Texas Instruments

Bill of Materials

TI DESIGNS

TIDA-00875 Single Phase Brushless DC (BLDC) with a Brushed Motor Driver Reference Design

Item	Qty	Reference	Value	Part Description	Manufacturer	Manufacturer Part Number	PCB Footprint
1	1	!PCB1		Printed Circuit Board	Any	DRV8701EVM	
2	2	C1, C2	470uF	CAP, AL, 470 µF, 50 V, +/- 20%,	Panasonic	ECA-1HM471	D10xL20mm
3	2	C3, C20	4.7uF	CAP, CERM, 4.7uF, 10V, +/-20%, X7R, 0805	TDK	C2012X7R1A475M	0805
4	3	C4, C18, C21	0.1uF	CAP, CERM, 0.1uF, 10V, +/-10%, X7R, 0603	Kemet	C0603C104K8RACTU	0603
5	2	C5, C6	1uF	CAP, CERM, 1uF, 50V, +/-10%, X7R, 0805	MuRata	GRM21BR71H105KA12L	0805
6	4	C7, C8, C13, C14	DNP	CAP, CERM, 0.01uF, 50V, +/-	DNP	DNP	0603
7	1	C9	1uF	CAP, CERM, 1uF, 16V, +/-10%,	TDK	C1608X7R1C105K	0603
8	1	C10	10uF	CAP, CERM, 10uF, 50V, +/-10%,	MuRata	GRM32ER71H106KA12L	1210
9	2	C11, C12	0.1uF	CAP, CERM, 0.1uF, 50V, +/-10%,	TDK	C1608X7R1H104K	0603
10	3	C15, C16, C19	1uF	CAP, CERM, 1uF, 6.3V, +/-10%, X7R, 0603	MuRata	GRM188R70J105KA01D	0603
11	1	C17	1000pF	CAP, CERM, 1000pF, 16V, +/-	MuRata	GRM155R71C102KA01D	0402
12	1	C22	1000pF	CAP, CERM, 1000pF, 16V, +/-	MuRata	GRM188R71C102KA01D	0603
13	2	D1, D4	Green	LED, Green, SMD	Lite-On	LTST-C171GKT	LED_0805
14	2	D2, D3	Red	LED, Red, SMD	Lite-On	LTST-C170KRKT	LED_0805
15	1	F1	1206L050/15YR	Fuse, Poly Resetable PTC, 0.5A	Littelfuse	1206L050/15YR	1206
16	3	FID1, FID2, FID3		Fiducial mark. There is nothing to buy or mount.	N/A	N/A	Fiducial
17	4	H1, H2, H3, H4		Machine Screw, Round, #4-40 x 1/4, Nylon, Philips panhead	B&F Fastener Supply	NY PMS 440 0025 PH	Screw
18	4	H5, H6, H7, H8		Standoff, Hex, 0.5"L #4-40 Nylon	Keystone	1902C	Standoff
19	1	H9		Connector, micro USB Type B, Receptacle, R/A, SMD	Hirose Electric Co. Ltd.	ZX62-B-5PA(11)	Micro USB-B
20	2	H10, H11		Terminal Block, 5 mm, 2x1, Tin, TH	Wurth Elektronik eiSos	691 101 710 002	Terminal Block, 5 mm, 2x1, TH

Item	Qty	Reference	Value	Part Description	Manufacturer	Manufacturer Part Number	PCB Footprint
21	1	H12		Header, 100mil, 10x1, Gold, TH	Samtec	TSW-110-07-G-S	10x1 Header
22	1	J1		Header, 100mil, 6x2, Tin, TH	Sullins Connector Solut	PEC06DAAN	Header, 6x2,
23	1	J2		Header, 100mil, 3x1, Tin, TH	Sullins Connector Solut	PEC03SAAN	Header, 3 PIN,
24	1	J3		SOCKET .050" GRID SIP 4 POS	Mill-Max	851-43-004-20-001000	R/A 4x1
25	4	Q1, Q2, Q3, Q4	60V	MOSFET, N-CH, 60V, 172A, SON	Texas Instruments	CSD18532Q5B	SON 5x6mm
26	13	R1, R2, R3, R4, R10, R12,	0	RES, 0 ohm, 5%, 0.1W, 0603	Vishay-Dale	CRCW06030000Z0EA	0603
27	3	R5, R7, R11	10k	RES, 10k ohm, 5%, 0.1W, 0603	Vishay-Dale	CRCW060310K0JNEA	0603
28	2	R6, R8	DNP	RES, 0 ohm, 5%, 0.1W, 0603	DNP	DNP	0603
29	1	R9	0.01	RES, 0.01 ohm, 1%, 3W, 2512	Bourns	CRA2512-FZ-R010ELF	2512
30	1	R13	68k	RES, 68k ohm, 5%, 0.1W, 0603	Vishay-Dale	CRCW060368K0JNEA	0603
31	2	R15, R17	47k	RES, 47k ohm, 5%, 0.1W, 0603	Vishay-Dale	CRCW060347K0JNEA	0603
32	1	R19	50k	Trimming Potentiometer, 50K, 0.5W, TH	Bourns	3352T-1-503LF	9.53x8.89mm
33	3	R23, R24, R25	330	RES, 330 ohm, 5%, 0.1W, 0603	Vishay-Dale	CRCW0603330RJNEA	0603
34	1	R26	4.99k	RES, 4.99k ohm, 1%, 0.1W, 0603	Vishay-Dale	CRCW06034K99FKEA	0603
35	1	R27	200k	RES, 200k ohm, 5%, 0.1W, 0603	Vishay-Dale	CRCW0603200KJNEA	0603
36	1	R28	33k	RES, 33k ohm, 5%, 0.1W, 0603	Vishay-Dale	CRCW060333K0JNEA	0603
37	1	R30	7.5k	RES, 7.5 k, 5%, 0.1 W, 0603	Vishay-Dale	CRCW06037K50JNEA	0603
38	1	R31	10k	RES, 10 k, 5%, 0.1 W, 0603	Vishay-Dale	CRCW060310K0JNEA	0603
39	1	S1		Switch, Tactile, SPST-NO, 0.05A, 12V, SMT	TE Connectivity	4-1437565-1	SW, SPST 6x6 mm
40	2	SH-J1, SH-J2	1x2	Shunt, 100mil, Gold plated, Black	3M	969102-0000-DA	Shunt
41	3	TP1, TP2, TP3	Red	Test Point, Compact, Red, TH	Keystone	5005	Red Compact Testpoint
42	3	TP4, TP12, TP19	Black	Test Point, Compact, Black, TH	Keystone	5006	Black Compact Testpoint
43	6	TP5, TP6, TP7, TP8, TP9, TP10	White	Test Point, Compact, White, TH	Keystone	5007	White Compact Testpoint
44	1	TP14		1mm Uninsulated Shorting Plug, 10.16mm spacing, TH	Harwin	D3082-05	Shorting Plug, 10.16mm spacing, TH
45	1	U1		H-Bridge Gate Driver, RGE0024F	Texas Instruments	DRV8701ERGER	RGE0024F
46	0	U2		USB to Serial UART, SSOP28	FTDI	FT232RL	SSOP28

Item	Qty	Reference	Value	Part Description	Manufacturer	Manufacturer Part Number	PCB Footprint
47	0	U3		16 MHz Mixed Signal Microcontroller with 16 KB Flash, 512 B SRAM and 24 GPIOs, -40 to 85 degC, 20-pin SOP (PW), Green (RoHS & no Sb/Br)	Texas Instruments	MSP430G2553IPW20	PW0020A
48	1	U4		H-Bridge Gate Driver, RMJ0016A	Texas Instruments	DRV8801AQRMJRQ1	RMJ0016A
49	1	U5		Digital-Latch Hall Effect Sensor	Texas Instruments	DRV5013ADQLPGR	LPG003

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.

Mailing Address: Texas Instruments, Post Office Box 655303, Dallas, Texas 75265

Copyright © 2015, Texas Instruments Incorporated