

PROC054 REV E Bill of Materials

Designator	Quantity	Value	PartNumber	Manufacturer	Description	PackageReference
!PCB1	1		PROC054	Any	Printed Circuit Board	
C1_1, C1_2, C1_3, C1_4, C3_1, C3_2, C3_3, C3_4, C7_1, C7_2, C7_3, C7_4	12	1uF	GCM188R71C105KA64D	MuRata	CAP, CERM, 1 uF, 16 V, +/- 10%, X7R, AEC-Q200 Grade 1, 0603	603
C2_1, C2_2, C2_3, C2_4	4	0.047uF	GRM155R71E473KA88D	MuRata	CAP, CERM, 0.047 uF, 25 V, +/- 10%, X7R, 0402	402
C4_1, C4_2, C4_3, C4_4, C128_1, C128_2, C128_3, C128_4, C129_1, C129_2, C129_3, C129_4, C131_1, C131_2, C131_3, C131_4, C132_1, C132_2, C132_3, C132_4, C134_1, C134_2, C134_3, C134_4, C135_1, C135_2, C135_3, C135_4, C136_1, C136_2, C136_3, C136_4, C137_1, C137_2, C137_3, C137_4, C138_1, C138_2, C138_3, C138_4, C140_1, C140_2, C140_3, C140_4, C142_1, C142_2, C142_3, C142_4, C143_1, C143_2, C143_3, C143_4, C144_1, C144_2, C144_3, C144_4, C145_1, C145_2, C145_3, C145_4, C148_1, C148_2, C148_3, C148_4,	70	0.22uF	GCM155R71C224KE02D	MuRata	CAP, CERM, 0.22 uF, 16 V, +/- 10%, X7R, AEC-Q200 Grade 1, 0402	402

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C5_1, C5_2, C5_3, C5_4, C6_1, C6_2, C6_3, C6_4, C10, C12, C14, C16, C19, C23, C25, C27, C29, C31, C32, C33, C35, C70, C72, C74, C76, C80, C82, C84, C86, C88, C89, C90, C92, C130_1, C130_2, C130_3, C130_4, C133_1, C133_2, C133_3, C133_4, C139_1, C139_2, C139_3, C139_4, C141_1, C141_2, C141_3, C141_4, C151, C153, C155, C157, C159, C161, C169, C172, C175, C176, C181, C184, C185, C201, C207	64	10uF	GCM21BR71A106KE22L	MuRata	CAP, CERM, 10 uF, 10 V, +/- 10%, X7R, 0805	805
C8_1, C8_2, C8_3, C8_4, C94, C149, C196, C197, C198, C200, C205, C206	12	0.1uF	CGA2B3X7R1H104K050BB	TDK	CAP, CERM, 0.1 uF, 50 V, +/- 10%, X7R, AEC-Q200 Grade 1, 0402	402
C9, C146_1, C146_2, C146_3, C146_4, C147_1, C147_2, C147_3, C147_4, C162, C163, C164, C165	13	0.1uF	GCM155R71C104KA55D	MuRata	CAP, CERM, 0.1 uF, 16 V, +/- 10%, X7R, 0402	402
C11, C15, C18, C21, C22, C24, C30, C71, C75, C79, C81, C87, C150, C154, C158, C166, C204	17	22uF	GCM31CR71A226KE02	MuRata	CAP, CERM, 22 uF, 10 V, +/- 10%, X7R, AEC-Q200 Grade 1, 1206	1206

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C13, C17, C20, C26, C28, C34, C36, C73, C77, C78, C83, C85, C91, C93, C152, C156, C160, C202, C203	19	1uF	GCM188R71C105KA64J	MuRata	CAP, CERM, 1 µF, 16 V,+/- 10%, X7R, AEC-Q200 Grade 1, 0603	603
C37, C38, C49, C50, C95, C96, C107, C108	8	390pF	GCM155R71H391KA37D	MuRata	CAP, CERM, 390 pF, 50 V,+/- 10%, X7R, AEC-Q200 Grade 1, 0402	402
C39, C44, C51, C56, C97, C102, C109, C114	8	6800pF	GCM188R72A682KA37D	MuRata	CAP, CERM, 6800 pF, 100 V,+/- 10%, X7R, AEC-Q200 Grade 1, 0603	603
C42, C47, C54, C59, C63, C100, C105, C112, C117, C121	10	0.1uF	GCM155R71C104JA55D	MuRata	CAP, CERM, 0.1 µF, 16 V,+/- 5%, X7R, AEC-Q200 Grade 1, 0402	402
C43, C48, C55, C60, C101, C106, C113, C118	8	10uF	GRM21BR71A106KA73L	MuRata	CAP, CERM, 10 µF, V,+/- 10%, X7R, 0805	805
C61, C62, C64, C65, C66, C67, C68, C69, C119, C120, C122, C123, C124, C125, C126, C127	16	22uF	C2012X7S1A226M125AC	TDK	CAP, CERM, 22 uF, 10 V, +/- 20%, X7S, 0805	805
C167, C168, C173, C174	4	4.7pF	GJM1555C1H4R7BB01D	MuRata	CAP, CERM, 4.7 pF, 50 V, +/- 2%, C0G/NP0, 0402	402
C171, C178, C180, C183, C187, C189	6	2.2uF	GCM188R70J225KE22D	MuRata	CAP, CERM, 2.2 uF, 6.3 V, +/- 10%, X7R, AEC-Q200 Grade 1, 0603	603
C190, C191, C192, C193, C194	5	47uF	T491B476K010AT	Kemet	CAP, TA, 47 µF, 10 V, +/- 10%, SMD	3528-21
C195, C199	2	0.01uF	C0402C103K4RACTU	Kemet	CAP, CERM, 0.01 µF, 16 V,+/- 10%, X7R, 0402	402
DS1, DS2	2	Red	TLMS1000-GS08	Vishay-Semiconductor	LED, Red, SMD	1.6x0.8mm
DS3, DS4, DS5, DS6, DS7	5	Yellow	TLMY1000-GS08	Vishay-Semiconductor	LED, Yellow, SMD	1.6x0.8mm
J4, J5	2		FX23-120P-0.5SV15	Hirose Electric Co. Ltd.	Header(shrouded), 0.5mm, 60x2, Gold, SMT	Header(shrouded), 0.5mm, 60x2, SMT
J6	1		39300060	Molex	Header(shrouded), 4.2mm, 3x2, Tin, R/A, TH	Header(shrouded), 4.2mm, 3x2, R/A, TH
L1, L2, L3, L4, L5, L6, L7, L8, L17, L18, L19, L20, L21, L22, L23, L24	16	100nH	NLCV32T-R10M-EFRD	TDK	Inductor, Wirewound, Ferrite, 100 nH, 2.85 A, 0.024 ohm, AEC-Q200 Grade 1, SMD	3.2x2.2x2.5mm
L9, L10, L11, L12, L25, L26, L27, L28	8	30 ohm	BLM21PG300SH1D	MuRata	Ferrite Bead, 30 ohm @ 100 MHz, 4 A, 0805	805

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L13, L14, L15, L16, L29, L30, L31, L32	8	470nH	DFE252012PD-R47M	MuRata Toko	Inductor, Shielded, 470 nH, 4.7 A, 0.021 ohm, SMD	1008
L33, L34, L35	3	120 ohm	BLM18SG121TN1D	MuRata	Ferrite Bead, 120 ohm @ 100 MHz, 3 A, 0603	603
Q1, Q2, Q3, Q4, Q5	5	100V	BSS123	Fairchild Semiconductor	MOSFET, N-CH, 100 V, 0.17 A, SOT-23	SOT-23
R1_1, R1_2, R1_3, R1_4, R2_1, R2_2, R2_3, R2_4, R4_1, R4_2, R4_3, R4_4, R5_1, R5_2, R5_3, R5_4, R8_1, R8_2, R8_3, R8_4, R10_1, R10_2, R10_3, R10_4, R11_1, R11_2, R11_3, R11_4, R12_1, R12_2, R12_3, R12_4, R13_1, R13_2, R13_3, R13_4, R14_1, R14_2, R14_3, R14_4, R15_1, R15_2, R15_3, R15_4	44	33.2	CRCW040233R2FKED	Vishay-Dale	RES, 33.2, 1%, 0.063 W, AEC-Q200 Grade 0, 0402	402
R3_1, R3_2, R3_3, R3_4	4	47.5k	CRCW040247K5FKED	Vishay-Dale	RES, 47.5 k, 1%, 0.063 W, AEC-Q200 Grade 0, 0402	402
R6_1, R6_2, R6_3, R6_4, R7_1, R7_2, R7_3, R7_4, R30_1, R30_2, R30_3, R30_4, R31_1, R31_2, R31_3, R31_4, R32_1, R32_2, R32_3, R32_4, R33_1, R33_2, R33_3, R33_4	24	0	CRCW02010000Z0ED	Vishay-Dale	RES, 0, 5%, 0.05 W, 0201	201

Designator	Quantity	Value	PartNumber	Manufacturer	Description	PackageReference
R9_1, R9_2, R9_3, R9_4, R21_1, R21_2, R21_3, R21_4, R22_1, R22_2, R22_3, R22_4, R23_1, R23_2, R23_3, R23_4, R24_1, R24_2, R24_3, R24_4, R25_1, R25_2, R25_3, R25_4, R26_1, R26_2, R26_3, R26_4, R43, R45, R48, R52, R67, R69, R72, R76, R107, R115, R121, R122, R126, R129, R130, R131, R143, R145, R146, R154, R156, R158, R160, R165, R169, R170, R171, R172, R204, R205, R208, R209, R210, R211, R214	63	0	CRCW04020000Z0ED	Vishay-Dale	RES, 0, 5%, 0.063 W, AEC-Q200 Grade 0, 0402	402

Designator	Quantity	Value	PartNumber	Manufacturer	Description	PackageReference
R16_1, R16_2, R16_3, R16_4, R17_1, R17_2, R17_3, R17_4, R18_1, R18_2, R18_3, R18_4, R27_1, R27_2, R27_3, R27_4, R28_1, R28_2, R28_3, R28_4, R37, R49, R50, R51, R54, R56, R57, R61, R74, R78, R80, R81, R86, R87, R88, R89, R90, R91, R92, R93, R94, R95, R118, R119, R120, R137, R138, R139, R141, R144, R147, R148, R149, R150, R151, R152, R153, R155, R157, R159, R161, R162, R163, R174_1, R174_2, R174_3, R174_4, R176_1, R176_2, R176_3, R176_4, R177_1,	85	10.0k	CRCW040210K0FKED	Vishay-Dale	RES, 10.0 k, 1%, 0.063 W, AEC-Q200 Grade 0, 0402	402
R29_1, R29_2, R29_3, R29_4	4	0	CRCW08050000Z0EAHP	Vishay-Dale	RES, 0, 5%, 0.333 W, AEC-Q200 Grade 0, 0805	805
R34, R59	2	1.02k	CRCW06031K02FKEA	Vishay-Dale	RES, 1.02 k, 1%, 0.1 W, 0603	603
R35, R188_1, R188_2, R188_3, R188_4	5	0	PMR10EZPJ000	Rohm	RES, 0, 0%, W, AEC-Q200 Grade 0, 0805	805
R36, R60	2	1.96k	CRCW06031K96FKEA	Vishay-Dale	RES, 1.96 k, 1%, 0.1 W, AEC-Q200 Grade 0, 0603	603
R38, R53, R62, R77, R189, R190, R191, R212	8	100	MCS0402MD1000BE100	Vishay/Beyschlag	RES, 100, 0.1%, 0.1 W, AEC-Q200 Grade 0, 0402	402
R39, R40, R41, R42, R63, R64, R65, R66	8	3.9	CRCW04023R90JNED	Vishay-Dale	RES, 3.9, 5%, 0.063 W, AEC-Q200 Grade 0, 0402	402
R44, R68, R73, R75, R96, R97	6	0	MCT06030Z0000ZP500	Vishay/Beyschlag	RES, 0, 5%, 0.125 W, 0603	603

Designator	Quantity	Value	PartNumber	Manufacturer	Description	PackageReference
R46, R47, R70, R71, R180_1, R180_2, R180_3, R180_4, R181_1, R181_2, R181_3, R181_4	12	4.7k	CRCW04024K70JNED	Vishay-Dale	RES, 4.7 k, 5%, 0.063 W, AEC-Q200 Grade 0, 0402	402
R79, R82, R83, R84, R85	5	49.9	CRCW040249R9FKED	Vishay-Dale	RES, 49.9, 1%, 0.063 W, AEC-Q200 Grade 0, 0402	402
R103, R104, R106, R108, R132, R133, R134, R135	8	43	CRCW040243R0JNED	Vishay-Dale	RES, 43, 5%, 0.063 W, AEC-Q200 Grade 0, 0402	402
R105	1	11.5k	ERJ-2RKF1152X	Panasonic	RES, 11.5 k, 1%, 0.1 W, AEC-Q200 Grade 0, 0402	402
R110	1	3.09k	ERJ-2RKF3091X	Panasonic	RES, 3.09 k, 1%, 0.1 W, AEC-Q200 Grade 0, 0402	402
R136, R140	2	100	CH02016-100RGFT	Vishay-Semiconductor	RES, 100, 2%, 0.03 W, 02016	2016
R164, R173	2	10	CRCW040210R0FKED	Vishay-Dale	RES, 10.0, 1%, 0.063 W, AEC-Q200 Grade 0, 0402	402
R166	1	5.11k	CRCW04025K11FKED	Vishay-Dale	RES, 5.11 k, 1%, 0.063 W, AEC-Q200 Grade 0, 0402	402
R175_1, R175_2, R175_3, R175_4, R178_1, R178_2, R178_3, R178_4, R179_1, R179_2, R179_3, R179_4, R182_1, R182_2, R182_3, R182_4, R183_1, R183_2, R183_3, R183_4	20	100k	CRCW0402100KFKED	Vishay-Dale	RES, 100 k, 1%, 0.063 W, AEC-Q200 Grade 0, 0402	402
R192, R194, R195, R196, R197, R198, R199, R200, R201, R202, R203	11	510	ERJ-2GEJ511X	Panasonic	RES, 510, 5%, 0.1 W, AEC-Q200 Grade 0, 0402	402
R193	1	360	ERJ-2GEJ361X	Panasonic	RES, 360, 5%, 0.1 W, AEC-Q200 Grade 0, 0402	402
TP16, TP17, TP18, TP19, TP20, TP25, TP29, TP30	8		5001	Keystone	Test Point, Miniature, Black, TH	Black Miniature Testpoint
U1_1, U1_2, U1_3, U1_4	4		AWR2243APBGABLQ1	Texas Instruments	Single Chip 77 and 79 GHz FMCW Transceiver, ABL0161A (FCBGA-161)	ABL0161A
U2_1, U2_2, U2_3, U2_4	4		MX25V1635FZNQ	Macronix International Co., LT	2.3V-3.6V, 16M-BIT [x 1/x 2/x 4] CMOS FLASH Memory, WSON-8	WSON-8
U3, U4	2		LP87524PRNFTQ1	Texas Instruments	4-A + 2.5-A + Two 1.5-A Buck Converters With Integrated Switches, RNF0026C (VQFN-HR-26)	RNF0026C
U5	1		TPS73733QDRBRQ1	Texas Instruments	Single Output Automotive LDO, 1 A, Fixed 3.3 V Output, 2.2 to 5.5 V Input, with Reverse Current Protection, 8-pin SON (DRB), -40 to 125 degC, Green (RoHS & no Sb/Br)	DRB0008A
U6, U11, U12, U13	4		SN74LVC1G08QDBVRQ1	Texas Instruments	Automotive Catalog Single 2-Input Positive-AND Gate, DBV0005A, LARGE T&R	DBV0005A
U7, U8	2		LMK00804BPW	Texas Instruments	Low Skew, 1-to-4 Multiplexed Differential/LVCMOS-to-LVCMOS/TTL Fanout Buffer, PW0016A (TSSOP-16)	PW0016A
U9, U10	2		TMP112AIDRLR	Texas Instruments	1.4V-Capable +/-0.5degC Temperature Sensor with Alert Function and I2C/SMBus interface in SOT-563, DRL0006A (SOT-OTHER-6)	DRL0006A

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Y1, Y2	2		CX3225SA40000D0PTWCC	Kyocera	Crystal, 40 MHz, 8pF, SMD	3.2x2.5mm
C40, C41, C45, C46, C52, C53, C57, C58, C98, C99, C103, C104, C110, C111, C115, C116	0	100uF	GRM21BR60J107M	MuRata	CAP, CERM, 100 uF, 6.3 V, +/- 20%, X5R, 0805	805
FID1, FID2, FID3, FID4, FID5, FID6	0		N/A	N/A	Fiducial mark. There is nothing to buy or mount.	N/A
J1_1, J1_2, J1_3, J1_4	0		TSM-106-01-L-DV	Samtec	Header, 2.54mm, 6x2, Gold, SMT	Header, 2.54mm, 6x2, SMT
J2	0		TSM-104-01-L-DV	Samtec	Header, 2.54mm, 4x2, Gold, SMT	Header, 2.54mm, 4x2, SMT
J3	0		19S101-40ML5	Rosenberger	Connector, RF 50 Ohms, SMT	5.2x4.1x5.2 mm
R19, R20	0	0	PMR10EZPJ000	Rohm	RES, 0, 0%, W, AEC-Q200 Grade 0, 0805	805
R55, R58, R124	0	10.0k	CRCW040210K0FKED	Vishay-Dale	RES, 10.0 k, 1%, 0.063 W, AEC-Q200 Grade 0, 0402	402
R98, R99, R100, R101, R102, R109, R112, R114, R116, R117, R123, R125, R128, R142, R186, R187, R213	0	0	CRCW04020000Z0ED	Vishay-Dale	RES, 0, 5%, 0.063 W, AEC-Q200 Grade 0, 0402	402
R111	0	49.9	ERJ-2RKF49R9X	Panasonic	RES, 49.9, 1%, 0.1 W, AEC-Q200 Grade 0, 0402	402
R113	0	1.00k	CRCW04021K00FKED	Vishay-Dale	RES, 1.00 k, 1%, 0.063 W, AEC-Q200 Grade 0, 0402	402
R127	0	0	CRCW02010000Z0ED	Vishay-Dale	RES, 0, 5%, 0.05 W, 0201	201
R167, R168	0	5.11k	CRCW04025K11FKED	Vishay-Dale	RES, 5.11 k, 1%, 0.063 W, AEC-Q200 Grade 0, 0402	402

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