

9697835A08

Reliability Prediction Report (MTBF)

Report NO : 05I070005

01-28-2005

Issue Date

Wenyuan Yang

Manager

Jessica Chou

Test Engineer

Reliability Prediction (MTBF)

I . Model Name: 9697835A08 (ASS'Y.HSB-835A-VE.Rev.A0.2.W/AGP)

II . Prediction Date: Jan. 28, 2005

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

IV . Predicted by : Jessica Chou

V . Equipment: Relex Ver.7.3 Visual Reliability Software

VI. Simulation Environment:

- Temperature: 25.4 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 multiplier is 1,000,000.
- MTBF : MTBF is always specified in hours.

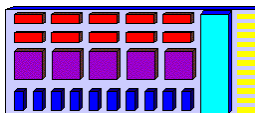
VIII. Prediction Result:

- Failure Rate: 15.020510 ppm
- MTBF: 66,576 Hours

IX. Prediction Table

Standard Reliability Prediction Report

Part Number System
Reference Des
Date 一月 28, 2005
Environment GF, GU - Ground Fixed,
Temperature 25.40

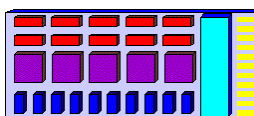


Description HSB-835A-A02
File Name 9697835A08.RPJ
Time 4:28 下午
Failure Rate 15.020510
MTBF 66,576

Assembly Name	Part Number	Ref Des	Qty	Failure Rate	MTBF
9697835A08	System		1.00	15.020510	66,576

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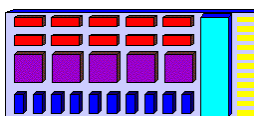


Description HSB-835A-A02
File Name 9697835A08.RPJ
Time 4:28 下午
Failure Rate 15.020510
MTBF 66,576

Part Number	Category	Ref Des	Failure Rate, Unit	Quantity	Failure Rate
14S6200400	Integrated Circuit	U5	0.727567	1.00	0.727567
1653002101	Connection	JP1	0.001162	1.00	0.001162
1653005201	Connection	USB1,USB2	0.005810	2.00	0.011619
1653213203	Connection	LPT1	0.015105	1.00	0.015105
1655404020	Connection	ATX1	0.002324	1.00	0.002324
1653900035	Connection	CFD1	0.001162	1.00	0.001162
1653002100	Connection	CN2	0.001162	1.00	0.001162
1655005021	Connection	CN5	0.002905	1.00	0.002905
1119612291	Capacitor	C2,C3,C58	0.076927	3.00	0.230782
1189656190	Capacitor	C54-C57	0.014257	4.00	0.057028
1651592490	Connection	DIMM1,DIMM2	0.106899	2.00	0.213798
1653217205	Connection	FDD1	0.019753	1.00	0.019753
1750119013	Miscellaneous	BT1	0.900000	1.00	0.900000
1655003022	Connection	CN1	0.001743	1.00	0.001743
1653005205	Connection	CN3	0.005810	1.00	0.005810
1654606200	Connection	CN4	0.003486	1.00	0.003486
1653205203	Connection	COM1,COM2	0.005810	2.00	0.011619
1119647191	Capacitor	C7	0.048292	1.00	0.048292
1111610292	Capacitor	C126,C127,C38	0.046361	3.00	0.139083
1111610196	Capacitor	C62	0.027817	1.00	0.027817
1655003010	Connection	FAN1	0.001743	1.00	0.001743
1653004200	Connection	FP1,FP2	0.004648	2.00	0.009296
1653220208	Connection	IDE1	0.023239	1.00	0.023239
1653006101	Connection	IR1	0.003486	1.00	0.003486
1654907000	Connection	SATA1,SATA2	0.004067	2.00	0.008134
1654804101	Connection	USB3-USB5	0.002324	3.00	0.006972
1654515308	Connection	VGA1	0.008715	1.00	0.008715
1231232720	Miscellaneous	Y1	0.150000	1.00	0.150000
1652508212	Connection	LAN1	0.004648	1.00	0.004648
1129610051	Capacitor	C19-C21,C23-C25- ,C72,C73,C75,C7- 7,C8,C84,C85,C9- 1,C92	0.002729	15.00	0.040941
1129710090	Capacitor	C10-C16,C42,C43- ,C46-C48,C50,C5- 1,C59,C60,C63,C9	0.001063	18.00	0.019134
1129710390	Capacitor	C29,C36,C39,C49	0.001063	4.00	0.004252
1124556280	Capacitor	C41	0.001063	1.00	0.001063
1189633181	Capacitor	C44.C52,C67,C71	0.004972	4.00	0.019886
1121722780	Capacitor	C79,C86,C88	0.002546	3.00	0.007637
11E2547690	Capacitor	C104,C108,C109- ,C112,C113	0.001602	5.00	0.008009
1124447080	Capacitor	C115,C116,C117- ,C118	0.001063	4.00	0.004252
1301005440	Semiconductor	DD1,DD3	0.024157	2.00	0.048313
1304101340	Semiconductor	D1	0.005058	1.00	0.005058
1301005445	Semiconductor	D2	0.024157	1.00	0.024157
105A524903	Resistor	R278	0.002286	1.00	0.002286
105A505103	Resistor	R116,R228,R266	0.002286	3.00	0.006857
105A560469	Resistor	R122,R127,R131- ,R140	0.002286	4.00	0.009142

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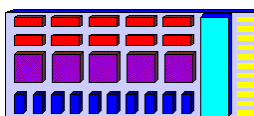


Description HSB-835A-A02
File Name 9697835A08.RPJ
Time 4:28 下午
Failure Rate 15.020510
MTBF 66,576

Part Number	Category	Ref Des	Failure Rate, Unit	Quantity	Failure Rate
105A500233	Resistor	R156,R158,R240- ,R241	0.002286	4.00	0.009142
1059701001	Resistor	R166	0.002286	1.00	0.002286
105A730033	Resistor	R183	0.002286	1.00	0.002286
105A700133	Resistor	R197,R202-R205- ,R226,R288,R290- ,R293,R298	0.002286	10.00	0.022855
1121701081	Capacitor	C100,C105,C107- ,C110,C111,C120- ,C123,C31,C40,C- 53,C69,C70,C76,- C78,C80	0.002546	15.00	0.038185
1121701081	Capacitor	C81,C83,C89,C90- ,C93-C95,C97,C98	0.002546	9.00	0.022911
11E1510480	Capacitor	C64-C66,C68	0.002546	4.00	0.010183
1189922180	Capacitor	C82,C87,C96	0.004571	3.00	0.013713
1214309002	Inductor	L3-L9	0.002286	7.00	0.015999
14S5A12503	Semiconductor	U2	0.024157	1.00	0.024157
14S4048501	Integrated Circuit	U4,U6	0.061126	2.00	0.122253
14S5900700	Integrated Circuit	U8	0.163773	1.00	0.163773
14S4280107	Integrated Circuit	U11	0.258430	1.00	0.258430
14S6334605	Integrated Circuit	U14	0.031505	1.00	0.031505
14S3260700	Integrated Circuit	U16	0.104243	1.00	0.104243
14S3128420	Integrated Circuit	U19	0.341428	1.00	0.341428
1314917312	Integrated Circuit	U21	0.061126	1.00	0.061126
14S4362700	Integrated Circuit	U24	0.160276	1.00	0.160276
14S4655600	Integrated Circuit	U31	0.739975	1.00	0.739975
1231325050	Miscellaneous	Y2	0.150000	1.00	0.150000
105A720009	Resistor	R64,R65,R83,R88- ,R93	0.002286	5.00	0.011428
105A522663	Resistor	R94	0.002286	1.00	0.002286
1174518180	Capacitor	CP1-CP4	0.001063	4.00	0.004252
1124527190	Capacitor	C1,C17,C18,C22,- C61	0.001063	5.00	0.005315
105A533003	Resistor	R200	0.002286	1.00	0.002286
105A747033	Resistor	R208,R209,R212- ,R218	0.002286	4.00	0.009142
105A501033	Resistor	R216,R221,R239- ,R261	0.002286	4.00	0.009142
105A524963	Resistor	R225	0.002286	1.00	0.002286
105A510203	Resistor	R233	0.002286	1.00	0.002286
105A216903	Resistor	R235	0.002286	1.00	0.002286
105A527423	Resistor	R245	0.002286	1.00	0.002286
105A549913	Resistor	R247	0.002286	1.00	0.002286
105A564963	Resistor	R253	0.002286	1.00	0.002286
105A510003	Resistor	R256	0.002286	1.00	0.002286
105A514703	Resistor	R258,R264	0.002286	2.00	0.004571
105A704723	Resistor	R268,R269,R271- ,R277,R304,R308	0.002286	6.00	0.013713
105A561909	Resistor	R274	0.002286	1.00	0.002286
175910000A	Miscellaneous	BZ1	0.150000	1.00	0.150000
1653925216	Connection	CFD1	0.029049	1.00	0.029049
1300414844	Semiconductor	D3,D4	0.024157	2.00	0.048313

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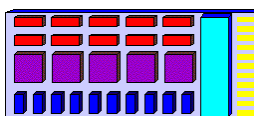


Description HSB-835A-A02
File Name 9697835A08.RPJ
Time 4:28 下午
Failure Rate 15.020510
MTBF 66,576

Part Number	Category	Ref Des	Failure Rate, Unit	Quantity	Failure Rate
105A701039	Resistor	R100,R102,R103- ,R124,R128,R134- ,R135,R150,R151- ,R173,R178,R179- ,R27	0.002286	13.00	0.029712
105A701039	Resistor	R282,R285,R303- ,R51,R53,R74,R7- 8,R85,R89,R91,R- 95,R99	0.002286	12.00	0.027426
105A710053	Resistor	R214,R224,R30	0.013713	3.00	0.041139
105A700139	Resistor	R101,R132,R133- ,R154,R155,R283- ,R294,R295,R35,- R43,R44,R50,R52- ,R61	0.002286	14.00	0.031997
105A505633	Resistor	R37	0.002286	1.00	0.002286
105A523233	Resistor	R38	0.002286	1.00	0.002286
105A502833	Resistor	R39	0.002286	1.00	0.002286
105A702209	Resistor	R141,R152,R159- ,R160,R167-R170- ,R174,R184,R191- ,R280,R40	0.002286	13.00	0.029712
105A706209	Resistor	R113,R114,R55,- R59,R62,R63,R68- -R71,R76,R80-R8- 2,R86,R87,R90,R- 92	0.002286	18.00	0.041139
105A768003	Resistor	R229	0.002286	1.00	0.002286
105A703903	Resistor	R230	0.002286	1.00	0.002286
105A552363	Resistor	R231,R259	0.002286	2.00	0.004571
105A530103	Resistor	R232	0.002286	1.00	0.002286
105A502003	Resistor	R234	0.002286	1.00	0.002286
105A524913	Resistor	R236,R237	0.002286	2.00	0.004571
105A500133	Resistor	R242	0.002286	1.00	0.002286
105S523723	Resistor	R246	0.002286	1.00	0.002286
105A513703	Resistor	R252	0.002286	1.00	0.002286
105A543263	Resistor	R254	0.002286	1.00	0.002286
105A539263	Resistor	R255	0.002286	1.00	0.002286
105A522603	Resistor	R257,R263	0.002286	2.00	0.004571
105A511303	Resistor	R260,R265	0.002286	2.00	0.004571
105A547503	Resistor	R267	0.002286	1.00	0.002286
1050554904	Resistor	R270	0.002286	1.00	0.002286
105A700003	Resistor	R275,R276	0.002286	2.00	0.004571
1212306030	Inductor	L1,L13,L2,L35	0.002286	4.00	0.009142
121110010K	Inductor	L11	0.122285	1.00	0.122285
121110010K	Inductor	L10,L12	0.086850	2.00	0.173700
1212308054	Inductor	L15-L19,L34,L37	0.002286	7.00	0.015999
1211110080	Inductor	L29,L30	0.086850	2.00	0.173700
121230603D	Inductor	L20-L22,L24,L25	0.002286	5.00	0.011428
1211104760	Inductor	L26,L27	0.086850	2.00	0.173700
1129747650	Capacitor	CA1,CA10-CA23,- CA2-CA9	0.002729	23.00	0.062777
1651608990	Connection	CPU1	0.001162	1.00	0.001162

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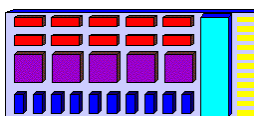


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Failure Rate 15.020510
MTBF 66,576

Part Number	Category	Ref Des	Failure Rate, Unit	Quantity	Failure Rate
1124418090	Capacitor	C26,C27,C34,C35- ,C5,C6	0.001063	6.00	0.006378
1189647080	Capacitor	C114,C119,C28,- C74,C99	0.004972	5.00	0.024858
1189647080	Capacitor	C122	0.006561	1.00	0.006561
105A708229	Resistor	R104,R108,R109- ,R119,R120,R187- -R190,R193,R194- ,R286,R287,R79	0.002286	14.00	0.031997
105A703323	Resistor	R110,R121,R130	0.002286	3.00	0.006857
105A530003	Resistor	R115	0.002286	1.00	0.002286
105A561963	Resistor	R117,R215	0.002286	2.00	0.004571
105A701009	Resistor	R136,R137,R142- ,R143,R175,R180- ,R181,R185	0.002286	8.00	0.018284
105A549969	Resistor	R138,R139,R144- ,R145,R153,R161	0.002286	6.00	0.013713
105A538323	Resistor	R157	0.002286	1.00	0.002286
105A515033	Resistor	R182	0.002286	1.00	0.002286
105A747003	Resistor	R195	0.002286	1.00	0.002286
105A720003	Resistor	R198,R291	0.002286	2.00	0.004571
105A702203	Resistor	R201	0.002286	1.00	0.002286
105A704733	Resistor	R206,R207	0.002286	2.00	0.004571
105A756033	Resistor	R210,R211,R213- ,R219	0.002286	4.00	0.009142
105A530123	Resistor	R217,R220,R244- ,R262	0.002286	4.00	0.009142
105A542263	Resistor	R222,R223,R238- ,R243	0.002286	4.00	0.009142
105A702703	Resistor	R227	0.002286	1.00	0.002286
1124522281	Capacitor	C121,C124	0.001063	2.00	0.002126
105A700009	Resistor	R177,R192,R299	0.002286	3.00	0.006857
1300283540	Semiconductor	DD2	0.024157	1.00	0.024157
105A515003	Resistor	R279	0.002286	1.00	0.002286
105A702733	Resistor	R289,R292	0.002286	2.00	0.004571
105A733003	Resistor	R305	0.002286	1.00	0.002286
14S5A01400	Integrated Circuit	U1,U9	0.061126	2.00	0.122253
14S5A12505	Integrated Circuit	U3	0.040229	1.00	0.040229
1651203291	Connection	U5	0.018591	1.00	0.018591
14S9080900	Integrated Circuit	U7	0.040229	1.00	0.040229
1314918110	Integrated Circuit	U10	0.061126	1.00	0.061126
14S2200900	Integrated Circuit	U12	0.061126	1.00	0.061126
14S4286501	Integrated Circuit	U13	0.083060	1.00	0.083060
14S4256201	Inductor	U15	0.137132	1.00	0.137132
14S3115000	Integrated Circuit	U17	0.331009	1.00	0.331009
14S4021310	Integrated Circuit	U18	0.061126	1.00	0.061126
14S5A23200	Integrated Circuit	U20	0.061126	1.00	0.061126
1315970110	Semiconductor	U22,U23,U25,U26	0.161045	4.00	0.644179
1314331011	Integrated Circuit	U27	0.061126	1.00	0.061126
121230603C	Inductor	L31,L32,L33,L36	0.002286	4.00	0.009142

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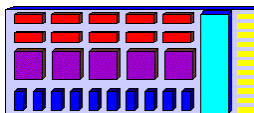


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Failure Rate 15.020510
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1129701690	Capacitor	M1,M10,M102-M1-38,M11-M14,M14-0-M154,M15-M62-,M150-M154,M2--M6,M64	0.002546	111.00	0.282568
1129701690	Capacitor	M66-M68,M70-M-99,M8,M9	0.002546	35.00	0.089098
1129701790	Capacitor	N1,N10,N12,N13,-N15-N17,N19,N2,-N20-N37,N3,N4,N-41-N61,N5-N9	0.001602	55.00	0.088095
1752311000	Miscellaneous	P1,P2	0.030000	2.00	0.060000
1315041410	Semiconductor	Q13,Q15,Q17,Q25-,Q4-Q6	0.161045	7.00	1.127314
1315041410	Semiconductor	Q23	0.371320	1.00	0.371320
1315041210	Semiconductor	Q22	0.301432	1.00	0.301432
1315041210	Semiconductor	Q24	0.161045	1.00	0.161045
1315041210	Semiconductor	Q12	0.689061	1.00	0.689061
1315041210	Semiconductor	Q14	0.844429	1.00	0.844429
1315041210	Semiconductor	Q16	0.876315	1.00	0.876315
1540756081	Resistor	RN1,RN10,RN11,-RN13-RN15,RN17-,RN18,RN2,RN20--RN30,RN3,RN33--RN35	0.006361	24.00	0.152667
1540756081	Resistor	RN37-RN39,RN4-,RN41,RN42,RN4-4-RN48,RN5,RN6-,RN9	0.006361	14.00	0.089056
1540782282	Resistor	RN49-RN52,RN57--RN59	0.006361	7.00	0.044528
1540747285	Resistor	RN56	0.006361	1.00	0.006361
1540733181	Resistor	RN60	0.006361	1.00	0.006361
105A733009	Resistor	R106,R147,R25,-R281,R36,R73,R9	0.002286	7.00	0.015999
105A704729	Resistor	R11,R12,R125,R-172,R176,R186,R-28,R29,R31,R45,-R66	0.002286	11.00	0.025141
105A707509	Resistor	R21,R22,R72,R77-,R84	0.002286	5.00	0.011428
105A702229	Resistor	R26,R49	0.002286	2.00	0.004571
121110010L	Inductor	L14	0.086850	1.00	0.086850
121110010F	Inductor	L23	0.086850	1.00	0.086850
1211108270	Inductor	L28	0.086850	1.00	0.086850
121110010M	Inductor	L38,L39	0.086850	2.00	0.173700
1122601680	Capacitor	M155-M171,M173-,M69	0.001602	19.00	0.030433
1122501780	Capacitor	N18,N62-N76	0.001602	16.00	0.025628
1310390411	Semiconductor	Q1,Q2,Q21,Q26,-Q27,Q8,Q9	0.024157	7.00	0.169097
1315700211	Semiconductor	Q10,Q11,Q18	0.024157	3.00	0.072470

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1540747083	Resistor	RN12,RN16,RN19- ,RN31,RN32,RN3- 6,RN40,RN43,RN- 7,RN8	0.006361	10.00	0.063611
1540700081	Resistor	RN53-RN55	0.006361	3.00	0.019083
105A704709	Resistor	R1,R13-R20,R2-- R8	0.002286	16.00	0.036568
105A701033	Resistor	R10,R196,R296	0.002286	3.00	0.006857
105A501039	Resistor	R23,R24,R41,R42- ,R46-R48	0.002286	7.00	0.015999
14S9660100	Semiconductor	U28-U30	0.080522	3.00	0.241567
14S2303700	Integrated Circuit	U32,U33	0.061126	2.00	0.122253
1231314350	Miscellaneous	Y3	0.150000	1.00	0.150000
105A515009	Resistor	R56-R58	0.002286	3.00	0.006857