

PROC054 REV D 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, 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,	74	0.22uF	GCM155R71C224KE02D	MuRata	CAP, CERM, 0.22 uF, 16 V,+/- 10%, X7R, AEC-Q200 Grade 1, 0402	402

Designator	Quantity	Value	PartNumber	Manufacturer	Description	PackageReference
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

Designator	Quantity	Value	PartNumber	Manufacturer	Description	PackageReference
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

Designator	Quantity	Value	PartNumber	Manufacturer	Description	PackageReference
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, R107, R115, R121, R122, R126, R129, R130, R131, R143, R145, R146, R165, R169, R170, R171, R172, R204, R205, R208, R209, R210, R211, R214	27	0	ERJ-2GE0R00X	Panasonic	RES, 0, 5%, 0.1 W, AEC-Q200 Grade 0, 0402	402
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.	85	10.0k	CRCW040210K0FKED	Vishay-Dale	RES, 10.0 k, 1%, 0.063 W, AEC-Q200 Grade 0, 0402	402

Designator	Quantity	Value	PartNumber	Manufacturer	Description	PackageReference
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	32	0	CRCW04020000Z0ED	Vishay-Dale	RES, 0, 5%, 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	CRCW06031R00FKEA	Vishay-Dale	RES, 1.00, 1%, 0.1 W, AEC-Q200 Grade 0, 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
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
R154, R156, R158, R160	4	0	CRCW04020000Z0EDHP	Vishay-Dale	RES, 0, 0%, 0.2 W, AEC-Q200 Grade 0, 0402	402
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

Designator	Quantity	Value	PartNumber	Manufacturer	Description	PackageReference
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		XA2243PBGABL	Texas Instruments	Single Chip 77 and 79 GHz FMCW Transceiver, ABL0161A (FCBGA-161)	ABL0161A
U2_1, U2_2, U2_3, U2_4	4		MX25V1635FZDQ	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
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

Designator	Quantity	Value	PartNumber	Manufacturer	Description	PackageReference
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, R112, R114, R125	0	0	CRCW04020000Z0EDHP	Vishay-Dale	RES, 0, 0%, 0.2 W, AEC-Q200 Grade 0, 0402	402
R109, R116, R117, R123, R128, R142, R186, R187, R213	0	0	ERJ-2GE0R00X	Panasonic	RES, 0, 5%, 0.1 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

IMPORTANT NOTICE AND DISCLAIMER

TI PROVIDES TECHNICAL AND RELIABILITY DATA (INCLUDING DATASHEETS), DESIGN RESOURCES (INCLUDING REFERENCE DESIGNS), APPLICATION OR OTHER DESIGN ADVICE, WEB TOOLS, SAFETY INFORMATION, AND OTHER RESOURCES "AS IS" AND WITH ALL FAULTS, AND DISCLAIMS ALL WARRANTIES, EXPRESS AND IMPLIED, INCLUDING WITHOUT LIMITATION ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT OF THIRD PARTY INTELLECTUAL PROPERTY RIGHTS.

These resources are intended for skilled developers designing with TI products. You are solely responsible for (1) selecting the appropriate TI products for your application, (2) designing, validating and testing your application, and (3) ensuring your application meets applicable standards, and any other safety, security, or other requirements. These resources are subject to change without notice. TI grants you permission to use these resources only for development of an application that uses the TI products described in the resource. Other reproduction and display of these resources is prohibited. No license is granted to any other TI intellectual property right or to any third party intellectual property right. TI disclaims responsibility for, and you will fully indemnify TI and its representatives against, any claims, damages, costs, losses, and liabilities arising out of your use of these resources.

TI's products are provided subject to TI's Terms of Sale (www.ti.com/legal/termsofsale.html) or other applicable terms available either on ti.com or provided in conjunction with such TI products. TI's provision of these resources does not expand or otherwise alter TI's applicable warranties or warranty disclaimers for TI products.

Mailing Address: Texas Instruments, Post Office Box 655303, Dallas, Texas 75265
Copyright © 2020, Texas Instruments Incorporated