

Block Diagram  
BOM

Revision: 1.0

Item	Quantity	Reference	Value	Description	Mnf PartNum#
1	11	CB1,C2,CB4,C19,C20,C21,C22,C23,C24,C25,C26	100n	CAPC, 100NF 25V X7R 0402 +/-10%	04023C104KAT2A
2	5	CB5,C6,C7,C8,C29	1u	CAPC, 1UF 16V X5R 0402	C1005X5R1C105K
3	3	CB6,CB23,CB33	10n	CAPC, 10NF 50V X7R 0402	C0402C103K5RACTU
4	18	CB7,CB8,CB9,CB10,CB11,CB12,CB13,CB14,CB15,CB16,CB17,CB18,CB19,CB20,CB25,CB26,CB27,CB28	1u	CAPC, 1UF 6.3V X5R 0201	02016D105MAT2A
5	5	C4,CB21,CB22,CB29,CB30	0.47uF	CAPC, 0.47uF 16V X5R 0402	C1005X5R1C474K050BB
6	2	CB31,CB32	330p	CAPC, 330PF 50V C0G 0402	04025A331JAT2A
7	10	C16,CB34,C39,C40,C41,C42,C45,C46,C75,C79	10u	CAPC, 10UF 10V X7R 0805	GRM21BR71A106KE51L
8	1	C1	33n	CAPC, 33NF 50V X7R 0402	GRM155R71E333KA88D
9	3	C5,C9,C10	10u	CAPC, 10UF 25V X5R 0805	08053D106MAT2A
10	2	C17,C18	20p	CAPC, 20PF 50V C0G 0402	04025A200JAT2A
11	2	C27,C28	10p	CAPC, 10PF 50V C0G 0402	04025A100BAT2A
12	2	C30,C33	.1uF	CAPC, 2.2UF 35V X5R 0603	C1608X5R1V225K080AC
13	4	C32,C34,C37,C38	220n	CAPC, 220NF 16V X7R 0402 +/-10%	GRM155R71C224KA12
14	2	C35,C36	10n	CAPC, 10NF 10V X7R 0201	0201ZC103KAT2A
15	4	C43,C44,C56,C64	10uF	CAPC, 10uF 25V X7R 1210 +/-20%	C3225X7R1E106M250AC
16	1	C47	100uF	CAPC, 100UF, 20V, CASE D	293D107X9020D
17	2	C49,C50	0.1uF	CAPACITOR CERAMIC, 0.1UF, 25V, X5R, 10%, 0603	06033D104KAT2A
18	3	C51,C52,C54	10nF	CAP, CERM, 0.01uF, 25V, +/-10%, X7R, 0402	GRM155R71E103KA01D
19	1	C53	1uF	CAPACITOR CERAMIC, 1UF, 16V, X5R, 10%, 0402	C1005X5R1C105K050BC
20	2	C55,C61	1uF	CAP, CERM, 1uF, 16V, +/-10%, X5R, 0603	C1608X5R1C105K
21	2	DB2,DB3	SL23	DIODE, Schottky, SL23, 2A, 0.32Vfd ,SMB	SL23-E3/52T

22	1	D2	NSR1020MW2T1G	DIODE, Schottky, NSR1020MW2T1G, 1A, 0.54V@1A Vfd	NSR1020MW2T1G
23	3	D3,D4,D5	GREEN	DIODE, LED, GREEN, 0603, SMT	5988070102F
24	1	JB1	PCIEx4 Conn 180deg	CON, IO, PCIEx4, 180 deg Stright	PCIIE-64-02-F-D-EM2
25	1	J1	DP3R020SU32JQ1R400	CON, IO, TBT Source, STD Mount, SMT/TH	DP3R020SU32JQ1R400
26	1	J2	RCA JACK	CON, PWR , RCA JACK, DC_003	DC_003-
27	1	J3	HEADER 5x1 TH	CON, HDR, 100mil PITCH, 5x1, TH	TSW-105-07-L-S
28	1	L1	330	Ferrite, 0603, 330Ohm@100Mhz, 0.080ohm DCR, 1.7A	BLM18KG331SN1
29	1	L2	220	Ferrite, 0402, 220ohm@100Mhz,0.35ohm DCR,0.3A	BLM15AG221SH1\N1
30	1	L4	120	Ferrite, 0402, 120Ohm@100Mhz, 0.095 DCR, 1.5A	BLM15EG121SN1
31	1	L5	0.6uH	Inductor,0.6uH,19.14mOhm DCR,5A,H=1.2mm, XFL4012	XFL4012-601MEC
32	1	L9	10uH	Inductor, Shielded, Composite, 10uH, 7.6A, 0.03 ohm, SMD	XAL6060-103MEB
33	12	TP1,PAD1,TP2,PAD2,PAD3, PAD4,PAD5,PAD6,PAD7,PA D8,PAD9,PAD10	PAD_0402	NOT A PART, TEST 0402 PAD	
34	2	QB1,Q3	2N7002	TRANS, NMOS, 0.5A, 5VGS, 30hm RDS, SOT23-3	2N7002/NDS7002A
35	1	QB3	MMBT2222A	TRANS, NPN, MMBT2222, SOT23, SMT	MMBT2222
36	1	Q2	FDC610PZ	TRANS, PMOS, FDC610PZ, SSOT6	FDC610PZ

37	22	RB1,RB4,RB5,RB10,RB11,R15,R16,RB18,RB19,RB21,RB23,RB25,R27,R28,R29,RB30,R30,RB31,R31,RB32,R32,RB37	100K	RESC, 100K Ohm, 0402, 1%	MC00625W04021100K
38	1	RB2	0	RESC, 0 Ohm, 0402	MC 0.0625W 0402 1% 0R
39	27	R1,R3,R4,R5,R6,R9,R10,R11,RB12,RB13,R14,RB16,RB17,R17,R18,R19,R20,R21,RB22,R24,RB33,R33,RB52,RB53,RB54,RB55,R61	10K	RESC, 10K Ohm, 0402, 0.1%	CPF0402B10KE1
40	1	RB20	100	RESC, 100 Ohm, 0402, 1%	ERJ-2RKF1000X
41	6	R8,RB24,RB35,RB36,R38,RB40	1K	RESC, 1K Ohm, 0402, 1%	MC00625W040211K
42	2	RB26,RB34	1M	RESC, 1M Ohm, 0402, 1%	MC00625W040211M
43	2	RB27,R34	12.1	RESC, 12.1 Ohm, 0402, 1%	MC00625W0402112R1
44	2	RB38,RB39	49.9	RESC, 49.9 Ohm, 0402, 1%	RC0402FR-0749R9L
45	1	RB41	11.5k	RESC, 7.32K Ohm, 0402, 1%	RC0402FR-077K32L
46	1	RB48	47K	RESC, 47K Ohm, 0402, 1%	MC00625W0402147K
47	3	RB49,RB50,RB51	330	RESC, 330 Ohm, 0402, 5%	RC0402JR-07330RL
48	1	R2	0	RESC, 0 Ohm, 0402	MC 0.0625W 0402 1% 0R
49	4	R25,R26,R35,R36	470K	RESC, 470K Ohm, 0402, 1%	MC00625W04021470K
50	1	R37	10k	RES, 10.0k ohm, 1%, 0.063W, 0402	'CRCW040210K0FKED
51	1	UB4	SN74AUP1G17	SINGLE SCHMITT-TRIGGER BUFFER GATE	SN74AUP1G17DBVR
57	2	U9,U15	TPS22920L	IC, Analog,TPS22920L,Analog Switch,8mOhm@1.05V,4	TPS22920LYZPR
58	1	U10	TPS65980_Milo	Switching Regulator	TPS65980RHFR
59	1	U11	SN74AHC1G126	Tri State Buffer-DCK package	SN74AHC1G126DCKR
60	1	U12	SN74AUP1T17	Schmitt-Trigger Buffer Gate	SN74AUP1T17DCKR
61	1	U13	TPS3700	Comparator	TPS3700DDCR

## 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.