TEXAS INSTRUMENTS

Bill of Materials

TI DESIGNS

TIPD167: Phase Compensated 8-Channel Multiplexed Data Acquisition System for Power Automation

Item	QTY	Value	Ref Des	Description	Manufacturer	Part Number
1	4	0.1uF	C1, C2, C3, C6	CAP, CERM, 0.1uF, 25V, +/-5%, X7R, 0603	AVX	06033C104JAT2A
2	1	1uF	C10	CAP, CERM, 1uF, 16V, +/-10%, X5R, 0603	Kemet	C0603C105K4PACTU
3	1	3000pF	C11	CAP, CERM, 3000pF, 50V, +/-5%, C0G/NP0, 0603	MuRata	GRM1885C1H302JA01D
4	6	0.1uF	C16, C24, C26, C30, C45, C64	CAP, CERM, 0.1uF, 50V, +/-10%, X7R, 0603	AVX	06035C104KAT2A
5	4	2200pF	C17, C22, C27, C28	CAP, CERM, 2200pF, 50V, +/-5%, C0G/NP0, 0603	TDK	C1608C0G1H222J
6	4	1000p	C23, C25, C29, C31	CAP, CERM, 1000pF, 50V, +/-5%, C0G/NP0, 0402	MuRata	GRM1555C1H102JA01D
7	4	22uF	C32, C35, C49, C50	CAP, CERM, 22uF, 25V, +/-10%, X7R, 1210	MuRata	GRM32ER71E226KE15L
8	3	10uF	C34, C36, C53	CAP, CERM, 10uF, 25V, +/-10%, X7R, 1206	MuRata	GRM31CR71E106KA12L
9	2	10uF	C37, C54	CAP, CERM, 10uF, 35V, +/-10%, X7R, 1206	Taiyo Yuden	GMK316AB7106KL
10	15	10000pF	C4, C12, C13, C14, C15, C18, C19, C20, C21, C38, C39, C40, C41, C56, C58	CAP, 10000pF, 0603, 5%, 50V, C0G	TDK	C1608C0G1H103J080AA
11	1	0.22uF	C42	CAP, CERM, 0.22uF, 16V, +/-10%, X7R, 0603	TDK	C1608X7R1C224K
12	2	2.2uF	C44, C46	CAP, CERM, 2.2uF, 10V, +/-10%, X7R, 0603	MuRata	GRM188R71A225KE15D
13	1	10uF	C48	CAP, CERM, 10uF, 50V, +/-20%, X7R, 2220	TDK	C5750X7R1H106M
14	1	10uF	C5	CAP, CERM, 10uF, 6.3V, +/-20%, X5R, 0603	Kemet	C0603C106M9PACTU
15	1	0.1uF	C51	CAP, CERM, 0.1uF, 25V, +/-5%, X7R, 0603	Kemet	C0603C104J3RAC
16	1	0.39uF	C52	CAP, CERM, 0.39uF, 16V, +/-10%, X7R, 0603	MuRata	GRM188R71C394KA88D
17	1	470pF	C57	CAP, CERM, 470pF, 50V, +/-10%, X7R, 0603	TDK	C1608X7R1H471K
18	2	10uF	C59, C60	CAP, CERM, 10uF, 35V, +/-10%, X7R, 1210	MuRata	GRM32ER7YA106KA12L
19	7	10uF	C7, C33, C43, C47, C55, C61, C62	CAP, CERM, 10uF, 10V, +/-10%, X7R, 0805	MuRata	GRM21BR71A106KE51L
20	1	22uF	C8	CAP, CERM, 22uF, 16V, +/-20%, X7R, 1210	TDK	C3225X7R1C226M
21	2	1uF	C9, C63	CAP, CERM, 1uF, 16V, +/-10%, X7R, 0603	TDK	C1608X7R1C105K
22	2		D2, D4	Diode, Schottky, 60V, 2A, SMA	Diodes Inc.	B260A-13-F
23	2		D3, D5	Diode, Zener, 5.6V, 500mW, SOD-123	ON Semiconductor	MMSZ4690T1G
24	2		D6, D8	Diode, Zener, 27V, 500mW, SOD-123	Vishay-Semiconductor	MMSZ4711-V
25	1		D7	Diode, Zener, 3.9V, 500mW, SOD-123	ON Semiconductor	MMSZ4686T1G
26	2		D9, D10	Diode, Schottky, 30V, 0.2A, SOT-23	Diodes Inc.	BAT54C-7-F
27	6		FID1, FID2, FID3, FID4, FID5, FID6	Fiducial mark. There is nothing to buy or mount.	N/A	N/A
28	4		H1, H2, H3, H4	Bumpon, Hex, 0.063mil, 11mm Dia, Lt Brn	3M	SJ5202
29	2		J1, J7	Header, 100mil, 10x2, SMD	Samtec, Inc.	TSM-110-01-T-DV-P
30	1		J18	Terminal Block, 6A, 3.5mm Pitch, 3-Pos, TH	On-Shore Technology, Inc.	ED555/3DS
31	1		J19	Receptacle, Micro High Speed Socket Strip, 0.8mm, 25x2, R/A, SMT	Samtec, Inc.	ERF8-025-01-L-D-RA-L-TR

Item	QTY	Value	Ref Des	Description	Manufacturer	Part Number
32	19		J2, J3, J4, J5, J6, J15, J16, J17, J21, J22, J23, J24, J25, J26, J27, J28, J29, J30, J31	Header, TH, 100mil, 2x1, Gold plated, 230 mil above insulator	Samtec	TSW-102-07-G-S
33	1		J20	SD Memory Card Connector	Molex	502570-0893
34	2		J32, J33	Terminal Block, 6A, 3.5mm Pitch, 2-Pos, TH	On-Shore Technology	ED555/2DS
35	7		J8, J9, J10, J11, J12, J13, J14	Header, TH, 100mil, 3x1, Gold plated, 230 mil above insulator	Samtec, Inc.	TSW-103-07-G-S
36	1		L1		Wurth Electronics	744870471
37	8	10.0k	R1, R79, R80, R81, R82, R83, R84, R85	RES, 10.0k ohm, 1%, 0.063W, 0402	Vishay-Dale	CRCW040210K0FKED
38	5	10.0M	R11, R21, R22, R74, R76	RES, 10.0Meg ohm, 1%, 0.063W, 0402	Vishay-Dale	CRCW040210M0FKED
39	3	47.0k	R13, R15, R18	RES, 47.0k ohm, 1%, 0.1W, 0603	Yageo America	RC0603FR-0747KL
40	1	100	R19	RES, 100 ohm, 1%, 0.1W, 0603	Vishay-Dale	CRCW0603100RFKEA
41	17	49.9	R2, R3, R5, R6, R7, R8, R9, R10, R14, R16, R86, R87, R88, R89, R90, R91, R93	RES, 49.9 ohm, 1%, 0.063W, 0402	Vishay-Dale	CRCW040249R9FKED
42	16	357	R23, R24, R25, R26, R27, R28, R29, R30, R31, R32, R34, R35, R37, R38, R40, R41	RES, 357 ohm, 1%, 0.063W, 0402	Vishay-Dale	CRCW0402357RFKED
43	13		R36, R44, R48, R52, R94, R95, R96, R98, R99, R100, R102, R103, R107	Resistor, Uninstalled	NI	NI
44	16	0	R4, R33, R39, R47, R49, R61, R69, R77, R78, R92, R97, R101, R104, R105, R106, R108	RES, 0 ohm, 5%, 0.063W, 0402	Yageo America	RC0402JR-070RL
45	4	3.57k	R42, R46, R50, R54	RES, 3.57k ohm, 1%, 0.063W, 0402	Vishay-Dale	CRCW04023K57FKED
46	4	6.65k	R43, R45, R51, R53	RES, 6.65k ohm, 1%, 0.063W, 0402	Vishay-Dale	CRCW04026K65FKED
47	1	576k	R55	RES, 576k ohm, 1%, 0.063W, 0402	Vishay-Dale	CRCW0402576KFKED
48	2	232k	R56, R71	RES, 232k ohm, 1%, 0.063W, 0402	Vishay-Dale	CRCW0402232KFKED
49	1	182k	R57	RES, 182k ohm, 1%, 0.063W, 0402	Vishay-Dale	CRCW0402182KFKED
50	4	499k	R58, R60, R62, R72	RES, 499k ohm, 1%, 0.063W, 0402	Vishay-Dale	CRCW0402499KFKED
51	2	20k	R59, R73	RES, 20k ohm, 5%, 0.063W, 0402	Vishay-Dale	CRCW040220K0JNED
52	1	33k	R63	RES, 33k ohm, 5%, 0.063W, 0402	Vishay-Dale	CRCW040233K0JNED
53	2	82k	R64, R75	RES, 82k ohm, 5%, 0.063W, 0402	Vishay-Dale	CRCW040282K0JNED
54	1	15k	R65	RES, 15k ohm, 5%, 0.063W, 0402	Vishay-Dale	CRCW040215K0JNED
55	1	1.1k	R66	RES, 1.1k ohm, 5%, 0.063W, 0402	Vishay-Dale	CRCW04021K10JNED
56	1	44.2k	R67	RES, 44.2k ohm, 1%, 0.063W, 0402	Vishay-Dale	CRCW040244K2FKED
57	1	412k	R68	RES, 412k ohm, 1%, 0.063W, 0402	Vishay-Dale	CRCW0402412KFKED
58	1	20.5k	R70	RES, 20.5k ohm, 1%, 0.063W, 0402	Vishay-Dale	CRCW040220K5FKED
59	1		SD1	SanDisk MicroSD Card, 2GB	SanDisk	SDSDQ-002G
60	26		SH-J2, SH-J3, SH-J4, SH-J5, SH-J6, SH-J8, SH-J9, SH-J10, SH-J11, SH-J12, SH-J13, SH-J14, SH-J15, SH-J16, SH-J17, SH-J21, SH-J22, SH-J23, SH-J24, SH-J25, SH-J26, SH-J27, SH-J28, SH-J29, SH-J30, SH-J31	Shunt, 100mil, Gold plated, Black	3M	969102-0000-DA

Item	QTY	Value	Ref Des	Description	Manufacturer	Part Number
61	1		TP11	Test Point, Miniature, Black, TH	Keystone	5001
62	6		TP12, TP13, TP14, TP15, TP16, TP17	Test Point, Miniature, Red, TH	Keystone	5000
63	9		TP2, TP3, TP4, TP5, TP6, TP7, TP8, TP9, TP10	Test Point, Miniature, White, TH	Keystone	5002
64	2		U1, U3	Op Amp, Precision, 20MHz, 0.9pA, Low-Noise, RRIO, CMOS, with Shutdown	Texas Instruments	OPA320AIDBVR
65	1		U10	IC, -3V to -36V, -200mA, Ultralow Noise, High-PSRR LDO Negative Linear Regulator	TI	TPS7A3001DGN
66	1		U11	IC, 2K, Serial EEPROM	Atmel	AT24C02B
67	1		U2	16 bit 500KSPS 8 Channel SAR ADC	TI	ADS8688IDBT
68	2		U4, U5	OpAmp, Low Noise, Low Power, 36V	Texas Instruments	OPA2209AIDGKR
69	2		U6, U7	IC, VIN 3V to 35V, 150mA, Ultralow Noise, High-PSRR, LDO Regulator	TI	TPS7A4901DGN
70	1		U8	IC, SWITCHED CAP, BUCK BOOST CONVERTER 1.8V to 5.5V in 65uA	TI	REG71055DDC
71	1		U9	Buck Inverting Buck-Boost Step Down Regulator with 3.5 to 60 V Input and 0.8 to 58 V Output, -40 to 150 degC, 10-Pin MSOP-PowerPAD (DGQ), Green (RoHS & no Sb/Br)	Texas Instruments	TPS54060DGQ

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 © 2014, Texas Instruments Incorporated