

# Bill of Materials

TI DESIGNS TIDA-00179

Universal Digital Interface to Absolute Position Encoders

Item	Quantity	Designator	Value	Description	Manufacturer	PartNumber	Alternate Part	PackageReference	Note
1	1	PCB1		Printed Circuit Board	Any	TIDA-00179			
2	2	C1, C10	0.1uF	CAP, CERM, 0.1 uF, 100 V, +/- 10%, X7R, 0603	MuRata	GRM188R72A104KA35D		0603	
3	5	C2, C3, C13, C14, C34	10uF	CAP, CERM, 10uF, 25V, +/-10%, X5R, 0805	TDK	C2012X5R1E106K125AB		0805	
4	2	C4, C24	1000pF	CAP, CERM, 1000 pF, 25 V, +/- 10%, X7R, 0402	Würth Elektronik	885012205044		0402	
5	6	C5, C6, C11, C12, C16, C30	1uF	CAP, CERM, 1 uF, 100 V, +/- 10%, X7S, 0805	TDK	C2012X7S2A105K125AB		0805	
6	1	C7	2200pF	CAP, CERM, 2200 pF, 16 V, +/- 10%, X7R, 0603_095	Würth Elektronik	885012206036		0603_095	
7	1	C8	15pF	CAP, CERM, 15 pF, 50 V, +/- 5%, COG/NPO, 0402	Würth Elektronik	885012005056		0402	
8	1	C9	0.01uF	CAP, CERM, 0.01 uF, 16 V, +/- 10%, X7R, 0402	Würth Elektronik	885012205031		0402	
9	1	C15	33pF	CAP, CERM, 33 pF, 25 V, +/- 5%, COG/NPO, 0402	Würth Elektronik	885012005043		0402	
10	2	C17, C19	0.1uF	CAP, CERM, 0.1 uF, 100 V, +/- 10%, X7R, 0805	Kemet	C0805C104K1RACTU		0805	
11	1	C18	0.022uF	CAP, CERM, 0.022 uF, 100 V, +/- 10%, X7R, 0603	TDK	C1608X7R2A223K		0603	
12	1	C20	4700pF	CAP, CERM, 4700 pF, 25 V, +/- 10%, X7R, 0402	MuRata	GRM155R71E472KA01D		0402	
13	1	C21	0.1uF	CAP, CERM, 0.1 uF, 25 V, +/- 10%, X7R, 0603_095	Würth Elektronik	885012206071		0603_095	
14	1	C22	470uF	CAP, AL, 470 uF, 25 V, +/- 20%, 0.15 ohm, SMD	Würth Elektronik	865080457015		D10xL10.5mm	
15	1	C23	0.22uF	CAP, CERM, 0.22 uF, 16 V, +/- 10%, X7R, 0603_095	Würth Elektronik	885012206048		0603_095	
16	7	C25, C26, C31	0.1uF	CAP, CERM, 0.1 uF, 16 V, +/- 10%, X7R, 0603_095	Würth Elektronik	885012206046		0603_095	
17	4	C27, C28, C29, C32	330pF	CAP, CERM, 330 pF, 50 V, +/- 5%, COG/NPO, 0603	Würth Elektronik	885012006060		0603	
18	2	C33, C35	0.47uF	CAP, CERM, 0.47 uF, 50 V, +/- 10%, X7R, 0805	Würth Elektronik	885012207102		0805	
19	1	C36	2.2uF	CAP, CERM, 2.2 uF, 25 V, +/- 10%, X7R, 0805	MuRata	GRM21BR71E225KA73L		0805	
20	1	C38	0.01uF	CAP, CERM, 0.01 uF, 50 V, +/- 5%, COG/NPO, 0805	MuRata	GRM2195C1H103JA01D		0805	
21	3	D1, D17, D20	Green	LED, Green, SMD	Würth Elektronik	150060S75000		LED_0603	
22	1	D2	Yellow	LED, Yellow, SMD	Würth Elektronik	150060Y575000		LED_0603	
23	7	D5, D6, D7, D8, D9, D10, D11	30V	Diode, Schottky, 30 V, 0.2 A, SOT-23	ON Semiconductor	BAT54SLT1G		SOT-23	
24	1	D13	Red	LED, Red, SMD	Würth Elektronik	150060RS75000		LED_0603	
25	2	D14, D18	80V	Diode, Schottky, 80 V, 0.5 A, SOD-123	Micro Commercial Components	MBR0580-TP		SOD-123	
26	1	D15	3V	Diode, Zener, 3 V, 225 mW, SOT-23	ON Semiconductor	MMBZ5225BLT1G		SOT-23	
27	1	D19	Blue	LED, Blue, SMD	Würth Elektronik	150060BS75000		LED_0603	
28	1	D21	8.2V	Diode, Zener, 8.2 V, 500 mW, SOD-123	Vishay-Semiconductor	MMSZ4694-V		SOD-123	
29	3	FID1, FID2, FID3		Fiducial mark. There is nothing to buy or mount.	N/A	N/A		Fiducial	
30	3	H1, H2, H3		Machine Screw, Round, #4-40 x 1/4, Nylon, Philips panhead	B&F Fastener Supply	NY PMS 440 0025 PH 1902C		Screw	
31	3	H5, H6, H7		Standoff, Hex, 0.5" L, #4-40 Nylon	Keystone			Standoff	
32	2	J1, J2		Header, 100mil, 5x2, Tin, TH	Sullins Connector Solutions	PEC050AAN		Header, 5x2, 100mil, TH	
33	5	J3, J8, J9, J10, J11		Header, 2.54 mm, 2x1, Gold, TH	Würth Elektronik	61300211121		Header, 2.54mm, 2x1, TH	
34	2	J5, J15		Header, 2.54mm, 2x1, Gold, SMT	Würth Elektronik	61000218321		Header, 2.54mm, 2x1, TH	
35	1	J6		D-Sub-15, 17Pos, TH	Harting	09 66 252 6610		D-Sub-15, 2rows, Female, TH	
36	1	J7		Header, 2.54mm, 10x1, Gold, TH	Würth Elektronik	61301011121		Header, 2.54mm, 10x1, TH	
37	2	J12, J16		Header, 2.54 mm, 1x1, Gold, TH	Würth Elektronik	61300111121		Header, 2.54 mm, 1x1, TH	
38	1	J13		WR-DC DC Power Jack, R/A, TH	Würth Elektronik	694106301002		WR-DC DC Power	
39	2	L1, L2	100uH	Inductor, Shielded Drum Core, Ferrite, 100 uH, 0.52 A, 0.77 ohm, SMD	Würth Elektronik	74408943101		4.8x3.8x4.8mm	
40	2	L4, L5	100uH	Inductor, Shielded Drum Core, Ferrite, 100 uH, 0.3 A, 0.52 ohm, SMD	Würth Elektronik	744043101		WE-TPC-M2	
41	1	L6	6.8uH	Inductor, Shielded, 6.8 uH, 0.88 A, 0.3682 ohm, SMD	Würth Elektronik	74438334068		SMD, 2-Leads, Body 3.2x3.2mm	
42	6	Q1, Q3, Q4, Q6	30V	MOSFET, NIP-CH, 30 V, 1.5 A	Texas Instruments	CSD17483F4T			
43	1	Q2	-12V	MOSFET, P-CH, -12 V, -2.3 A	Texas Instruments	CSD23381F4			
44	1	Q5	-20V	MOSFET, P-CH, -20 V, -15 A, SON 3.3x3.3mm	Texas Instruments	CSD25402Q3A		SON 3.3x3.3mm	
45	14	R1, R2, R5, R6, R7, R8, R9, R10, R11, R12, R62, R66, R73, R78	10	RES, 10 ohm, 5%, 0.25W, 0603	Vishay-Dale	CRCW060310R0JNEAHP		0603	
46	6	R3, R4, R13, R34	560	RES, 560, 5%, 0.063 W, 0402	Vishay-Dale	CRCW0402560RJNED		0402	
47	3	R14, R19, R33	100k	RES, 100 k, 5%, 0.063 W, 0402	Vishay-Dale	CRCW0402100KJNED		0402	
48	3	R15, R24, R39	51	RES, 51, 5%, 0.063 W, 0402	Vishay-Dale	CRCW040251RJNED		0402	
49	3	R16, R48, R61	4.99k	RES, 4.99 k, 1%, 0.063 W, 0402	Vishay-Dale	CRCW04024K99FKED		0402	
50	2	R17, R32	0	RES, 0 ohm, 5%, 0.1W, 0603	Vishay-Dale	CRCW06030000Z0EA		0603	
51	7	R18, R21, R31, R69, R70, R71, R72	0	RES, 0, 5%, 0.063 W, 0402	Vishay-Dale	CRCW04020000Z0ED		0402	
52	2	R30, R36	150k	RES, 150 k, 5%, 0.063 W, 0402	Vishay-Dale	CRCW0402150KJNED		0402	
53	2	R22, R44	240	RES, 240, 5%, 0.1 W, 0603	Vishay-Dale	CRCW0603240RJNEA		0603	
54	4	R23, R26, R54	49.9k	RES, 49.9 k, 1%, 0.063 W, 0402	Vishay-Dale	CRCW040249K9FKED		0402	
55	1	R27	9.1k	RES, 9.1 k, 5%, 0.063 W, 0402	Vishay-Dale	CRCW04029K10JNED		0402	
56	1	R28	3.92k	RES, 3.92 k, 1%, 0.063 W, 0402	Vishay-Dale	CRCW04023K92FKED		0402	
57	1	R29	5.11k	RES, 5.11 k, 1%, 0.063 W, 0402	Vishay-Dale	CRCW04025K11FKED		0402	
58	1	R30	1.3k	RES, 1.3 k, 5%, 0.063 W, 0402	Vishay-Dale	CRCW04021K30JNED		0402	
59	1	R35	12k	RES, 12 k, 5%, 0.063 W, 0402	Vishay-Dale	CRCW040212K0JNED		0402	
60	1	R37	26.1k	RES, 26.1 k, 1%, 0.063 W, 0402	Vishay-Dale	CRCW040226K1FKED		0402	
61	1	R38	31.6k	RES, 31.6 k, 1%, 0.063 W, 0402	Vishay-Dale	CRCW040231K6FKED		0402	
62	1	R40	10.0k	RES, 10.0 k, 1%, 0.063 W, 0402	Vishay-Dale	CRCW040210K0FKED		0402	
63	1	R41	51.1	RES, 51.1, 1%, 0.063 W, 0402	Vishay-Dale	CRCW040251R1FKED		0402	
64	1	R42	0.1	RES, 0.1, 1%, 0.125 W, 0805	Panasonic	ERJ-6R5FR10V		0805	
65	1	R45	1.2k	RES, 1.2 k, 5%, 0.063 W, 0402	Vishay-Dale	CRCW04021K20JNED		0402	
66	1	R46	1.15k	RES, 1.15 k, 1%, 0.063 W, 0402	Vishay-Dale	CRCW04021K15FKED		0402	
67	1	R47	510	RES, 510, 5%, 0.063 W, 0402	Vishay-Dale	CRCW0402510RJNED		0402	
68	12	R49, R52, R63	10k	RES, 10 k, 5%, 0.063 W, 0402	Vishay-Dale	CRCW040210K0JNED		0402	
69	2	R50, R55	6.34k	RES, 6.34 k, 1%, 0.063 W, 0402	Vishay-Dale	CRCW04026K34FKED		0402	
70	1	R51	4.7k	RES, 4.7 k, 5%, 0.063 W, 0402	Vishay-Dale	CRCW04024K70JNED		0402	
71	1	R53	20k	RES, 20 k, 5%, 0.063 W, 0402	Vishay-Dale	CRCW040220K0JNED		0402	
72	2	R56, R79	22	RES, 22, 5%, 0.063 W, 0402	Vishay-Dale	CRCW040222RJNED		0402	
73	1	R57	309k	RES, 309 k, 1%, 0.063 W, 0402	Vishay-Dale	CRCW0402309KFKED		0402	
74	1	R58	10k	RES, 10 k, 5%, 0.1 W, 0603	Vishay-Dale	CRCW060310K0JNEA		0603	
75	1	R60	23.7k	RES, 23.7 k, 1%, 0.063 W, 0402	Vishay-Dale	CRCW040223K7FKED		0402	
76	2	R80, R82	56.2	RES, 56.2, 1%, 0.125 W, 0805	Vishay-Dale	CRCW080556R2FKEA		0805	
77	1	R86	8.06k	RES, 8.06 k, 1%, 0.063 W, 0402	Vishay-Dale	CRCW04028K06FKED		0402	
78	1	T2	785 uH	Transformers, Gate Drive, 785uH, SMT	Pulse Engineering	PE-68386NL		8.6x2.5x6.7 mm	
79	1	U1		Low-Voltage 4-Bit 1-of-2 FET Multiplexer/Demultiplexer, RSV0016A	Texas Instruments	SN74CBT1V3257RSVR		RSV0016A	
80	1	U2		Buck Inverting Buck-Boost Step Down Regulator with 3.5 to 60 V	Texas Instruments	TPSS4060ADRCT		DR00010J	
81	1	U3		Wide Input 60-V, 200-mA Synchronous Step-Down DC-DC Converter With Low IQ, DRB0008B	Texas Instruments	TPSS4061DRBR		DRB0008B	
82	1	U4		2.5 to 18 V Positive Voltage 10A Integrated Hot-Swap Controller,	Texas Instruments	TPS24750RUV		RUW0036A	
83	1	U5		Dual Comparator, D0008A	Texas Instruments	LM2903D		D0008A	
84	3	U7, U9, U12		3.3V-Supply RS-485 with IEC ESD Protection, D0008A	Texas Instruments	SN65HVD78D		D0008A	
85	0	D16	80V	Diode, Schottky, 80 V, 0.5 A, SOD-123	Micro Commercial Components	MBR0580-TP		SOD-123	
86	0	R25	100	RES, 100, 5%, 0.063 W, 0402	Vishay-Dale	CRCW0402100RJNED		0402	

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