

AEC-6638

Reliability Prediction Report (MTBF)

Summary	Failure Rate: 12778.328303 ppm MTBF: 78,257 Hours
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Issue date

Approval

Test Engineer

2014/09/16

Tom Lin

Jack Huang

Reliability Prediction (MTBF)

I . Model Name: AEC-6638

II . Prediction Date: Sep. 15, 2014

III . Prediction Site: AAEON Q.E. Dept.

IV . Predicted by: Jack Huang

V . Equipment: Windchill Quality Solutions 10.1

VI. Simulation Environment:

- Temperature: 30 degrees C
- Standard: Telcordia (Bellcore) Standard

VII. Term and Definition:

- Unit : An assembly of device.
- Duty Cycle : Used to specify the percentage of time that the element is in an on state, and it is equal to the percentage of total time the item is in the active environment.
- Quantity : The quantity of the selected item.
- Failure Rate : Used to specify that the failure rate is to be calculated based the selected Calculation models. The Failure rate multiplier is 1000000000.
- MTBF : MTBF is always specified in hours.

VIII. Prediction Result:

AEC-6638(9697QM8724-D, 9697P17D03-D):

- Failure Rate: 12778.328303 ppm
- MTBF: 78.257 Hours

**AAEON Reliability Prediction
Summary**

File Name: AEC-6638.rfp
Duty Cycle: 100
Calculation Model: Telcordia Issue 2
Method: Method I Case 3

Failure Rate: 12778.328303
MTBF (hrs): 78,257
Temperature: 30
Environment: GF, GU - Ground Fixed, Uncontrolled

Assembly Name	Part Number	Ref Des	Quantity	Failure Rate	MTBF
AEC-6638	System		1	12778.328303	78,257
(TF)SMD ASS'Y.GENE-QM87.Rev.A1.0_0_0.3COM.w/i5-4400E.For AEC-6638	9697QM8724-D		1	12233.554707	81,742
(TF)SMD ASS'Y.POWER BORAD.PER-P17D.Rev.B1_0_0	9697P17D03-D		1	619.514250	1,614,168

File Name: AEC-6638.rfp
Assembly: 9697QM8724-D
Ref Des:
Description:

Failure Rate: 12233.554707
MTBF (hrs): 81,742
Temperature: 30
Environment: GF, GU - Ground Fixed, Uncontrolled

Part Number	Category	Ref Des	Tem.Rise	Unit Failure Rate	Quantity	MTBF,Unit
1050500104	Resistor	R103,R144,R17,R184		2.547039	4	82309758.689546
1050500334	Resistor	R122,R175,R197		2.547039	3	107020754.986850
1050501004	Resistor	R44		2.547039	1	282340674.079668
1050501834	Resistor	R511		2.547039	1	282340674.079668
1050502204	Resistor	R171,R173,R181, R183,R568,R581		2.547039	6	56573956.677649
1050503914	Resistor	R248		2.547039	1	282340674.079668
1050503934	Resistor	R426		2.547039	1	282340674.079668
1050504724	Resistor	R514		2.547039	1	282340674.079668
1050504734	Resistor	R185		2.547039	1	282340674.079668
1050505124	Resistor	R757		2.547039	1	282340674.079668
1050505134	Resistor	R462		2.547039	1	282340674.079668
1050505164	Resistor	R643		2.547039	1	282340674.079668
1050505604	Resistor	R535		2.547039	1	282340674.079668
1050505633	Resistor	R285		2.547039	1	282340674.079668
1050507524	Resistor	R155,R156,R190, R621,R633		2.547039	5	67008142.102588
1050507530	Resistor	R441,R446,R468		2.547039	3	107020754.986850
1050508224	Resistor	R570,R673		2.547039	2	154078778.388085
1050510034	Resistor	R10,R125,R132,R176, R2,R238,R249,R287, R311,R33,R390,R416, R430,R449,R45,R461, R475,R479,R481, R489,R491,R493, R496,R497,R498,R51, R52,R520,R56,R57, R578,R582,R585, R587,R623,R634,R64, R660,R682,R687, R699,R719,R722, R726,R764,R89,R94		2.547039	47	7918121.839508

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1050512104	Resistor	R424,R499		2.547039	2	154078778.388085
1050513034	Resistor	R731		2.547039	1	282340674.079668
1050514034	Resistor	R348,R353,R365, R366		2.547039	4	82309758.689546
1050515034	Resistor	R62		2.547039	1	282340674.079668
1050520004	Resistor	R423,R529		2.547039	2	154078778.388085
1050520034	Resistor	R279,R753		2.547039	2	154078778.388085
1050522034	Resistor	R584		2.547039	1	282340674.079668
1050524004	Resistor	R758		2.547039	1	282340674.079668
1050524904	Resistor	R46,R616,R642,R646		2.547039	4	82309758.689546
1050524934	Resistor	R478		2.547039	1	282340674.079668
1050533034	Resistor	R242,R639		2.547039	2	154078778.388085
1050536514	Resistor	R13		2.547039	1	282340674.079668
1050540224	Resistor	R247		2.547039	1	282340674.079668
1050549904	Resistor	R675,R678		2.547039	2	154078778.388085
1050549964	Resistor	R539,R597,R601		2.547039	3	107020754.986850
1050561934	Resistor	R480		2.547039	1	282340674.079668
1050564904	Resistor	R580		2.547039	1	282340674.079668
1050564914	Resistor	R213		2.547039	1	282340674.079668
1050700002	Resistor	R172,R532		2.547039	2	154078778.388085
1050701504	Resistor	R29,R30,R79		2.547039	3	107020754.986850
1050702734	Resistor	R420		2.547039	1	282340674.079668
1050703334	Resistor	R442,R671,R779		2.547039	3	107020754.986850
1050704304	Resistor	R501,R534		2.547039	2	154078778.388085
1054700289	Resistor	R517		2.547039	1	282340674.079668
1059510001	Resistor	R403		2.547039	1	282340674.079668
1059520001	Resistor	R422		2.547039	1	282340674.079668
1059700001	Resistor	R374,R717		2.547039	2	154078778.388085
105A500139	Resistor	R503,R510,R528,R55,R596,R609,R67		2.547039	7	48991237.965885
105A500239	Resistor	R513		2.547039	1	282340674.079668
105A501003	Resistor	R443		2.547039	1	282340674.079668
105A501039	Resistor	R214,R23,R252,R363,R376,R43,R431,R456,R720,R761,R766		2.547039	11	32049696.385471
105A501539	Resistor	R448,R463		2.547039	2	154078778.388085
105A501829	Resistor	R22,R530		2.547039	2	154078778.388085

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105A502039	Resistor	R210,R220,R225, R260,R393,R447, R453,R512,R515, R547,R631,R644, R749,R755		2.547039	14	25477245.255648
105A502123	Resistor	R121,R174,R196		2.547039	3	107020754.986850
105A503039	Resistor	R206,R221,R245, R546		2.547039	4	82309758.689546
105A505109	Resistor	R265,R540,R544, R553		2.547039	4	82309758.689546
105A506834	Resistor	R385		2.547039	1	282340674.079668
105A507509	Resistor	R381,R382,R383, R523,R533		2.547039	5	67008142.102588
105A510009	Resistor	R261,R266,R267, R388,R537,R541, R552,R554		2.547039	8	43225424.698300
105A510223	Resistor	R455,R744		2.547039	2	154078778.388085
105A510733	Resistor	R435		2.547039	1	282340674.079668
105A513009	Resistor	R524,R70		2.547039	2	154078778.388085
105A515009	Resistor	R159,R160,R161, R318,R330,R346		2.547039	6	56573956.677649
105A520003	Resistor	R212		2.547039	1	282340674.079668
105A521003	Resistor	R304,R305,R306		2.547039	3	107020754.986850
105A522623	Resistor	R68		2.547039	1	282340674.079668
105A522669	Resistor	R595		2.547039	1	282340674.079668
105A530113	Resistor	R737		2.547039	1	282340674.079668
105A536503	Resistor	R495		2.547039	1	282340674.079668
105A547529	Resistor	R129,R182,R201		2.547039	3	107020754.986850
105A549919	Resistor	R364		2.547039	1	282340674.079668
105A553629	Resistor	R186,R756		2.547039	2	154078778.388085
105A554969	Resistor	R58		2.547039	1	282340674.079668
105A569823	Resistor	R379		2.547039	1	282340674.079668
105A580623	Resistor	R457		2.547039	1	282340674.079668

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105A700003	Resistor	R150,R153,R180, R188,R198,R240, R372,R391,R429, R451,R465,R483, R486,R509,R566, R588,R591,R61,R612, R632,R641,R710, R727,R740,R741, R748,R751,R774, R777,R86		2.547039	30	12244464.256771
105A700009	Resistor	R124,R127,R135, R141,R147,R177, R179,R192,R194, R202,R204,R21,R215, R216,R234,R237,R24, R246,R25,R255,R258, R26,R264,R27,R270, R271,R282,R288, R309,R32,R322,R326, R327,R34,R340,R341, R344,R349,R351, R355,R360,R384, R389,R40,R41,R418, R428,R452,R469, R474,		2.547039	92	4106168.814407

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105A700139	Resistor	R105,R235,R268, R286,R302,R315, R334,R342,R375, R392,R404,R432, R433,R450,R460, R466,R492,R500, R522,R526,R527,R54, R557,R561,R625, R627,R63,R672,R702, R708,R728,R739,R88, R97		2.547039	34	10846303.620910
105A701009	Resistor	R19,R20		2.547039	2	154078778.388085
105A701039	Resistor	R101,R107,R111, R112,R114,R134, R136,R14,R142,R145, R15,R151,R152,R170, R199,R205,R208, R217,R219,R222, R223,R224,R229, R251,R253,R254, R262,R263,R269, R272,R273,R274, R275,R276,R277, R278,R280,R281, R291,R292,R293, R295,R296,R297, R298,R299,R303,R300, R301		2.547039	117	3242667.952473

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105A701059	Resistor	R1,R126,R128,R131,R163,R236,R283,R35,R504,R562		2.547039	10	35079934.879747
105A701069	Resistor	R211		2.547039	1	282340674.079668
105A702229	Resistor	R11,R12,R137,R138,R139,R140,R143,R148,R157,R162,R218,R386,R387,R502,R508,R564,R569,R571,R577,R665,R677,R742,R743		2.547039	23	15826261.230290
105A702269	Resistor	R118,R154,R187		2.547039	3	107020754.986850
105A703309	Resistor	R110,R149,R158,R195,R200,R203,R209,R284,R289,R307,R310,R329,R335,R336,R337,R405,R406,R407,R408,R409,R410,R411,R412,R434,R438,R472,R763,R765,R767		2.547039	29	12652760.276502
105A703329	Resistor	R250,R256,R257,R320,R352,R444,R454,R538,R669		2.547039	9	38754445.632391
105A704334	Resistor	R303		2.547039	1	282340674.079668

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Part Number	Category	Ref Des	Tem.Rise	Unit Failure Rate	Quantity	MTBF,Unit
105A704729	Resistor	R102,R109,R113, R115,R116,R117, R119,R241,R313, R324,R367,R369, R370,R377,R394, R395,R396,R397, R398,R399,R400, R401,R413,R417, R419,R711,R752		2.547039	27	13557741.157915
105A704739	Resistor	R361		2.547039	1	282340674.079668
105A705139	Resistor	R290,R308,R583, R586,R593,R600, R635,R636		2.547039	8	43225424.698300
105A706209	Resistor	R525		2.547039	1	282340674.079668
105A708229	Resistor	R378,R604,R605, R606,R615,R656, R694,R754		2.547039	8	43225424.698300
105A710009	Resistor	R4		2.547039	1	282340674.079668
105A710039	Resistor	R228,R230,R231, R232,R233,R516, R549		2.547039	7	48991237.965885
105A715009	Resistor	R614,R760		2.547039	2	154078778.388085
105A730009	Resistor	R464		2.547039	1	282340674.079668
105A733009	Resistor	R16,R358,R359,R38, R42,R735,R736,R768, R9		2.547039	9	38754445.632391
105A747009	Resistor	R164,R165,R167		2.547039	3	107020754.986850
106B501033	Resistor	RT2,RT3,RT4		2.547039	3	107020754.986850
106B510030	Resistor	RT1		2.547039	1	282340674.079668
1121501690	Capacitor	C102		1.128806	1	704977644.692287

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1121501691	Capacitor	C10,C100,C101,C105,C111,C113,C115,C116,C117,C118,C119,C12,C122,C124,C126,C127,C138,C139,C145,C146,C147,C149,C15,C150,C151,C152,C153,C157,C158,C16,C160,C162,C163,C164,C165,C166,C167,C168,C17,C170,C172,C173,C175,C176,C177,C178,C18,C181,C182,C1		1.128806	197	4418246.911252
1124410191	Capacitor	C133,C191,C192,C193,C197,C224,C236,C562,C572,C581,C587,C588		1.128806	12	68856937.301178
1124412090	Capacitor	C137,C144		1.128806	2	375289731.076049
1124427091	Capacitor	C186,C205,C209,C212		1.128806	4	196873384.410843
1124433190	Capacitor	C29		1.128806	1	704977644.692287
1124547290	Capacitor	C265		1.128806	1	704977644.692287
1129701790	Capacitor	C120,C142		1.128806	2	375289731.076049

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1129701791	Capacitor	C20,C21,C22,C23,C251,C252,C253,C254,C280,C311,C353,C383,C384,C396,C398,C42,C44,C475,C483,C506,C590		1.128806	21	40003791.624280
1129710091	Capacitor	C179,C190,C202,C246,C247,C248,C565,C566,C593,C595,C596,C9		1.128806	12	68856937.301178
1129710391	Capacitor	C1,C148,C156,C159,C261,C293,C315,C342,C345,C36,C77		1.128806	11	74892583.279796
1129727293	Capacitor	C141		1.128806	1	704977644.692287
1129747091	Capacitor	C43		1.128806	1	704977644.692287
1182615090	Capacitor	TC1,TC2		4.744484	2	86049450.747498
1189615154	Capacitor	TC11,TC12,TC13,TC21,TC22,TC3,TC4		4.744484	7	26949727.707925
1189622154	Capacitor	TC16,TC19,TC20,TC5,TC6,TC7,TC8		4.744484	7	26949727.707925
1189633193	Capacitor	TC10,TC23		4.744484	2	86049450.747498
1189922181	Capacitor	TC9		4.744484	1	159663026.715137
1189933180	Capacitor	TC17,TC18		4.744484	2	86049450.747498
11C1501050	Capacitor	C322,C354,C426		1.128806	3	257514172.353070
11C1501080	Capacitor	C244		1.128806	1	704977644.692287
11C1515440	Capacitor	C108,C134,C85		1.128806	3	257514172.353070
11C1522390	Capacitor	C143,C206,C210,C213,C214,C41,C443		1.128806	7	115633865.771428
11C1539840	Capacitor	C522		1.128806	1	704977644.692287
11C1547890	Capacitor	C344,C347		1.128806	2	375289731.076049
11C2410480	Capacitor	C450		1.128806	1	704977644.692287

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11C2510480	Capacitor	C103,C128,C76		1.128806	3	257514172.353070
11C2522480	Capacitor	C106,C26,C406		1.128806	3	257514172.353070
11C4501380	Capacitor	C317,C340,C374		1.128806	3	257514172.353070
11C4522190	Capacitor	C341,C350,C360, C369,C376,C380, C393,C399,C434, C445,C459,C464, C471,C479,C482, C487,C493,C494, C504,C507,C510, C517,C518,C521, C540,C549,C563, C567,C568,C569, C570,C571		1.128806	32	26512863.286539
11C4522290	Capacitor	C109,C25,C276,C306, C320,C63,C88		1.128806	7	115633865.771428
11C4547190	Capacitor	C13,C207,C220,C222, C281,C298,C534, C537,C542,C553, C554,C561,C573, C574,C94		1.128806	15	55479656.844874
11E1510050	Capacitor	C11,C174,C31,C319, C33,C34,C37,C54		1.128806	8	101746760.035398
11E1522680	Capacitor	C180,C40,C435		1.128806	3	257514172.353070
11E1533780	Capacitor	C263		1.128806	1	704977644.692287
11E1547650	Capacitor	C286		1.128806	1	704977644.692287

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11E2510060	Capacitor	C110,C316,C318, C321,C323,C330, C401,C64,C89		1.128806	9	90863428.080946
11E4433090	Capacitor	C530,C536		1.128806	2	375289731.076049
11E9501091	Capacitor	C107,C112,C130, C131,C132,C14, C154,C194,C199,C201, C204,C232,C233, C234,C235,C238, C241,C257,C267, C270,C273,C274, C277,C290,C291, C296,C324,C325, C326,C327,C328, C329,C331,C339, C343,C346,C355, C356,C358,C362, C371,C373,C375, C377,C381,C382, C392,C394,C		1.128806	99	8729159.738216
11E9510050	Capacitor	C215,C216,C218, C219		1.128806	4	196873384.410843
11E9522790	Capacitor	C135,C169,C249		1.128806	3	257514172.353070
11E9547681	Capacitor	C260		1.128806	1	704977644.692287
11E9547790	Capacitor	C289,C480		1.128806	2	375289731.076049

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Environment: GF, GU - Ground Fixed, Uncontrolled

Part Number	Category	Ref Des	Tem.Rise	Unit Failure Rate	Quantity	MTBF,Unit
11E9610080	Capacitor	C104,C121,C123, C125,C155,C161, C171,C2,C203,C221, C228,C239,C24,C256, C266,C282,C285, C287,C288,C297,C3, C301,C305,C332, C337,C338,C349, C357,C361,C363, C368,C370,C372, C379,C385,C386, C387,C400,C405, C416,C423,C427, C440,C449,C45,C457, C461,C476,C48,C49		1.128806	71	12117956.097294
11E9622050	Capacitor	C114,C208,C32,C333, C334,C335,C336, C364,C365,C366,C38, C388,C389,C390, C391,C4,C403,C417, C418,C419,C422, C453,C454,C455, C456,C463,C5,C523, C529		1.128806	29	29193260.380640
11E9722090	Capacitor	C96,C97		1.128806	2	375289731.076049
121110106G	Inductor	L8		4.944252	1	154760964.143460
121110156J	Inductor	L1		4.944252	1	154760964.143460
121110156K	Inductor	L2,L7		4.944252	2	83201062.149749
1211102470	Inductor	L3,L4,L6		4.944252	3	57363284.375370
121110476Q	Inductor	L10		4.944252	1	154760964.143460

File Name: AEC-6638.rfp
Assembly: 9697QM8724-D
Ref Des:
Description:

Failure Rate: 12233.554707
MTBF (hrs): 81,742
Temperature: 30
Environment: GF, GU - Ground Fixed, Uncontrolled

Part Number	Category	Ref Des	Tem.Rise	Unit Failure Rate	Quantity	MTBF,Unit
1211147070	Inductor	L5		4.944252	1	154760964.143460
1212306030	Inductor	FB1,FB16,FB18,FB19,FB20,FB21,FB23,FB28,FB29,FB38,FB6,FB7		4.944252	12	15520616.516984
1212308054	Inductor	FB32		4.944252	1	154760964.143460
121231206B	Inductor	FB10,FB14,FB15,FB2,FB22,FB27,FB3,FB4,FB5,FB8,FB9		4.944252	11	16872203.304846
12123C0007	Inductor	FB26		4.944252	1	154760964.143460
12123D0001	Inductor	FB11,FB12,FB13		4.944252	3	57363284.375370
12123D0002	Inductor	FB17,FB24,FB25,FB30,FB31,FB33,FB34,FB35,FB36,FB37,FB39,FB40		4.944252	12	15520616.516984
12123D0005	Inductor	FB41		4.944252	1	154760964.143460
1214309008	Inductor	CH1,CH10,CH11,CH12,CH2,CH3,CH4,CH5,CH6,CH7,CH8,CH9		4.944252	12	15520616.516984
1214309009	Inductor	CH13,CH14,CH15,CH16,CH17,CH18,CH19,CH20		4.944252	8	22874049.098230
123132505D	Miscellaneous	Y1,Y3,Y4		19.200000	3	5742504.738137
1231332726	Miscellaneous	Y2		19.200000	1	23844262.770939
1301005444	Semiconductor	D1,D15,D18,D2,D23,D4,D5,D6		7.793411	8	14161142.003130
1301013040	Semiconductor	D12,D14,D29		7.793411	3	35106858.962001
1301400642	Semiconductor	D13		7.793411	1	92807310.010983
1304000043	Optical Device	LED2		79.003355	1	6497172.749112
1304300140	Optical Device	LED1		79.003355	1	6497172.749112
1304500240	Optical Device	LED3,LED4		79.003355	2	3783722.582110

File Name: AEC-6638.rfp
Assembly: 9697QM8724-D
Ref Des:
Description:

Failure Rate: 12233.554707
MTBF (hrs): 81,742
Temperature: 30
Environment: GF, GU - Ground Fixed, Uncontrolled

Part Number	Category	Ref Des	Tem.Rise	Unit Failure Rate	Quantity	MTBF,Unit
1305080040	Semiconductor	D19,D20,D21 ,D22, D24,D25,D26 ,D27, D28,D30,D32 ,D33, D34,D35,D36 ,D37		7.793411	16	7341618.295818
1310390413	Semiconductor	Q36		22.463360	1	31642600.748419
1311390612	Semiconductor	Q49,Q50		22.463360	2	17315095.066101
1314111716	Semiconductor	U40,U51		22.463360	2	17315095.066101
1315015530	Semiconductor	Q51,Q52,Q5 3		22.463360	3	12043329.789539
1315190100	Semiconductor	U60		22.463360	1	31642600.748419
1315230511	Semiconductor	Q1,Q10,Q11, Q13,Q15, Q17,Q24,Q2 7,Q39		22.463360	9	4366472.106532
1315443512	Semiconductor	Q44,Q62,Q7		22.463360	3	12043329.789539
1315482410	Semiconductor	Q22,Q25,Q5 7		22.463360	3	12043329.789539
1315667910	Semiconductor	Q8		22.463360	1	31642600.748419
1315700216	Semiconductor	Q12,Q16,Q1 8,Q19,Q2, Q20,Q23,Q2 6,Q28, Q29,Q3,Q32, Q33,Q34, Q35,Q37,Q3 8,Q4,Q40, Q41,Q42,Q4 3,Q45, Q46,Q47,Q4 8,Q54, Q55,Q56,Q5 8,Q59, Q61,Q9		22.463360	33	1262760.774886
1315762010	Semiconductor	Q31		22.463360	1	31642600.748419
1315805710	Semiconductor	Q6		22.463360	1	31642600.748419
1315806511	Semiconductor	Q5		22.463360	1	31642600.748419
1315831310	Semiconductor	Q14,Q30		22.463360	2	17315095.066101
1315970211	Semiconductor	U44,U46,U54		22.463360	3	12043329.789539
1430516310	Integrated Circuit	U6		43.803003	1	11739202.588727
1430973740	Integrated Circuit	U15	41.3	573.400892	1	896776.297978
1430973740	Integrated Circuit	U12,U18		43.803003	2	6834791.244197
143ALC8920	Integrated Circuit	U39	39.1	507.878627	1	1012470.897638
1440033600	Integrated Circuit	U57	39	505.066361	1	1018108.447989
1440033600	Integrated Circuit	U62		43.803003	1	11739202.588727
1440211AT0	Integrated Circuit	U34		43.803003	1	11739202.588727
1440217LM0	Integrated Circuit	U36		43.803003	1	11739202.588727

File Name: AEC-6638.rfp
Assembly: 9697QM8724-D
Ref Des:
Description:

Failure Rate: 12233.554707
MTBF (hrs): 81,742
Temperature: 30
Environment: GF, GU - Ground Fixed, Uncontrolled

Part Number	Category	Ref Des	Tem.Rise	Unit Failure Rate	Quantity	MTBF,Unit
14454400E0	Integrated Circuit	U17	34	83.897373	1	6129063.527033
14482QM870	Integrated Circuit	U21	32.5	349.556911	1	1471040.375149
1462GQ87A0	Integrated Circuit	U7		11.063278	1	58231413.220643
1469128350	Integrated Circuit			11.063278	1	58231413.220643
14S1035803	Integrated Circuit	U3		43.803003	1	11739202.588727
14S1230400	Integrated Circuit	U38		43.803003	1	11739202.588727
14S2200900	Integrated Circuit	U35		43.803003	1	11739202.588727
14S2321900	Integrated Circuit	U43		43.803003	1	11739202.588727
14S3010700	Integrated Circuit	U19	44.7	689.587976	1	745680.532429
14S3104500	Integrated Circuit	D10,D11,D16 ,D17, D31,D7,D8,D 9		43.803003	8	2144463.783749
14S3111701	Integrated Circuit	U47		43.803003	1	11739202.588727
14S3121600	Integrated Circuit	U63		43.803003	1	11739202.588727
14S3121800	Integrated Circuit	U61		43.803003	1	11739202.588727
14S3524700	Integrated Circuit	U1		43.803003	1	11739202.588727
14S3524701	Integrated Circuit	U2		43.803003	1	11739202.588727
14S4021301	Integrated Circuit	U16,U23,U37		43.803003	3	4923240.069161
14S4186600	Integrated Circuit	U13		43.803003	1	11739202.588727
14S4600004	Integrated Circuit	U55		43.803003	1	11739202.588727
14S4814380	Integrated Circuit	U32		43.803003	1	11739202.588727
14S4963502	Integrated Circuit	U41		43.803003	1	11739202.588727
14S5A00601	Integrated Circuit	U42,U49		26.018600	2	14194252.866846
14S5A00704	Integrated Circuit	U27,U50,U53		26.018600	3	9949526.289768
14S5A00802	Integrated Circuit	U24,U25,U28		26.018600	3	9949526.289768
14S5A00821	Integrated Circuit	U10,U14,U30 ,U33,U4, U48,U56		26.018600	7	4626592.240320
14S5A12503	Integrated Circuit	U64		26.018600	1	25551442.237972
14S9108500	Integrated Circuit	U26,U29,U31 ,U45, U52		43.803003	5	3214211.402100
14S9230500	Integrated Circuit	U22		43.803003	1	11739202.588727
14S9312500	Integrated Circuit	U8		43.803003	1	11739202.588727
14S9346000	Integrated Circuit	U11,U5		43.803003	2	6834791.244197
1540747285	Resistor	RP1		9.971436	1	51606907.671214
16515A2990	Connection	DIMM1		16.184835	1	35685591.360212
165251420B	Connection	CN29,CN30		16.184835	2	20390152.380746
1652602105	Connection	CN8		16.184835	1	35685591.360212
165300310G	Connection	JP1,JP10,JP2 ,JP3, JP4,JP5,JP6,J P7, JP8,JP9		16.184835	10	5037852.012953
165300320K	Connection	JP11		16.184835	1	35685591.360212
165300420Q	Connection	CN11		16.184835	1	35685591.360212
165300520X	Connection	CN28		16.184835	1	35685591.360212
165320520W	Connection	CN9		16.184835	1	35685591.360212

File Name: AEC-6638.rfp
Assembly: 9697QM8724-D
Ref Des:
Description:

Failure Rate: 12233.554707
MTBF (hrs): 81,742
Temperature: 30
Environment: GF, GU - Ground Fixed, Uncontrolled

Part Number	Category	Ref Des	Tem.Rise	Unit Failure Rate	Quantity	MTBF,Unit
1653300102	Connection	JP1(2-3),JP2(1-2), JP4(2-3),JP8(2-3)		16.184835	4	11344857.509064
1653300107	Connection	JP11(3-4),JP3(2-3),JP5(2-3),JP6(2-3), JP7(2-3)		16.184835	5	9343344.843761
1653300108	Connection	JP10(1-2),JP9(1-2)		16.184835	2	20390152.380746
165390003B	Connection	CFD1B		16.184835	1	35685591.360212
1653924110	Connection	CFD1A		16.184835	1	35685591.360212
1654030003	Connection	CN14,CN15		16.184835	2	20390152.380746
1654226303	Connection	PCIE1A		16.184835	1	35685591.360212
1654445300	Connection	CN35		16.184835	1	35685591.360212
1654818301	Connection	CN31		16.184835	1	35685591.360212
1654903901	Connection	CN36		16.184835	1	35685591.360212
1654907009	Connection	CN6,CN7		16.184835	2	20390152.380746
1654919300	Connection	CN34		16.184835	1	35685591.360212
1654926900	Connection	PCIE1B		16.184835	1	35685591.360212
1655003028	Connection	CN4		16.184835	1	35685591.360212
1655004014	Connection	CN5		16.184835	1	35685591.360212
1655302025	Connection	CN3		16.184835	1	35685591.360212
1655305025	Connection	CN10,CN2		16.184835	2	20390152.380746
1655306025	Connection	CN25		16.184835	1	35685591.360212
1655306026	Connection	CN1		16.184835	1	35685591.360212
1655902034	Connection	BAT1A,CN26,CN27		16.184835	3	14515880.849373
1655905038	Connection	CN12,CN13,CN16,CN17,CN18,CN19		16.184835	6	7958792.615968
1655909034	Connection	CN21,CN22,CN24		16.184835	3	14515880.849373
1655909035	Connection	CN20		16.184835	1	35685591.360212
1655910032	Connection	CN32		16.184835	1	35685591.360212
1655912032	Connection	CN23		16.184835	1	35685591.360212
175011901M	Miscellaneous	BAT1B		306.000000	1	1681683.006787
1752000501	Miscellaneous	FS3		2.400000	1	254626042.602335
1752001603	Miscellaneous	FS1,FS2,FS4,FS5		2.400000	4	79281882.025954
175910000B	Connection	BZ1		16.184835	1	35685591.360212

File Name: AEC-6638.rfp
Assembly: 9697P17D03-D
Ref Des:
Description:

Failure Rate: 619.514250
MTBF (hrs): 1,614,168
Temperature: 30
Environment: GF, GU - Ground Fixed, Uncontrolled

Part Number	Category	Ref Des	Tem.Rise	Unit Failure Rate	Quantity	MTBF,Unit
1050510034	Resistor	R11,R14,R19 ,R23, R24,R29,R31		2.547039	7	48991237.965885
1050512124	Resistor	R21		2.547039	1	282340674.079668
1050539214	Resistor	R22		2.547039	1	282340674.079668
1053502579	Resistor	R2,R3		2.547039	2	154078778.388085
1054700289	Resistor	R32		2.547039	1	282340674.079668
1059700201	Resistor	R17		2.547039	1	282340674.079668
105A501053	Resistor	R18,R5		2.547039	2	154078778.388085
105A501139	Resistor	R25,R27		2.547039	2	154078778.388085
105A501539	Resistor	R1		2.547039	1	282340674.079668
105A502039	Resistor	R7		2.547039	1	282340674.079668
105A512039	Resistor	R10,R13		2.547039	2	154078778.388085
105A515433	Resistor	R26		2.547039	1	282340674.079668
105A549919	Resistor	R16		2.547039	1	282340674.079668
105A700009	Resistor	R12,R28,R30		2.547039	3	107020754.986850
105A701009	Resistor	R15,R20,R4, R6		2.547039	4	82309758.689546
1114633130	Capacitor	C23,C5		1.128806	2	375289731.076049
1121501690	Capacitor	C30		1.128806	1	704977644.692287
1124410190	Capacitor	C13,C21		1.128806	2	375289731.076049
1129610051	Capacitor	C20,C6		1.128806	2	375289731.076049
1129701790	Capacitor	C14,C18,C28		1.128806	3	257514172.353070
1129747090	Capacitor	C16		1.128806	1	704977644.692287
1169656132	Capacitor	C24		1.128806	1	704977644.692287
1181633112	Capacitor	C32,C33		4.744484	2	86049450.747498
11C1522480	Capacitor	C10,C26		1.128806	2	375289731.076049
11C1547890	Capacitor	C9		1.128806	1	704977644.692287
11C4501650	Capacitor	C11,C15,C17 ,C19, C22,C27,C4, C7		1.128806	8	101746760.035398
11C4547690	Capacitor	C1,C2,C29,C 3,C34, C35,C36		1.128806	7	115633865.771428
11E1522680	Capacitor	C8		1.128806	1	704977644.692287
11E2510060	Capacitor	C25,C31		1.128806	2	375289731.076049
1211100110	Inductor	L2		4.944252	1	154760964.143460
1211101504	Inductor	L1		4.944252	1	154760964.143460
1214216190	Inductor	L3		4.944252	1	154760964.143460
1300414841	Semiconductor	D1,D2		7.793411	2	50578095.223398
1301003440	Semiconductor	D3,D4,D5,D6 ,D8		7.793411	5	21965031.404253
130533CA40	Semiconductor	D7		7.793411	1	92807310.010983
1310390410	Semiconductor	Q1		22.463360	1	31642600.748419
1315567011	Semiconductor	Q2,Q3,Q5,Q7		22.463360	4	9270607.712006
1315889612	Semiconductor	Q4,Q6		22.463360	2	17315095.066101

**Reliability Prediction
Summary**

File Name: AEC-6638.rfp
Assembly: 9697P17D03-D
Ref Des:
Description:

Failure Rate: 619.514250
MTBF (hrs): 1,614,168
Temperature: 30
Environment: GF, GU - Ground Fixed, Uncontrolled

Part Number	Category	Ref Des	Tem.Rise	Unit Failure Rate	Quantity	MTBF,Unit
14S2543000	Integrated Circuit	U1		43.803003	1	11739202.588727
14S3378000	Integrated Circuit	U3		43.803003	1	11739202.588727
14S3435600	Integrated Circuit	U2		43.803003	1	11739202.588727
1652003101	Connection	CN1		16.184835	1	35685591.360212
1655004011	Connection	CN2		16.184835	1	35685591.360212
1655104004	Connection	CN3		16.184835	1	35685591.360212
1752001900	Miscellaneous	F1,F2		2.400000	2	143944727.196625