

Bill of Materials

TI DESIGNS

TIDA-00189

Designator	Quantity	Value	Description	PackageReference	PartNumber	Manufacturer	Alternate PartNumber	Alternate Manufacturer
!PCB1	1		Printed Circuit Board		TIDA-00189	Any		
C1	1	0.01uF	CAP, CERM, 0.01uF, 10V, +/-10%, X5R, 0402	0402	GRM155R61A103KA01D	MuRata		
C5	1	0.47uF	CAP, CERM, 0.47uF, 100V, +/-10%, X7R, 0805	0805	GRM21BR72A474KA73L	MuRata		
C6	1	0.01uF	CAP, CERM, 0.01uF, 100V, +/-10%, X7R, 0603	0603	GRM188R72A103KA01D	MuRata		
C7	1	2.2uF	CAP, CERM, 2.2uF, 16V, +/-10%, X5R, 0402	0402	C1005X5R1C225K050BC	TDK		
C10, C12, C15	3	10uF	CAP, CERM, 10uF, 10V, +/-10%, X7R, 0805	0805	GRM21BR71A106KE51L	MuRata		
C11, C52	2	0.1uF	CAP, CERM, 0.1uF, 10V, +/-10%, X5R, 0402	0402	GRM155R61A104KA01D	MuRata		
C13, C17, C19, C20, C21, C22, C23, C37, C43	9	1uF	CAP, CERM, 1uF, 10V, +/-10%, X5R, 0402	0402	GRM155R61A105KE15D	MuRata		
C14	1	22uF	CAP, CERM, 22uF, 10V, +/-10%, X5R, 1206	1206	GRM31CR61A226KE19L	MuRata		
C16	1	4.7uF	CAP, CERM, 4.7uF, 10V, +/-20%, X5R, 0402	0402	GRM155R61A475M	MuRata		
C24, C25	2	2.2uF	CAP, CERM, 2.2uF, 10V, +/-10%, X7R, 0603	0603	GRM188R71A225KE15D	MuRata		
C26, C27, C45, C47, C49	5	0.1uF	CAP, CERM, 0.1uF, 6.3V, +/-10%, X7R, 0402	0402	GRM155R70J104KA01D	MuRata		
C28, C29	2	0.1uF	CAP, CERM, 0.1uF, 16V, +/-10%, X7R, 0402	0402	GRM155R71C104KA88D	MuRata		
C30, C33	2	1000pF	CAP, CERM, 1000pF, 16V, +/-10%, X7R, 0402	0402	GRM155R71C102KA01D	MuRata		
C31	1	0.1uF	CAP, CERM, 0.1uF, 100V, +/-5%, X7R, 1206	1206	12061C104JAT2A	AVX		
C32	1	1uF	CAP, CERM, 1uF, 100V, +/-10%, X7R, 1206	1206	GRM31CR72A105KA01L	MuRata		
C34, C35, C36, C53	4	2200pF	CAP, CERM, 2200pF, 6.3V, +/-10%, X7R, 0402	0402	GRM155R70J222KA01D	MuRata		
C38, C42	2	0.27uF	CAP, CERM, 0.27uF, 6.3V, +/-10%, X5R, 0402	0402	GRM155R60J274KE01D	MuRata		
C39, C40	2	0.22uF	CAP, CERM, 0.22uF, 6.3V, +/-10%, X5R, 0402	0402	GRM155R60J224KE01D	MuRata		
C41	1	4.7uF	CAP, CERM, 4.7uF, 6.3V, +/-10%, X5R, 0603	0603	GRM188R60J475KE19D	MuRata		
C44	1	0.47uF	CAP, CERM, 0.47uF, 6.3V, +/-10%, X7R, 0603	0603	GRM188R70J474KA01D	MuRata		
C46, C48, C50	3	10uF	CAP, CERM, 10uF, 6.3V, +/-20%, X5R, 0402	0402	CL05A106MQ5NUNC	Samsung		
C51	1	3.3uF	CAP, CERM, 3.3uF, 10V, +/-10%, X5R, 0603	0603	GRM188R61A335KE15D	MuRata		
D1, D5	2	100V	Diode, Schottky, 100V, 0.25A, SOD-323F	SOD-323F	BAT46WJ,115	NXP Semiconductor		
D2, D4	2	90V	Diode, Switching, 90V, 0.1A, SOD-523F	SOD-523F	CDSU101A	Comchip Technology		
D3	1	39V	Diode, TVS, Bi, 39V, 600W, SMB	SMB	SM6T39CA	ST Microelectronics		
D6, D7	2	75V	Diode, Fast Rectifier, 75V, 0.2A, 3.7x1.6x1.6mm	3.7x1.6x1.6mm	PMLL4153,115	NXP Semiconductor		
D8	1	3.9V	Diode, Zener, 3.9V, 500mW, SOD-123	SOD-123	MMSZ4686T1G	ON Semiconductor		
D9	1		TVS DIODE 3.3VWM 7.8VC SOD923	SOD-923	ESD9R3.3ST5G	ON Semiconductor		
H1, H2, H3, H4	4		Machine Screw, Round, #4-40 x 1/4, Nylon, Philips panhead	Screw	NY PMS 440 0025 PH	B&F Fastener Supply		
H5, H6, H7, H8	4		Standoff, Hex, 0.5"L #4-40 Nylon	Standoff	1902C	Keystone		
J1, J3	2		Terminal Block, 6A, 3.5mm Pitch, 2-Pos, TH	7.0x8.2x6.5mm	ED555/2DS	On-Shore Technology		

Designator	Quantity	Value	Description	PackageReference	PartNumber	Manufacturer	Alternate PartNumber	Alternate Manufacturer
J2	1		Header, 100mil, 2x1, Tin plated, TH	Header 2x1	90120-0122	Molex		
J6, J7	2		Header, 100mil, 3x1, Tin plated, TH	Header, 3 PIN, 100mil, Tin	PEC03SAAN	Sullins Connector Solutions		
J8	1		Header (shrouded), 100 mil, 7x2, Gold plated, TH	7x2 Shrouded Header	SBH11-PBPC-D07-ST-BK	Sullins Connector Solutions		
L1, L3	2	47uH	Inductor, Wirewound, Ferrite, 47uH, 0.11A, 1.235 ohm, SMD	2.5x1.8x1.8mm	CB2518T470K	Taiyo Yuden		
L2	1	470uH	Coupled inductor, 470uH, 0.1A, 0.35 ohm, +/-30%, SMD	5.0x3.3x3.3mm	DR221-474AE	Bourns		
L4	1	33uH	Inductor, Wirewound, Ferrite, 33uH, 0.13A, 0.7 ohm, SMD	2.5x1.8x1.8mm	CB2518T330K	Taiyo Yuden		
L5	1	600 ohm	Ferrite Bead, 600 ohm @ 100MHz, 0.2A, 0603	0603	BLM18HG601SN1D	MuRata		
Q1	1	V	Transistor, NPN, 80V, 1A, SOT1061	SOT1061	BC56-16PA,115	NXP Semiconductor		
R1	1	200	RES, 200 ohm, 1%, 0.25W, 1206	1206	CRCW1206200RFKEA	Vishay-Dale		
R3	1	100k	RES, 100k ohm, 1%, 0.063W, 0402	0402	CRCW0402100KFKED	Vishay-Dale		
R4	1	698k	RES, 698k ohm, 1%, 0.063W, 0402	0402	CRCW0402698KFKED	Vishay-Dale		
R8	1	237k	RES, 237k ohm, 1%, 0.063W, 0402	0402	CRCW0402237KFKED	Vishay-Dale		
R10, R13	2	499k	RES, 499k ohm, 1%, 0.063W, 0402	0402	CRCW0402499KFKED	Vishay-Dale		
R11, R32, R36	3	1.00k	RES, 1.00k ohm, 1%, 0.063W, 0402	0402	CRCW04021K00FKED	Vishay-Dale		
R12	1	0	RES, 0 ohm, 5%, 0.1W, 0603	0603	CRCW06030000Z0EA	Vishay-Dale		
R15, R17, R18, R21, R22, R28, R29, R38, R39, R40, R42	11	10.0	RES, 10.0 ohm, 1%, 0.1W, 0603	0603	CRCW060310R0FKEA	Vishay-Dale		
R19, R20	2	0	RES, 0 ohm, 5%, 0.063W, 0402	0402	CRCW04020000Z0ED	Vishay-Dale		
R23	1	100	RES, 100 ohm, 0.1%, 0.1W, 0603	0603	RT0603BRD07100RL	Yageo America		
R24, R27	2	40.2	RES, 40.2 ohm, 1%, 0.063W, 0402	0402	CRCW040240R2FKED	Vishay-Dale		
R25	1	20.0	RES, 20.0 ohm, 1%, 0.1W, 0603	0603	CRCW060320R0FKEA	Vishay-Dale		
R26	1	0	RES, 0 ohm, 5%, 0.25W, 1206	1206	CRCW12060000Z0EA	Vishay-Dale		
R30, R37	2	2.00Meg	RES, 2.00Meg ohm, 1%, 0.063W, 0402	0402	CRCW04022M00FKED	Vishay-Dale		
R31	1	3.24k	RES, 3.24k ohm, 0.1%, 0.333W, 1206	1206	PFC-W1206R-12-3241-B	TT Electronics/IRC		
R33, R34, R35	3	47	RES, 47 ohm, 5%, 0.063W, 0402	0402	CRCW040247R0JNED	Vishay-Dale		
R41, R46	2	1.0Meg	RES, 1.0Meg ohm, 5%, 0.063W, 0402	0402	CRCW04021M00JNED	Vishay-Dale		
R43	1	47k	RES, 47k ohm, 5%, 0.063W, 0402	0402	CRCW040247K0JNED	Vishay-Dale		
R44	1	2.00k	RES, 2.00k ohm, 1%, 0.063W, 0402	0402	CRCW04022K00FKED	Vishay-Dale		
S1, S2	2		Switch, Push Button, SMD	2.9x2x3.9mm SMD	SKRKAEE010	Alps		
SH-J2, SH-J3	2	1x2	Shunt, 100mil, Gold plated, Black	Shunt	969102-0000-DA	3M	SNT-100-BK-G	Samtec
T1	1	3mH	Transformer, 3mH, SMT	9.78x10.54x9.14mm	750314839	Würth Elektronik eiSos		
T3	1	400uH	Transformer_400uH, SMT	8.89x5.46x6.99mm	S5394-CLB	Coilcraft		
TC1	1	100 Ohm	Temperature Sensor, 100 ohm, 1%, 1206	1206	PTS120601B100RP100	Vishay/Beyschlag		
TP1, TP3, TP8, TP9, TP10	5	Red	Test Point, Miniature, Red, TH	Red Miniature Testpoint	5000	Keystone		
TP2, TP6, TP11	3	White	Test Point, Miniature, White, TH	White Miniature Testpoint	5002	Keystone		
TP4, TP5, TP7	3	Black	Test Point, Miniature, Black, TH	Black Miniature Testpoint	5001	Keystone		
U1	1		60-V, 5-µA IQ, 100-mA, Low-Dropout Voltage Regulator with Enable and Power-Good, DRB0008A	DRB0008A	TPS7A1601DRB	Texas Instruments		None
U2	1		UNREGULATED 60-mA CHARGE PUMP VOLTAGE INVERTER, DBV0005A	DBV0005A	TPS60402DBV	Texas Instruments		None

Designator	Quantity	Value	Description	PackageReference	PartNumber	Manufacturer	Alternate PartNumber	Alternate Manufacturer
U3, U4	2		Low Noise, High-Bandwidth PSRR Low-Dropout 150mA Linear Regulator, DSE0006A	DSE0006A	TPS71733DSE	Texas Instruments		None
U5	1		Single-Wire 16-bit DAC for 4-20mA loops, RGH0016A	RGH0016A	DAC161P997CISQ/NOPB	Texas Instruments		None
U6	1		Low-Power, Low-Noise, 24-Bit Analog-to-Digital Converter for Small Signal Sensors, RVA0016A	RVA0016A	ADS1220IRVA	Texas Instruments		None
U7	1		Mixed Signal Microcontroller, RSB0040B	RSB0040B	MSP430F5172IRSB	Texas Instruments		None
U8	1		QUADRUPLE BUS BUFFER GATE WITH 3-STATE OUTPUTS, RGY0014A	RGY0014A	SN74LVC125ARGY	Texas Instruments		None
C2, C3, C4, C8, C9	0	10uF	CAP, CERM, 10uF, 10V, +/-10%, X7R, 0805	0805	GRM21BR71A106KE51L	MuRata		
C18	0	560pF	CAP, CERM, 560pF, 50V, +/-10%, X7R, 0402	0402	GRM155R71H561KA01D	MuRata		
FID1, FID2, FID3, FID4, FID5, FID6	0		Fiducial mark. There is nothing to buy or mount.	Fiducial	N/A	N/A		
R2, R9	0	0	RES, 0 ohm, 5%, 0.125W, 0805	0805	CRCW08050000Z0EA	Vishay-Dale		
R5, R6, R7	0	200	RES, 200 ohm, 1%, 0.063W, 0402	0402	CRCW0402200RFKED	Vishay-Dale		
R14	0	10.0	RES, 10.0 ohm, 1%, 0.063W, 0402	0402	CRCW040210R0FKED	Vishay-Dale		

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.