

## RELIABILITY PREDICTION STANDARD REPORT

(Sorted by Part Number)

MIL-HDBK-217F, Notice 2

PRED-FIRST (c) Reliability Prediction Program, BJM Engineering Services

Date: APR-22-2009

End Item Title : M1S SERIES MTBF

End Item Part Number : M1S2-5400V4H (RoHS)

M1S2-5400V4H (RoHS) MTBF : 194,450

Module Title: ZIPPY TECHNOLOGY CORP

Module Part Number : M1S / MTBF

Power Unit Module : M1S-3400V (RoHS)

Environmental Condition: GB

### RELIABILITY MODELING OF REDUNDANT UNITS

Two Redundant Units:

Two identical units may be connected in parallel, each capable of supplying the total required output. If one unit fails and can be removed from the system ( does not interfere with the operation of the other unit ), then the other unit supplies the required output. Using a constant failure rate, the following relations apply.

$$\begin{aligned}\text{Total Failure Rate}(F) &= M / ( 3 / 2 ) + B \\ &= 6.695766 / ( 3 / 2 ) + 0.678840 = 5.142684\end{aligned}$$

M = Main power failure rate , B = Back plane failure rate

$$\begin{aligned}\text{M1S2-5400V4H (RoHS)(MTBF)} &= F / 10^6 \text{Hrs} = 5.142684 / 10^6 \\ &= 194,450\end{aligned}$$

ZIPPY TECHNOLOGY CORP  
10F, No.50, MIN CHYUAN RD  
SHIN-TIEN, TAIPEI HSIEN, TAIWAN, R.O.C.

RELIABILITY PREDICTION STANDARD REPORT						
		(Sorted by Part Number)				
		MIL - HDBK - 217F, Notice 2				
Date : APR-22-2009 Time : 14:04:23						
End Item Title : M1S SERIES MTBF						
End Item Part Number : M1S-3400V (RoHS)						
Module Title : ZIPPY TECHNOLOGY CORP						
Module Part Number : M1S/MTBF						
Module Reference Designation : M1S						
Environmental Condition : GB						
<b><u>M1S-3400V (RoHS)</u></b>						
ITEM	Part	Ref	Qual	Quant	Individual	Total
#	Number	Desig	Level		Failure Rate	Failure Rate
					(F/10 <sup>6</sup> Hrs)	(F/10 <sup>6</sup> Hrs)
1	B102330004	BOM	NMIL	1	0.069564	0.069564
2	B103040003	BOM	NMIL	1	0.140787	0.140787
3	B103040004	BOM	NMIL	1	0.134918	0.134918
4	B103040005	BOM	NMIL	1	0.414132	0.414132
5	B200000058	BOM	SPECIAL	1	0.094935	0.094935
6	B200000080	BOM	SPECIAL	1	0.094935	0.094935
7	B200000092	BOM	SPECIAL	1	0.094935	0.094935
8	B200000144	BOM	SPECIAL	1	0.094935	0.094935
9	B200000268	BOM	SPECIAL	1	0.094935	0.094935
10	B200000272	BOM	SPECIAL	1	0.094935	0.094935
11	B200000308	BOM	SPECIAL	1	0.094935	0.094935
12	B200000309	BOM	SPECIAL	1	0.094935	0.094935
13	B200000316	BOM	SPECIAL	1	0.094935	0.094935
14	B200010022	BOM	NMIL	1	0.000798	0.000798
15	B200010057	BOM	NMIL	2	0.031398	0.062796
16	B200010067	BOM	NMIL	2	0.000798	0.001596
17	B200010083	BOM	NMIL	1	0.000798	0.000798
18	B200010128	BOM	NMIL	2	0.031398	0.062796
19	B200020004	BOM	NMIL	11	0.005156	0.056716
20	B200030018	BOM	NMIL	3	0.018136	0.054408
21	B200040012	BOM	NMIL	1	0.005967	0.005967

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22	B200040059	BOM	NMIL	1	0.005967	0.005967
23	B200040063	BOM	NMIL	1	0.018136	0.018136
24	B200050036	BOM	NMIL	4	0.005218	0.020872
25	B200050039	BOM	NMIL	1	0.005218	0.005218
26	B200050045	BOM	NMIL	3	0.005218	0.015654
27	B200050063	BOM	NMIL	1	0.078027	0.078027
28	B200060009	BOM	NMIL	1	0.012969	0.012969
29	B200090005	BOM	NMIL	1	0.006500	0.006500
30	B200110001	BOM	NMIL	1	0.004650	0.004650
31	B200110035	BOM	NMIL	1	0.004650	0.004650
32	B200110042	BOM	NMIL	3	0.004650	0.013950
33	B200110046	BOM	NMIL	9	0.004650	0.041850
34	B200110073	BOM	NMIL	2	0.005115	0.010230
35	B200110087	BOM	NMIL	2	0.004650	0.009300
36	B200110120	BOM	NMIL	14	0.004650	0.065100
37	B200110123	BOM	NMIL	5	0.004650	0.023250
38	B200110126	BOM	NMIL	1	0.007440	0.007440
39	B200110172	BOM	NMIL	1	0.004650	0.004650
40	B200110276	BOM	NMIL	3	0.004650	0.013950
41	B200110282	BOM	NMIL	4	0.004650	0.018600
42	B200110343	BOM	NMIL	1	0.004650	0.004650
43	B200110398	BOM	NMIL	1	0.004650	0.004650
44	B200110413	BOM	NMIL	3	0.005115	0.015345
45	B200110488	BOM	NMIL	1	0.004650	0.004650
46	B200110494	BOM	NMIL	1	0.004650	0.004650
47	B200110503	BOM	NMIL	1	0.005115	0.005115
48	B200110505	BOM	NMIL	1	0.004650	0.004650
49	B200110506	BOM	NMIL	1	0.004650	0.004650
50	B200110508	BOM	NMIL	1	0.004650	0.004650
51	B200110510	BOM	NMIL	1	0.004650	0.004650
52	B200110512	BOM	NMIL	1	0.004650	0.004650
53	B200110519	BOM	NMIL	1	0.004650	0.004650
54	B200110520	BOM	NMIL	1	0.004650	0.004650
55	B200110521	BOM	NMIL	1	0.004650	0.004650
56	B200110523	BOM	NMIL	1	0.004650	0.004650
57	B200110525	BOM	NMIL	2	0.004650	0.009300
58	B200110538	BOM	NMIL	1	0.004650	0.004650
59	B200110542	BOM	NMIL	1	0.004650	0.004650
60	B200110550	BOM	NMIL	1	0.004650	0.004650
61	B200110553	BOM	NMIL	1	0.004650	0.004650

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62	B200110561	BOM	NMIL	4	0.004650	0.018600
63	B200110564	BOM	NMIL	1	0.004650	0.004650
64	B200110588	BOM	NMIL	1	0.004650	0.004650
65	B200110590	BOM	NMIL	1	0.005115	0.005115
66	B200110594	BOM	NMIL	1	0.004650	0.004650
67	B200110598	BOM	NMIL	2	0.004650	0.009300
68	B200110611	BOM	NMIL	1	0.004650	0.004650
69	B200110618	BOM	NMIL	1	0.004650	0.004650
70	B200110646	BOM	NMIL	1	0.004650	0.004650
71	B200120012	BOM	NMIL	1	0.007735	0.007735
72	B200120017	BOM	NMIL	1	0.009576	0.009576
73	B200120099	BOM	NMIL	1	0.007735	0.007735
74	B200120150	BOM	NMIL	1	0.007735	0.007735
75	B200160011	BOM	NMIL	1	0.065000	0.065000
76	B200160017	BOM	NMIL	2	0.065000	0.130000
77	B200170020	BOM	NMIL	2	0.005156	0.010312
78	B200170026	BOM	NMIL	3	0.005156	0.015468
79	B200180070	BOM	N/A	1	0.008146	0.008146
80	B200180075	BOM	N/A	1	0.008923	0.008923
81	B200190064	BOM	N/A	1	0.016840	0.016840
82	B200200006	BOM	N/A	3	0.007144	0.021432
83	B200200012	BOM	N/A	2	0.009203	0.018406
84	B200200017	BOM	N/A	5	0.011856	0.059280
85	B200200060	BOM	N/A	1	0.012930	0.012930
86	B200200061	BOM	N/A	1	0.008470	0.008470
87	B200200062	BOM	N/A	2	0.007791	0.015582
88	B200200071	BOM	N/A	1	0.006048	0.006048
89	B200200074	BOM	N/A	1	0.015274	0.015274
90	B200200076	BOM	N/A	2	0.009203	0.018406
91	B200200089	BOM	N/A	2	0.016657	0.033314
92	B200210004	BOM	N/A	2	0.006740	0.013480
93	B200220020	BOM	N/A	1	0.002337	0.002337
94	B200220036	BOM	N/A	2	0.002647	0.005294
95	B200220049	BOM	N/A	1	0.001668	0.001668
96	B200220060	BOM	N/A	1	0.001668	0.001668
97	B200230198	BOM	N/A	5	0.058210	0.291050
98	B200230210	BOM	N/A	2	0.050508	0.101016
99	B200230236	BOM	N/A	1	0.016788	0.016788
100	B200230277	BOM	N/A	2	0.041493	0.082986
101	B200230288	BOM	N/A	2	0.019246	0.038492

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102	B200230338	BOM	N/A	2	0.029130	0.058260
103	B200230347	BOM	N/A	1	0.019246	0.019246
104	B200230350	BOM	N/A	3	0.144509	0.433527
105	B200250009	BOM	NMIL	1	0.082858	0.082858
106	B200260125	BOM	NMIL	1	0.088051	0.088051
107	B200260255	BOM	NMIL	1	0.088051	0.088051
108	B200260264	BOM	NMIL	1	0.088051	0.088051
109	B200260265	BOM	NMIL	1	0.088051	0.088051
110	B200280002	BOM	NMIL	1	0.015958	0.015958
111	B200300236	BOM	NMIL	1	0.003845	0.003845
112	B200300293	BOM	NMIL	1	0.026144	0.026144
113	B200300294	BOM	NMIL	1	0.003845	0.003845
114	B200310007	BOM	NMIL	1	0.030600	0.030600
115	B210090116	BOM	KNOWNFR	1	2.176923	2.176923
116	B210160046	BOM	N/A	1	0.010000	0.010000
117	B210190952	N/A	STANDARD	1	0.020588	0.020588
			Total Failure Rate (F/10 <sup>6</sup> Hrs) :			6.695766
			Mean Time (in hours) Between Failures (MTBF) :			149,348