43,TP44,TP45,TP46,TP47,TP48,TP49,TP50,TP51,TP52	TEST POINT				testpoint			
187	4	TP22,TP53,TP54,TP55	Tower M3X10mm					See mechanical part section		
188	2	TX1,TX2	XFRM_PULSE	2kV, 200Vus	GATE DRIVE TRANSFORMER		PULSETRASF1000	Würth	750315158	
189	1	TX3	n 1:70	500kHz	SMD		Trasf5300	Würth	749251070	
190	1	T1	Würth 750817436	6W	FLYBACK HF TRANSFO		trasfWürth 750817436	Würth	750817436	
191	2	T2,T3	CURR_TRANS	30A	SMD CT		TrasfecosB82801	EPCOS	B82801C2245A200	
192	1	U1	LD1117	3.3V			SMDPAK	ST	LD1117DT33TR	
193	1	U2	VIPER27HD	800V,			sog05016wg244I350OPT	ST	VIPER27HD	
194	1	U3	LD1117	3.3V	LIN. VOLTAGE REG.		SMDPAK	ST	LD1117DT33TR	
195	1	U4	TSV611ILT		RAIL TO RAIL OPAMP		Sot23I5	ST	TSV611ILT	
196	1	U5	TSV911ILT		RAIL TO RAIL OPAMP		Sot23I5	ST	TSV911ILT	
197	2	U7,U8	PS9821		OPTOCOUPLER		sog0508wg244I200	NEC	PS9821-1-F3-A	
198	2	U9,U11	STM32F334C8T6 (LQFP48)		32 BIT ARM CORTEX-M4 MICROCONTROLLER		QUAD50M48WG900	ST	STM32F334C8T6	
199	2	U10,U12	LM19CIZ	2.4V 10uA			to92	TEXAS INSTRUMENTS		
200	3	U13,U14,U18	BAR43SFILMH / J	30V,0.1A			smsot23123	ST	BAR43SFILM	
201	1	VR1	TS2431	2.5V To 24V	PR. SHUNT VOLTAGE REF.		smsot23123	ST	TS2431BILT	
202	2	X1,X2	8MHz HC49/US		8MHz Cristal Oscillator		QUARZOSMD	EUROQUARTZ	8.000MHZ 49USMX/30/50/40/18PF/ATF	

#### MECHANICAL PART

203	4		Brass Spacer Stud, metric, internal/internal WA-SBrII	Lenght 60mm	Material Brass Surface: Nickel plated			WURTH ELEKTRONIK	970 600 324	
204	4		Stainless Steel Spacer Studs, metric, internal/external WA-	Lenght 5mm	Stainless steel			WURTH ELEKTRONIK	971 050 327	
205	12		Steel Spacer Stud, metric, internal/external WA-SStIE	Lenght 10mm	Steel Spacer Stud with metric thread internal / external			WURTH ELEKTRONIK	971 100 351	
206	2		Steel Spacer Stud, metric, internal/internal WA-SSTII	Lenght 10mm	Steel Spacer Stud, metric, internal/internal WA-SSTII			WURTH ELEKTRONIK	970100351	
207	3		Snap Rivet Mount Spacer WA-SNRM	Lenght 19.1	Snap in, drill 4.0 mm			WURTH ELEKTRONIK	709855000	
208	5		3M Fixed Height Feet SJ 5312 CLEAR	diameter 11.1 mm	Height			3M	SJ5003	
209	1		Plexiglass	Thickness 3mm	dimension 355X195 mm					
210	1		Aluminum foil	Thickness 1mm	dimension 390X205mm					
211	4		Bracket		0.032[0.81] TH'K BRASS			KEYSTONE ELECTRONICS CORP.	KEY1011-ND	
212	34		conic head screw M3	M3	Lenght 6mm			RS COMPONENTS	560-580	

213	26		conic head screw M3	M3	Lenght 8mm			RS COMPONENTS	190-434	
214	20		A2 Stainless -Metric	M3	A2 grade 18//8 stainless steel (Type 304 S15)			RS COMPONENTS	527-230	
215	1	SHI1	CUSTOMER SHIELD		Dimension 112X50X45mm cut out one the 50X45mm side			Material 0,18mm thickness		
216	10	SH1,CP2,CP3,CP4,CP5, CP6,CP7,CP8,CP9,CP10	Large Clips		Dimension 8,79X2,28 mm			Holland Shielding System	Large Clips LC	
217	14	Clips AAVID THERMALLOY	Clips for TO 247					AAVID THERMALLOY	MAX03HNG	
218	6	Clips AAVID THERMALLOY	Clips for To 220					AAVID THERMALLOY	MAX10NG	
219	1		Shielded Single Core Microphone Cable 0.14 mm² CSA, PVC Sheath, 1.9mm OD 25m		Length 26 mm External diameter 1,9mm				RS:749-2550	
220	1		Shielded Single Core Microphone Cable 0.14 mm² CSA, PVC Sheath, 1.9mm OD 25m		Length 14 mm External diameter 1,9mm				RS:749-2550	
221	2		Extension cable to Fan		Two Cables diameter 0,5mm Length 43 mm				ANY	
222	22		Plain Stainless Steel Internal Tooth Locking & Anti-Vibration Washer, M3 316 A4						RS:665-7299	
223	22		Stainless Steel Plain Washer, 0.5mm Thickness, M3, 304, A2						RS:527-369	