

REVISION HISTORY					
REV	DESCRIPTION		CAT	DWN	ENGR
A	_____ INITIAL RELEASE _____		II	–	–
B	CORRECTED R79 & R97. PREPARED FOR UNLIMITED RELEASE.		II	D. PALMER	C. SHELTON
C	CHANGED FROM CONCERTO TO DELFINO SUPPORT. ADDED DIFFERENTIAL CURRENT SENSE AND ENCODER OPTIONS. ADDED ALTERNATE COMPONENTS.		II	D. PALMER	C. SHELTON
D	CHANGED FORM FACTOR. ADDED MCU DIRECTLY TO BOARD. REMOVED ANALOG ENCODER. REMOVED 18-BIT ADC. UPDATED CONNECTORS. ADDED TEMPERATURE/HUMIDITY SENSOR AND 1-WIRE ID CONNECTOR. UPDATED CURRENT-SENSE COMPONENTS.		II	D. PALMER	C. SHELTON

SEE JPL DATA MANAGEMENT
SYSTEM FOR APPROVAL
SIGNATURES AND DATES

1. DO NOT INSTALL: C37, R71, R118, R197, U4

NOTES: UNLESS OTHERWISE SPECIFIED

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		CONTRACT NO. _____		JET PROPULSION LABORATORY CALIFORNIA INSTITUTE OF TECHNOLOGY PASADENA, CA 91109			
		DWN	D. PALMER				
		ENGR	C. SHELTON				
		SEE JPL DATA MANAGEMENT SYSTEM FOR APPROVAL SIGNATURES AND DATES		TITLE PARTS LIST, M1 ACTUATOR DRIVER			
10398535	TMT						
NEXT ASSY	USED ON						
APPLICATION							
		SIZE B	DAI 23835	DWG NO PL10398535		REV D	
		SCALE: NONE				SHEET 1 OF 4	

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DWG NO PL10398535		TITLE: PARTS LIST, M1 ACTUATOR DRIVER		DAI 23835	REV D				SHEET 2 OF 4
ITEM NO	DESIGNATOR	DESCRIPTION	FOOTPRINT	MFR.	MFR. NO.	PREF. VENDOR	PREF. VENDOR NO.	QTY PER BOARD	NOTES
1.	C39	CAP CER 0.033UF 50V C0G 0805	CAPCP2012X07N	TDK	CGA4J2C0G1H333J125AA	Digi-Key	445-6950-1-ND	1	
2.	C1, C8, C20, C21, C22, C23, C24, C26, C28, C30, C32, C34, C42, C43, C45, C66, C76, C77, C82, C87, C105, C120, C121, C122, C123, C124, C125, C127, C129, C131, C133, C141, C144	CAP CER 0.1UF 50V 10% X7R 0603	CAPCP1608X09N	TDK	CGA3E2X7R1H104K080AE	Digi-Key	445-15957-1-ND	33	
3.	C63, C72	CAP CER 0.1UF 50V C0G 1206	CAPCP3316X19N	TDK	C3216C0G1H104J160AA	Digikey	445-7694-1-ND	2	
4.	C11, C46, C59, C95, C102, C112, C116, C160, C162, C169, C171, C172, C216	CAP CER 0.1UF 100V 10% X7R 0805	CAPCP2012X14N	TDK	CGA4J2X7R2A104M125AE	Digikey	445-15962-1-ND	13	
5.	C68, C94, C103	CAP CER 0.1UF 100V X7R 0805	CAPCP2012X14N	Kemet	C0805X104K1RACAUTO	Digikey	399-11601-1-ND	3	
6.	C55, C56, C57, C58, C148, C149, C150, C151	CAP CER 0.22UF 50V X7R 0603	C0603	Murata	GCJ188R71H224KA01D	Digi-Key	490-14410-1-ND	8	
7.	C10, C18, C135, C158, C186, C189, C193, C201	CAP CER 0.47UF 16V X7R 0603	CAPCP1608X09N	Murata	GCM188R71C474KA55D	Digikey	490-4775-1-ND	8	
8.	C2, C3, C16, C25	CAP CER 0.47UF 25V X7R 0603 10%	CAPCP1608X09N	TDK	CGA3E3X7R1E474K080AE	Digikey	445-173660-1-ND	4	
9.	C157, C166, C167	CAP CER 1UF 6.3V 10% X7R 0402	C0402	AVX	04026C105KAT2A	Digikey	478-10061-1-ND	3	
10.	C104, C118, C119	CAP CER 1.5UF 35V 10% X7R 0805	CAPCP2012X14N	TDK	CGA4J1X7R1V155K125AC	Digikey	445-12766-1-ND	3	
11.	C146, C191, C225	CAP CER 2.2UF 10V 20% X5R 0603	C0603	TDK Corporation	CGA3E3X5R1A225M080AB	Digikey	445-12445-1-ND	3	
12.	C69, C228	CAP CER 2.2UF 10V 20% X5R 0805	C0805	TDK Corporation	CGA4J2X5R1A225M125AA	Digikey	445-12641-1-ND	2	
13.	C44, C78, C79, C83, C84, C88, C89, C92, C232, C233, C234, C235, C237, C238	CAP CER 2.2UF 35V 10% X7R 0805	CAPCP2012X14N	TDK	CGA4J1X7R1V225K125AE	Digikey	445-8787-1-ND	14	
14.	C97, C99, C101	CAP CER 2.2UF 50V 10% X7R 0805	CAPCP2012X14N	TDK	CGA4J3X7R1H225K125AE	Digikey	445-172477-1-ND	3	
15.	C6, C7	CAP CER 2.2UF 100V X7R 1210	CAPCP3225X28N	Murata	GRM32ER72A225KA35L	Digikey	490-3385-1-ND	2	
16.	C27, C29, C31, C33, C35, C126, C128, C130, C132, C134	CAP CER 4.7UF 6.3V X7R 0805	CAPCP2012X14N	Kemet	C0805C475J9RACAUTO	Digikey	399-15725-1-ND	10	
17.	C67	CAP CER 4.7UF 16V 10% X7R 0805	CAPCP2012X14N	TDK	CGA4J3X7R1C475K125AE	Digikey	445-8788-1-ND	1	
18.	C17, C48, C60, C106	CAP CER 4.7UF 100V 10% X7R 2220	CAPCP5850X26N	Murata	GRM55ER72A475KA01L	Digikey	490-1934-1-ND	4	Alternate: C5750X7R2A475K230KA (WITH ENGINEER APPROVAL)
19.	C113	CAP CER 5PF 100V C0G 0603	CAPCP1608X09N	TDK	CGA3E2C0G2A050C080AA	Digi-Key	445-12335-1-ND	1	
20.	C215, C229	CAP CER 10NF 16V 10% X7R 0402	C0402	Kemet	C0402C103K4RECAUTO	Digikey	399-17876-1-ND	2	
21.	C41, C80, C85, C90	CAP CER 10PF 100V 5% NP0 0603	CAPCP1608X09N	Murata	GCM1885C2A100JA16D	Digikey	490-4770-1-ND	4	
22.	C182, C196, C227	CAP CER 10UF 6.3V 20% X5R 0603	C0603	AVX	06036D106MAT2A	Digikey	478-5318-1-ND	3	
23.	C70, C226	CAP CER 10UF 10V 10% X5R 0805	C0805	Kemet	C0805C106K8PACTU	Digikey	399-4925-1-ND	2	
24.	C75	CAP CER 10UF 10V X7R 0805	CAPCP2012X14N	Kemet	C0805X106M8RACAUTO	Digikey	399-15692-1-ND	1	
25.	C9, C15	CAP CER 10UF 25V 10% X7R 1206	CAPCP3316X19N	TDK	CGA5L1X7R1E106K160AE	Digikey	445-8806-1-ND	2	
26.	C19, C64, C93	CAP CER 10UF 35V 10% X7R 1206	CAPCP3316X19N	TDK	C3216X7R1V106K160AC	Digi-Key	445-14799-1-ND	3	
27.	C202, C230, C231	CAP CER 10UF 35V X6S 1206	CAPCP3225X28N	Murata	GRT31CC8YA106KE01L	Digikey	490-12424-1-ND	3	
28.	C96, C98, C100, C107, C108, C110, C111, C114, C115, C174, C177, C178, C179, C180	CAP CER 10UF 100V 10% X7S 2220	CAPCP5850X26N	TDK	CGA9N3X7S2A106K230KE	Digikey	445-8768-1-ND	14	
29.	C62, C71	CAP CER 15PF 50V NP0 0402	C0402	Kemet	C0402C150J5GACAUTO	Digikey	399-14421-1-ND	2	
30.	C109, C117	CAP CER 16PF 100V C0G/NP0 0603	CAPCP1608X09N	Murata	GCM1885C2A160JA16D	Digikey	490-11156-1-ND	2	
31.	C142, C143, C175, C185	CAP CER 22UF 10V 20% X5R 0805	C0805	TDK Corporation	C2012X5R1A226M125AB	Digikey	445-7665-1-ND	4	
32.	C13, C47	CAP CER 22UF 16V 10% X7R 1210	CAPCP3225X28N	TDK	C3225X7R1C226K250AC	Digikey	445-3945-1-ND	2	
33.	C14, C36, C38, C147, C183	CAP CER 22UF 16V X5R 1206	CAPCP3316X19N	Murata	GRT31CR61C226ME01L	Digi-Key	490-12443-1-ND	5	
34.	C40	CAP CER 22UF 35V 20% X5R 1206	CAPCP3316X19N	TDK	C3216X5R1V226M160AC	Digi-Key	445-8045-1-ND	1	
35.	C65, C73, C145, C156, C164, C165, C173, C176, C181, C184, C187, C188, C190, C192, C194, C195, C197, C199, C200, C203, C204, C205, C206, C207, C208, C209, C210, C211, C212, C213, C214, C218, C219, C220, C221, C222, C223, C224, C236	CAP CER 100NF 16V 10% X7R 0402	C0402	Kemet	C0402C104K4RACAUTO	Digikey	399-6828-1-ND	39	
36.	C136, C137, C138, C139, C140, C159, C161, C163, C168, C170	CAP CER 470PF 100V NP0 0603	CAPCP1608X09N	Murata	GCM1885C2A471JA16D	Digikey	490-4949-1-ND	10	
37.	C12	CAP CER 2200PF 50V 10% X7R 0603	CAPCP1608X09N	TDK	CGA3E2X7R1H222K080AA	Digikey	445-5660-1-ND	1	
38.	C81, C86, C91	CAP CER 4700PF 50V 5% NP0 0805	CAPCP2012X07N	Murata	GCM2165C1H472JA16D	Digikey	490-4973-1-ND	3	
39.	C198, C217	CAP CER 5600PF 50V 5% NP0 0805	CAPCP2012X09N	Murata	GRM2195C1H562JA01D	Digikey	490-1636-1-ND	2	
40.	C49, C50, C51, C52, C53, C54, C152, C153, C154, C155	CAP CER 10000PF 50V C0G 0603	C0603	TDK	CGJ3E2C0G1H103J080AA	Digikey	445-8115-1-ND	10	
41.	C4, C5	CAP CERAMIC 0.0015UF 50V C0G 1%	CAPCP1608X09N	Murata	GCM1885C1H152FA16D	Digikey	445-15953-1-ND	2	
42.	J9	CONN EDGE-RATE SOCKET 20POS SMD GOLD	ERF8-010-01-L-D-RA-L	Samtec	ERF8-010-01-L-D-RA-L	Digikey	SAM13127CT-ND	1	
43.	JP1	CONN HEADER VERT 2x2POS 2mm	SAMTEC_MTMM-102-02-L-D-105	Samtec	MTMM-102-02-G-D-105	Digikey	MTMM-102-02-G-D-105-ND	1	
44.	JP3	CONN HEADER VERT 2x3POS 2mm	SAMTEC_MTMM-103-02-L-D-105	Samtec	MTMM-103-02-G-D-105	Digikey	MTMM-103-02-G-D-105-ND	1	
45.	JP2	CONN HEADER VERT 2x4POS 2mm	SAMTEC_MTMM-104-02-L-D-105	Samtec	MTMM-104-02-G-D-105	Digikey	MTMM-104-02-G-D-105-ND	1	
46.	P1	CONN HEADER 20POS IDC SOCKET GOLD		Sullins Corporation	SFH41-PPPB-D10-ID-BK	Digikey	S9162-ND	1	
47.	J6	CONN HEADER SMD R/A 2POS 2MM GOLD	5023520210	Molex	5023520210	Digikey	WM16300CT-ND	1	
48.	J7	CONN HEADER SMD R/A 4POS 2MM GOLD	5023520410	Molex	5023520410	Digikey	WM24245CT-ND	1	
49.	J8	CONN HEADER SMD R/A 5POS 2MM GOLD	5023520510	Molex	5023520510	Digikey	WM20792CT-ND	1	
50.	J4	CONN HEADR SH 10POS SIDE 1MM GOLD	SAMTEC_T1M-10-F-SH-L-K	Samtec	T1M-10-F-SH-L	Digikey	SAM15479CT-ND	1	
51.	J5	CONN MICRO-LOCK PLUS RIGHT ANGLE HEAD	5055670281	Molex	5055670281	Digikey	WM26827CT-ND	1	

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DWG NO PL10398535		TITLE: PARTS LIST, M1 ACTUATOR DRIVER		DAI 23835	REV D				SHEET 3 OF 4
ITEM NO	DESIGNATOR	DESCRIPTION	FOOTPRINT	MFR.	MFR. NO.	PREF. VENDOR	PREF. VENDOR NO.	QTY PER BOARD	NOTES
52.	P1	CONNECTOR cTI HEADER 20POS 1.27MM RA	SAMTEC_HTMS-110-01-G-D-RA-006	Samtec	HTMS-110-01-G-D-RA-006	Digikey	HTMS-110-01-G-D-RA-006-ND	1	
53.	X1	CRYSTAL 20.0000MHZ 10PF SMD	XTAL_TXC_7B	TXC Corporation	7B-20.000MEEQ-T	Digikey	887-1303-1-ND	1	
54.	D9, D10, D11, D12, D13, D14	DIODE GEN PURP 75V 200MA SOD523F	SODFL1608X70N	ON Semiconductor	1N914BWT	Digikey	1N914BWTCT-ND	6	
55.	D5, D6, D7	DIODE SCHOTTKY 2A 40V PWRDI 123	POWERDI-123	Diodes Inc	DFLS240L-7	Digikey	DFLS240LDICT-ND	3	
56.	D1, D2, D3	DIODE SCHOTTKY 100V 1A	DO-214AC - MBRS1100T3G	ON Semiconductor	MBRS1100T3G	Digikey	MBRS1100T3GOSCT-ND	3	
57.	D4	DIODE SCHOTTKY, 220mV@10mA, SOD882L	SOD882L	Central Semiconductor Corp	CFSH05-20L	Digikey	CFSH05-20L CT-ND	1	
58.	U48, U51	DIODE TVS 3.3V 7V SOT143	CD143A	Bourns	CD143A-SR3.3	Digikey	CD143A-SR3.3CT-ND	2	
59.	U16, U19, U20, U21	DIODE TVS 4-CH UNIDIR ARRAY 11V BRKDOWN	TI-DBV-6, SOT-23-6	Texas Instruments	TPD4E001QDBVRQ1	Digikey	296-39344-1-ND	4	
60.	U49	DIODE TVS 5.5V 6SON	TI-DRY-6	TI	TPD4S012DRYR	Digikey	296-24244-1-ND	1	
61.	U36	DIODE TVS 6-CH ARRAY 6V BRKDOWN	RSE-8	Texas Instruments	TPD6E004RSER	Digi-Key	296-23619-2-ND	1	
62.	D8	DIODE TVS 36VWM POWERDI123	POWERDI-123	Diodes Inc	DFLT36A-7	Digikey	DFLT36ADICT-ND	1	
63.	L26, L27	FERRITE BEAD 2A 220 OHM@100MHz 0805 1LN	L0805	Murata Electronics	BLM21PG221SN1D	Digikey	490-1054-1-ND	2	
64.	L28	FERRITE BEAD 3A 60 OHM@100MHz 0805 1LN	L0805	Taiyo Yuden	BKP2125HS600-T	Digikey	587-1932-1-ND	1	
65.	L19	FIXED IND 22UH 220mA 2 OHM SMD	L0805_2	TDK	MLZ2012M220WTD25	Digikey	445-17076-1-ND	1	
66.	J1, J2, J3	HEADER, MICRO-LOCK PLUS RIGHT ANGLE 6POS 1.25MM	5055670681	Molex	5055670681	Digikey	WM22471CT-ND	3	
67.	U18	IC 3V VREF SERIES 0.05% 8VSSOP	TI-DGK-8	Texas Instruments	REF5030IDGKT	Digikey	296-24501-1-ND	1	
68.	U2	IC AMP DIFF ADC DVR 18BIT	CP-16-22	Analog Devices	ADA4945-1ACPZ-R7	Mouser Electronics	584-ADA4945-1ACPZ-R7	1	
69.	U15	IC BRIDGE I2C TO 1-WIRE 8-SOIC	MI-S8+4	Maxim Integrated	DS2482S-100+	Digi-Key	DS2482S-100+-ND	1	
70.	U33, U34, U35	IC Buck Switching Regulator 4A 28-WFQFN Exposed Pad	LT-UFD-28_N	Linear Technology	LTC3649IUFD#PBF	Digikey	LTC3649IUFD#PBF-ND	3	
71.	U31	IC BUF NON-INVERT 5.5V SOT23-6	TI-DBV-6	Texas Instruments	SN74LVC2G07DBVR	Digikey	296-13494-1-ND	1	
72.	U8, U9, U10, U11, U12, U14, U37, U38, U39, U40, U41	IC Current Sense Amplifier	PW0008A	TI	INA240A1PWR	Digikey	296-45088-1-ND	11	
73.	U42, U43, U44, U45, U46	IC DRIVER DC MOTOR 3.6A 8SOIC	DDA008H	Texas Instruments	DRV8872DDAR	Digikey	296-42661-1-ND	5	
74.	U50	IC LINE RVR LVDS DUAL 3.3V 8SOIC	TI-D-8_N	TI	DS90LV028ATMX/NOPB	Digikey	DS90LV028ATMX/NOPBCT-ND	1	
75.	U23	IC MCU 32BIT 1MB FLASH 337NFBGA	TI_ZWT_337BGA	Texas Instruments	TMS320F28379SZWTT	Digikey	296-45044-ND	1	-1 ASSEMBLY ONLY
76.	U23	IC MCU 32BIT 1MB FLASH 337NFBGA	TI_ZWT_337BGA	Texas Instruments	TMS320F28379DZWTT	Digikey	296-48453-ND	1	-2 ASSEMBLY ONLY
77.	U5, U47	IC OPAMP GP 38MHZ RRO 8VSSOP	TI-DGK-8	TI	OPA350EA/2K5	Digikey	296-46161-1-ND	2	
78.	U22	IC OPAMP GP R-R 38MHZ QUAD 16DBQ	SSOP16_DBQ	Texas Instruments	OPA4350EA/250	Digikey	OPA4350EACT-ND	1	
79.	U27	IC OPAMP QUAD RRIO, 44 V, SOIC-14	LT-S-14_N	Linear Technology	LT1491AIS#PBF	Digikey	LT1491AIS#PBF-ND	1	
80.	U13	IC OPAMP RROI SOT-23-6	RJ-6_N	Analog Devices	ADA4805-1ARJZ-R7	Digikey	ADA4805-1ARJZ-R7CT-ND	1	
81.	U32	IC Quad 2-Input Positive-AND Gate	TI-D-14_N	Texas Instruments	SN74HCS08QDRQ1	Digikey	296-SN74HCS08QDRQ1CT-ND	1	
82.	U6	IC RCVR DIFF QUAD LV HS 16SOIC	TI-D-16_N	Texas Instruments	AM26LV32EIDR	Digikey	296-24694-1-ND	1	
83.	U7	IC REG 3.5A Synchronous Buck 16-pin SOP (MSE-16-EDP)	LT-MSE-16	Linear Technology	LT8610ABEMSE#PBF	Digikey	LT8610ABEMSE#PBF-ND	1	ALTERNATE: LT8610ABIMSE#PBF (WITH ENGINEER APPROVAL)
84.	U29	IC REG BUCK 1.2V 600MA 6SON	TI-DRV-6	Texas Instruments	TPS62262TDRVVRQ1	Digikey	296-25730-1-ND	1	
85.	U26	IC REG BUCK 3.3V 1A 6-WDFN Exposed Pad	TI-DRV-6	Texas Instruments	TPS62291DRVVT	Digikey	296-23330-1-ND	1	
86.	U3	IC REG LTC7138EMSE#PBF	LT-MSE-16(12)	LT	LTC7138EMSE#PBF	Digi-Key	LTC7138EMSE#PBF-ND	1	
87.	U30	IC SDRAM 16MX16 200MHZ 54TSOP	TSOP80P1180X110-54N	Insignis	NDS36PT5-20IT	Rutronik	CDRAM2099	1	
88.	U4	IC SILICON SERIAL NUMBER 6TSOC	MAXIM_DS2401P+	Maxim Integrated	DS2401P+	Digikey	DS2401P+CT-ND	1	DO NOT INSTALL
89.	U25	IC VOLTAGE MONITOR 1.2V TSOT23-6	TI-DDC-6	Texas Instruments	TPS3702CX12DDCT	Digikey	296-42074-1-ND	1	
90.	U28	IC VOLTAGE MONITOR 3.3V TSOT-23-6	TI-DDC-6	Texas Instruments	TPS3702CX33DDCT	Digikey	296-39651-1-ND	1	
91.	U1	IC VREF SERIES 4.096V 8SOIC	R-8_N	Analog Devices	ADR444BRZ-REEL7	Digikey	ADR444BRZ-REEL7CT-ND	1	ALTERNATE: ADR444ARZ (WITH ENGINEER APPROVAL)
92.	L13, L24, L25	IND 2.2µH Shielded 1.72A 59 mOhm	VLCF4020	TDK	VLCF4020T-2R2N1R7	Digikey	445-3182-1-ND	3	
93.	L20, L21, L22	IND 6.8UH 5.2A 25 MOHM SMD	IND_WE_PDA-1260	Würth	78477068	Digi-Key	732-6783-1-ND	3	
94.	L1	IND 10UH 1.44A 180 MOHM	IND_VLF403215	TDK	VLF403215MT-100M-CA	Digikey	445-17152-1-ND	1	
95.	L12	IND 10UH 2.5A 36.4 mOhm	IND_TDK_SLF10145T	TDK	SLF10145T-100M2R5-PF	Digikey	445-1975-1-ND	1	
96.	L6, L23	IND 15UH 2.2A 56.6 MOHM	IND_TDK_SLF10145T	TDK	SLF10145T-150M2R2-H	Digikey	445-3827-1-ND	2	
97.	L4	IND 22µH Shielded 3.8A 37.9 mOhm	IND_TDK_SLF12565ST	TDK	SLF12565T-220M3R5-PF	Digikey	445-173079-1-ND	1	
98.	L7, L8, L9, L10, L11, L14, L15, L16, L17, L18	IND 47µH Shielded 2.4A 69.36 mOhm	IND_TDK_SLF12565ST	TDK	SLF12565T-470M2R4-H	Digikey	445-3847-1-ND	10	
99.	L2, L3, L5	IND 100UH .33A 1Ohm SMD	VLCF4028	TDK	VLCF4028T-101MR33-2	Digi-Key	445-6542-1-ND	3	
100.	LD1	LED GREEN DIFFUSED 2125 SMD	DIOC2012X09N	Stanley Electric	PG1112H-TR	Digikey	404-1021-1-ND	1	
101.	LD2, LD3	LED RED DIFFUSED 2125 SMD	DIOC2012X09N	Stanley Electric	BR1112H-TR	Digikey	404-1017-1-ND	2	
102.	R27, R28, R124, R125	RES 0.039 OHM 1% 1/2W 0805	RESC2012N	Panasonic	ERJ-6BWFRO39V	Digikey	P.039AQCT-ND	4	
103.	R24, R128	RES 0.1 OHM 1% 1/2W 0805	RESC2012N	Panasonic	ERJ-6DSFR10V	Digikey	P19308CT-ND	2	
104.	R172, R173, R182, R188	RES 0.1 OHM 5% 1/10W 0603	R0603	Panasonic	ERJ-3RSJR10V	Digikey	P.10AHCT-ND	4	
105.	R25, R26, R126, R127	RES 0.12 OHM 1% 1/2W 0805	RESC2012N	Panasonic	ERJ-6DSFR12V	Digikey	P19310CT-ND	4	
106.	R155	RES 0.4 OHM 1% 1W 2010	RESC5125X09N	Vishay Dale	WSLT2010R4000FEA18	Digikey	541-10371-1-ND	1	
107.	R23	RES 0.75 OHM 1% 1/2W 0805	RESC2012N	Panasonic	ERJ-6DQFR75V	Digikey	P19305CT-ND	1	
108.	R62	RES 1.0 OHM 1/8W 1% 0805	RESC2012N	Panasonic	ERJ-6RQF1R0V	Digikey	P1.0DCT-ND	1	
109.	R49, R90, R99, R100, R129, R132, R133, R136, R137, R146, R147, R148, R149, R150	RES 1.00K OHM 1/8W 1% 0805 SMD	RESC2012N	Panasonic	ERJ-6ENF1001V	Digikey	P1.00KCCT-ND	14	
110.	R64, R186, R187, R196, R205	RES 2.2K OHM 5% 1/10W 0402	R0402	Panasonic	ERJ-2GEJ222X	Digikey	P2.2KJCT-ND	5	

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DWG NO PL10398535		TITLE: PARTS LIST, M1 ACTUATOR DRIVER		DAI 23835	REV D				SHEET 4 OF 4
ITEM NO	DESIGNATOR	DESCRIPTION	FOOTPRINT	MFR.	MFR. NO.	PREF. VENDOR	PREF. VENDOR NO.	QTY PER BOARD	NOTES
111.	R33	RES 3.01K OHM 1/8W 1% 0805 SMD	RESC2012N	Panasonic	ERJ-6ENF3011V	Digikey	P3.01KCCT-ND	1	
112.	R37	RES 4.7 OHM 1/8W 1% 0805 SMD	RESC2012N	Panasonic	ERJ-6RQF4R7V	Digikey	P4.7DCT-ND	1	
113.	R111, R112	RES 4.7K OHM 1% 1/10W 0402	R0402	KOA Speer Electronics	RK73H1ETTP4701F	Digikey	2019-RK73H1ETTP4701FCT-ND	2	
114.	R4	RES 4.99 OHM 0.1W 1% 0603 SMD	RESC1608X06N	Vishay	CRCW06034R99FKEA	Digikey	541-4.99HHCT-ND	1	
115.	R34, R206, R207, R208	RES 10.0K OHM 1/8W 1% 0805 SMD	RESC2012N	Panasonic	ERJ-6ENF1002V	Digikey	P10.0KCCT-ND	4	
116.	R29, R68, R85, R86, R198, R209, R210	RES 20.0K OHM 1/8W 1% 0805 SMD	RESC2012N	Panasonic	ERJ-6ENF2002V	Digikey	P20.0KCCT-ND	7	
117.	R70, R74	RES 27.4K OHM 1/8W 1% 0805 SMD	RESC2012N	Panasonic	ERJ-6ENF2742V	Digikey	P27.4KCCT-ND	2	
118.	R211, R212, R213	RES 30.1K OHM 1/8W 1% 0805 SMD	RESC2012N	Panasonic	ERJ-6ENF3012V	Digikey	P30.1KCCT-ND	3	
119.	R141, R142, R143, R144, R145, R180, R181, R183, R184, R185	RES 49.9 OHM 1/8W 1% 0805 SMD	RESC2012N	Panasonic	ERJ-6ENF49R9V	Digikey	P49.9CCT-ND	10	
120.	R75, R81, R200	RES 113K OHM 1/8W 1% 0805 SMD	RESC2012N	Panasonic	ERJ-6ENF1133V	Digikey	P113KCCT-ND	3	
121.	R69, R73	RES 309 OHM 1% 1/8W 0805	RESC2012N	Panasonic	ERJ-6ENF3090V	Digikey	P309CCT-ND	2	
122.	R176, R177, R178, R179, R194	RES SMD 0 OHM JUMPER 1/10W 0402	R0402	Panasonic	ERJ-2GE0R00X	Digikey	ERJ-2GE0R00X	5	
123.	R151, R152, R153, R154	RES SMD 0.0 OHM JUMPER 1W 2010	RESC5125X09N	Vishay Dale	CRCW20100000Z0EFHP	Digikey	541-0.0PBCT-ND	4	
124.	R65, R101, R102, R103, R117, R170, R171	RES SMD 0.0 OHM JUMPER 0603	C0603, R0603, RESC1608X06N	Panasonic	ERJ-3GEY0R00V	Digikey	P0.0GCT-ND	7	
125.	R22, R107, R108, R109, R201, R202, R203, R204	RES SMD 0.1 OHM 1% 1/2W 0805	RESC2012N	Panasonic	ERJ-6BWFR100V	Digikey	P17589CT-ND	8	
126.	R82, R83, R84, R113, R114, R175	RES SMD 1.00K OHM 1% 1/10W 0603	RESC1608X06N, R0603	Panasonic	ERJ-3EKF1001V	Digikey	P1.00KHCT-ND	6	
127.	R36, R40	RES SMD 1M OHM 1% 1/8W 0805	RESC2012N	Panasonic	ERJ-6ENF1004V	Digikey	P1.00MCCT-ND	2	
128.	R3, R66	RES SMD 2 OHM 1% 1/4W 0603	RESC1608X06N	Panasonic	ERJ-3BQF2R0V	Digikey	P17377CT-ND	2	
129.	R60, R61	RES SMD 2.49K OHM 1% 1/10W 0603	RESC1608X06N	Panasonic	ERJ-3EKF2491V	Digikey	P2.49KHCT-ND	2	
130.	R78, R79, R80	RES SMD 3.01K OHM 1% 1/10W 0603	RESC1608X06N	Panasonic	ERJ-3EKF3011V	Digikey	P3.01KHCT-ND	3	
131.	R48	RES SMD 4.99K OHM 1% 1/10W 0603	RESC1608X06N	Panasonic	ERJ-3EKF4991V	Digikey	P4.99KHCT-ND	1	
132.	R169	RES SMD 9.09K OHM 1% 1/10W 0603	RESC1608X06N	Panasonic	ERJ-3EKF9091V	Digikey	P9.09KHCT-ND	1	
133.	R5, R14, R17, R18, R19, R20, R21, R41, R42, R43, R44, R45, R119, R120, R121, R122, R123, R130, R131, R134, R135, R138	RES SMD 10 OHM 5% 1/10W 0603	RESC1608X06N	Panasonic	ERJ-3GEYJ100V	Digikey	P10GCT-ND	22	
134.	R6, R7, R9, R12, R32, R38, R39, R47, R115, R116, R140, R167, R168	RES SMD 10K OHM 1% 1/10W 0603	RESC1608X06N	Panasonic	ERJ-3EKF1002V	Digikey	P10.0KHCT-ND	13	
135.	R30	RES SMD 13K OHM 1% 1/8W 0805	RESC2012N	Panasonic	ERJ-6ENF1302V	Digikey	P13.0KCCT-ND	1	
136.	R1, R2	RES SMD 13.7K OHM 1% 1/10W 0603	RESC1608X06N	Panasonic	ERJ-3EKF1372V	Digikey	P13.7KHCT-ND	2	
137.	R58, R59, R157	RES SMD 33.2 OHM 1% 1/10W 0603	R0603	Panasonic	ERJ-3EKF33R2V	Digikey	P33.2HCT-ND	3	
138.	R63	RES SMD 39 OHM 5% 1/10W 0402	R0402	Panasonic	ERJ-2GEJ390X	Digikey	P39JCT-ND	1	ALTERNATE: ERJ-2RKf39R0X
139.	R192, R217, R218	RES SMD 41.2K OHM 1% 1/8W 0805	RESC2012N	Panasonic	ERJ-6ENF4122V	Digikey	P41.2KCCT-ND	3	
140.	R10	RES SMD 41.2K OHM 1% 1/10W 0603	RESC1608X06N	Panasonic	ERJ-3EKF4122V	Digikey	P41.2KHCT-ND	1	
141.	R190, R191	RES SMD 56K OHM 5% 1/10W 0402	R0402	Panasonic	ERJ-2GEJ563X	Digikey	P56KJCT-ND	2	
142.	R91, R92, R93	RES SMD 56.2K OHM 1% 1/10W 0603	RESC1608X06N	Panasonic	ERJ-3EKF5622V	Digikey	P56.2KHCT-ND	3	
143.	R139	RES SMD 90.9K OHM 1% 1/10W 0603	RESC1608X06N	Panasonic	ERJ-3EKF9092V	Digikey	P90.9KHCT-ND	1	
144.	R110, R189, R193, R195, R214, R215, R216	RES SMD 100 OHM 1% 1/4W 0603	RESC1608X06N	Panasonic	ERJ-PA3F1000V	Digikey	P100BYCT-ND	7	
145.	R8, R87, R88, R89, R94, R96	RES SMD 100K OHM 1% 1/10W 0603	RESC1608X06N	Panasonic	ERJ-3EKF1003V	Digikey	P100KHCT-ND	6	
146.	R11, R13, R46	RES SMD 120 OHM 1% 1/4W 0603	RESC1608X06N	Panasonic	ERJ-PA3F1200V	Digikey	P120BYCT-ND	3	
147.	R35	RES SMD 150K OHM 1% 1/8W 0805	RESC2012N	Panasonic	ERJ-6ENF1503V	Digikey	P150KCCT-ND	1	
148.	R31	RES SMD 243K OHM 1% 1/10W 0603	RESC1608X06N	Panasonic	ERJ-3EKF2433V	Digikey	P243KHCT-ND	1	
149.	R95	RES SMD 316K OHM 1% 1/10W 0603	RESC1608X06N	Panasonic	ERJ-3EKF3163V	Digikey	P316KHCT-ND	1	
150.	R15, R16	RES SMD 402 OHM 1% 1/10W 0603	RESC1608X06N	Panasonic	ERJ-3EKF4020V	Digikey	P402HCT-ND	2	
151.	R76	RES SMD 499 OHM 1% 1/10W 0603	RESC1608X06N	Panasonic	ERJ-3EKF4990V	Digikey	P499HCT-ND	1	
152.	R104, R105, R106	RES SMD 499K OHM 1% 1/10W 0603	RESC1608X06N	Panasonic	ERJ-3EKF4993V	Digikey	P499KHCT-ND	3	
153.	R97, R98	RES SMD 680 OHM 5% 1/16W 0402	R0402	Vishay Dale	CRCW0402680RJNED	Digikey	541-680JCT-ND	2	
154.	R54, R55, R56, R57, R156, R158, R159, R160	RES SMD 715 OHM 1% 1/10W 0603	R0603	Panasonic	ERJ-3EKF7150V	Digikey	P715HCT-ND	8	
155.	R50, R51, R52, R53, R161, R162, R163, R164, R165, R166	RES SMD 787 OHM 1% 1/10W 0603	R0603	Panasonic	ERJ-3EKF7870V	Digikey	P787HCT-ND	10	
156.	U17	SENSOR HUMI/TEMP 5V I2C 1.5% SMD	XDCR_SHT35-DIS- B2.5KS	Sensirion AG	SHT35-DIS-B2.5KS	Digikey	1649-1062-1-ND	1	
157.	SW1	SWITCH, 2xSPST DIP SMT, half-pitch	SW_2POS_CTS218	CTS Electrocomponents	218-2LPST		CT2182LPST-ND	1	
158.	GND1, GND2, GND3, GND4, GND5, GND6	TEST POINT COMPACT SMT	TP-5016	Keystone	5016	Digikey	5016KCT-ND	6	
159.	TP1, TP2, TP3, TP4, TP5, TP6, TP7, TP8, TP9, TP10, TP11, TP12, TP13, TP14, TP15, TP16, TP17, TP18, TP19, TP20, TP21, TP22, TP23, TP24, TP25, TP30, TP31, TP32, TP33, TP34, TP35, TP36	TEST POINT MINIATURE SMT	TP-5015	Keystone	5015	Digikey	5015KCT-ND	32	
160.	Q2, Q3, Q4	TRANS MOSFET N-CH 500V 6A D2PAK	TO-263AA	IXYS	IXTA6N50D2	Digikey	IXTA6N50D2-ND	3	
161.	Q1	TRANS NPN 40V 0.6A SMD SOT23-3	TO-236AB	Diodes, Inc	MMBT2222A-7-F	Digikey	MMBT2222A-FDICT-ND	1	
162.	Q5, Q6, Q7	TRANS PNP 40V 0.6A SOT23	TO-236AB	Nexperia	PMBT2907,215	Digikey	1727-5176-1-ND	3	