

Bill of Materials

Item Number	Quantity	Value	Description	Part Number	Part Reference	MPN	NOTE Status	Manufacturer	PCB Package
1	0	DNM	CAPACITOR, CERAMIC, N/A VALUE, -55DEGC/+125DEGC, 0402, SMD	02-04164	ANT1 C12 C41 C177 C302	CAPACITOR_0402_DNM_N/A_M	PREFERRED	Manufacturer selection	0402
2	2	1pF	CAPACITOR, CERAMIC COG/NPO, 1pF, 50V, -0.1pF/+0.1pF, -55DEGC/+125DEGC, 0402, SMD	02-04367	ANT2 C176	GRM1555C1H1R0BA01D	PREFERRED	MURATA	0402
3	5	12nH	INDUCTOR, CHIP, 12nH, -5%/+5%, 0.5A, -55DEGC/+125DEGC, 0402, SMD	03-06556	ANT3 L174 L192 L193 L201	LQW15AN12NJ00D	PREFERRED	MURATA	0402
4	11	47nF	CAPACITOR, CERAMIC, X7R, 47nF, 25V, -10%/+10%, -55DEGC/+125DEGC, 0402, SMD	02-04324	C11 C51 C121 C131 C151 C221 C251 C261 C271 C281 C291	GRM155R71E473KA88D	PREFERRED	MURATA	0402
5	1	2.2uF	CAPACITOR, CERAMIC X5R, 2.2uF, 10V, -10%/+10%, -55DEGC/+85DEGC, 0603, SMD	02-02405	C52	GRM188R61A225KE34D	PREFERRED	MURATA	0603
6	1	220nF	CAPACITOR, CERAMIC X5R, 220nF, 10V, -15%/+15%, -55DEGC/+85DEGC, 0402, SMD	02-04353	C61	GRM155R61A224KE19D	PREFERRED	MURATA	0402
7	2	10nF	CAPACITOR, CERAMIC X7R, 10nF, 25V, -10%/+10%, -55DEGC/+125DEGC, 0402, SMD	02-02314	C171 C211	GRM155R71E103KA01D	PREFERRED	MURATA	0402
8	1	100pF	CAPACITOR, CERAMIC COG/NPO, 100pF, 50V, -5%/+5%, -55DEGC/+125DEGC, 0402, SMD	02-04365	C172	GRM1555C1H101JA01D	PREFERRED	MURATA	0402
9	1	33pF	CAPACITOR, CERAMIC COG/NPO, 33pF, 50V, -5%/+5%, -55DEGC/+125DEGC, 0402, SMD	02-04354	C173	GRM1555C1H330JA01D	PREFERRED	MURATA	0402
10	3	15pF	CAPACITOR, CERAMIC COG/NPO, 15pF, 50V, -5%/+5%, -55DEGC/+125DEGC, 0402, SMD	02-04372	C174 C301 C311	GRM1555C1H150JA01D	PREFERRED	MURATA	0402
11	1	3pF	CAPACITOR, CERAMIC COG/NPO, 3pF, 50V, -0.25pF/+0.25pF, -55DEGC/+125DEGC, 0402, SMD	02-04606	C175	GRM1555C1H3R0CA01D	PREFERRED	MURATA	0402
12	1	2.2pF	CAPACITOR, CERAMIC COG/NPO, 2.2pF, 50V, -0.25pF/+0.25pF, -55DEGC/+125DEGC, 0402, SMD	02-04605	C181	GRM1555C1H2R2CA01D	PREFERRED	MURATA	0402
13	2	3.3pF	CAPACITOR, CERAMIC COG/NPO, 3.3pF, 50V, -0.25pF/+0.25pF, -55DEGC/+125DEGC, 0402, SMD	02-04369	C191 C201	GRM1555C1H3R3CA01D	PREFERRED	MURATA	0402
14	1	1.5nF	CAPACITOR, CERAMIC U2J, 1.5nF, 10V, -5%/+5%, -55DEGC/+125DEGC, 0402, SMD	02-04545	C231	GRM1557U1A152JA01D	PREFERRED	MURATA	0402
15	0	DNM	CAPACITOR, CERAMIC X7R, 100nF, 10V, -10%/+10%, -55DEGC/+125DEGC, 0402, SMD	02-00760	C321	GRM155R71A104KA01D	PREFERRED	MURATA	0402
16	0	DNM	CAPACITOR, CERAMIC COG/NPO, 22pF, 50V, -5%/+5%, -55DEGC/+125DEGC, 0402, SMD	02-04373	C322	GRM1555C1H220JA01D	PREFERRED	MURATA	0402
17	1	BLM15HG1025N1	FILTER, INDUCTOR TYPE, 1000OHM@100MHZ, 25%, 250mA, 0402, SMD	04-00032	L1	BLM15HG1025N1D	PREFERRED	MURATA	0402
18	1	10nH	INDUCTOR, CHIP, 10nH, -5%/+5%, 0.5A, -55DEGC/+125DEGC, 0402, SMD	03-06552	L171	LQW15AN10NJ00D	PREFERRED	MURATA	0402
19	1	7.5nH	INDUCTOR, CHIP, 7.5nH, -2%/+2%, 0.57A, -55DEGC/+125DEGC, 0402, SMD	03-06551	L172	LQW15AN7N5G00D	PREFERRED	MURATA	0402
20	1	18nH	INDUCTOR, CHIP, 18nH, -5%/+5%, 0.37A, -55DEGC/+125DEGC, 0402, SMD	03-06593	L173	LQW15AN18NJ00D	PREFERRED	MURATA	0402
21	1	15nH	INDUCTOR, CHIP, 15nH, -5%/+5%, 0.46A, -55DEGC/+125DEGC, 0402, SMD	03-06555	L191	LQW15AN15NJ00D	PREFERRED	MURATA	0402
22	2	SFM-110-02-S-D-A-K-TR	CONNECTOR, HEADER, FEMALE, STRAIGHT, 2 ROWS, 20 PINS, PITCH 1.27mm, SMD	06-02251	P1 P2	SFM-110-02-SM-D-A-K-TR	PREFERRED	SAMTEC	
23	1	SMA-10V21-TGG	CONNECTOR, COAX RF, STRAIGHT, FEMALE, 1 PIN, SMD	06-02188	P3	SMA-10V21-TGG	PREFERRED	HUS-TSAN	
24	1	0	RESISTOR, JUMPER, -55DEGC/+155DEGC, 0402, SMD	01-01784	R12	RK73Z1ETTP	PREFERRED	KOA SPEER	0402
25	1	56k	RESISTOR, THICK FILM, 56k, -1%/+1%, 0.063W, 50V, -55DEGC/+155DEGC, 0402, SMD	01-16848	R141	RK73H1ETTP5602F	PREFERRED	KOA SPEER	0402
26	1	10	RESISTOR, THICK FILM, 10, -5%/+5%, 0.063W, 50V, -55DEGC/+155DEGC, 0402, SMD	01-11612	R171	RESISTOR_0402_10_+/-5%_50V_0.063W_M_+/-200PPM	PREFERRED	Manufacturer selection	0402
27	1	0	RESISTOR, JUMPER, 3 PORTS, -55DEGC/+155DEGC, 0402, SMD	01-16574	R181	RK73Z1ETTP	PREFERRED	KOA SPEER	0402
28	0	DNM	RESISTOR, DO NOT MOUNT, 0402, SMD	01-02472	R321 R322	DNM	PREFERRED	DO NOT MOUNT	0402
29	0	DNM	IC, ANALOG, HIGH PSRR FAST RF LOW DROPOUT REGULATOR IN WAFER CHIP SCALE, VIN:2.7V TO 5.5V, VOUT: 3V, SOT23-5, SMD	18-01358	U2	TPS79330DBVR	NOT_PREFERRED	TEXAS INSTRUMENTS	SOT23-5

Bill of Materials

Item Number	Quantity	Value	Description	Part Number	Part Reference	MPN	NOTE Status	Manufacturer	PCB Package
30	1	CC120xRHB	IC, ANALOG RF, CC120xRHB, N/A, QFN32, SMD	18-28112	U3	CC120xRHB	PREFERRED	TEXAS INSTRUMENTS	QFN32
31	1	40MHz	CRYSTAL, OSCILATOR, 40MHz, -15PPM/DEGC/+15PPM/DEGC, 100V, -20DEGC/+75DEGC, SMD	12-00469	X1	NX3225SA 40MHz EXS00A-CS03880	PREFERRED	NIHON DEMPYO KOGYO CO., LTD	
32	0	DNM	CRYSTAL, OSCILATOR, TBD, 2.3V TO 3.6V, -30DEGC/+85DEGC, , SMD	12-00451	X2	TG_5021CG	PREFERRED	Epson Toyocom	

IMPORTANT NOTICE FOR TI REFERENCE DESIGNS

Texas Instruments Incorporated ("TI") reference designs are solely intended to assist designers ("Buyers") who are developing systems that incorporate TI semiconductor products (also referred to herein as "components"). Buyer understands and agrees that Buyer remains responsible for using its independent analysis, evaluation and judgment in designing Buyer's systems and products.

TI reference designs have been created using standard laboratory conditions and engineering practices. **TI has not conducted any testing other than that specifically described in the published documentation for a particular reference design.** TI may make corrections, enhancements, improvements and other changes to its reference designs.

Buyers are authorized to use TI reference designs with the TI component(s) identified in each particular reference design and to modify the reference design in the development of their end products. HOWEVER, NO OTHER LICENSE, EXPRESS OR IMPLIED, BY ESTOPPEL OR OTHERWISE TO ANY OTHER TI INTELLECTUAL PROPERTY RIGHT, AND NO LICENSE TO ANY THIRD PARTY TECHNOLOGY OR INTELLECTUAL PROPERTY RIGHT, IS GRANTED HEREIN, including but not limited to any patent right, copyright, mask work right, or other intellectual property right relating to any combination, machine, or process in which TI components or services are used. Information published by TI regarding third-party products or services does not constitute a license to use such products or services, or a warranty or endorsement thereof. Use of such information may require a license from a third party under the patents or other intellectual property of the third party, or a license from TI under the patents or other intellectual property of TI.

TI REFERENCE DESIGNS ARE PROVIDED "AS IS". TI MAKES NO WARRANTIES OR REPRESENTATIONS WITH REGARD TO THE REFERENCE DESIGNS OR USE OF THE REFERENCE DESIGNS, EXPRESS, IMPLIED OR STATUTORY, INCLUDING ACCURACY OR COMPLETENESS. TI DISCLAIMS ANY WARRANTY OF TITLE AND ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, QUIET ENJOYMENT, QUIET POSSESSION, AND NON-INFRINGEMENT OF ANY THIRD PARTY INTELLECTUAL PROPERTY RIGHTS WITH REGARD TO TI REFERENCE DESIGNS OR USE THEREOF. TI SHALL NOT BE LIABLE FOR AND SHALL NOT DEFEND OR INDEMNIFY BUYERS AGAINST ANY THIRD PARTY INFRINGEMENT CLAIM THAT RELATES TO OR IS BASED ON A COMBINATION OF COMPONENTS PROVIDED IN A TI REFERENCE DESIGN. IN NO EVENT SHALL TI BE LIABLE FOR ANY ACTUAL, SPECIAL, INCIDENTAL, CONSEQUENTIAL OR INDIRECT DAMAGES, HOWEVER CAUSED, ON ANY THEORY OF LIABILITY AND WHETHER OR NOT TI HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES, ARISING IN ANY WAY OUT OF TI REFERENCE DESIGNS OR BUYER'S USE OF TI REFERENCE DESIGNS.

TI reserves the right to make corrections, enhancements, improvements and other changes to its semiconductor products and services per JESD46, latest issue, and to discontinue any product or service per JESD48, latest issue. Buyers should obtain the latest relevant information before placing orders and should verify that such information is current and complete. All semiconductor products are sold subject to TI's terms and conditions of sale supplied at the time of order acknowledgment.

TI warrants performance of its components to the specifications applicable at the time of sale, in accordance with the warranty in TI's terms and conditions of sale of semiconductor products. Testing and other quality control techniques for TI components are used to the extent TI deems necessary to support this warranty. Except where mandated by applicable law, testing of all parameters of each component is not necessarily performed.

TI assumes no liability for applications assistance or the design of Buyers' products. Buyers are responsible for their products and applications using TI components. To minimize the risks associated with Buyers' products and applications, Buyers should provide adequate design and operating safeguards.

Reproduction of significant portions of TI information in TI data books, data sheets or reference designs is permissible only if reproduction is without alteration and is accompanied by all associated warranties, conditions, limitations, and notices. TI is not responsible or liable for such altered documentation. Information of third parties may be subject to additional restrictions.

Buyer acknowledges and agrees that it is solely responsible for compliance with all legal, regulatory and safety-related requirements concerning its products, and any use of TI components in its applications, notwithstanding any applications-related information or support that may be provided by TI. Buyer represents and agrees that it has all the necessary expertise to create and implement safeguards that anticipate dangerous failures, monitor failures and their consequences, lessen the likelihood of dangerous failures and take appropriate remedial actions. Buyer will fully indemnify TI and its representatives against any damages arising out of the use of any TI components in Buyer's safety-critical applications.

In some cases, TI components may be promoted specifically to facilitate safety-related applications. With such components, TI's goal is to help enable customers to design and create their own end-product solutions that meet applicable functional safety standards and requirements. Nonetheless, such components are subject to these terms.

No TI components are authorized for use in FDA Class III (or similar life-critical medical equipment) unless authorized officers of the parties have executed an agreement specifically governing such use.

Only those TI components that TI has specifically designated as military grade or "enhanced plastic" are designed and intended for use in military/aerospace applications or environments. Buyer acknowledges and agrees that any military or aerospace use of TI components that have **not** been so designated is solely at Buyer's risk, and Buyer is solely responsible for compliance with all legal and regulatory requirements in connection with such use.

TI has specifically designated certain components as meeting ISO/TS16949 requirements, mainly for automotive use. In any case of use of non-designated products, TI will not be responsible for any failure to meet ISO/TS16949.