

ZIPPY TECHNOLOGY CORP.
10F.,No.50,MINQUAN RD.,
XINDIAN DIST.,NEW TAIPEI CITY,TAIWAN,R.O.C.
RELIABILITY PREDICTION STANDARD REPORT
(Sorted by Part Number)
MIL-HDBK-217F, Notice 2

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

Date: JAN-12-2015
End Item Title : MHWX SERIES MTBF
End Item Part Number : MHW4-5AG8V2H (RoHS)
MHW4-5AG8V2H (RoHS) MTBF : 314,475
Module Title: ZIPPY TECHNOLOGY CORP
Module Part Number : MHW / MTBF
Power Unit Module : MHW-5662V(RoHS)
Environmental Condition: GB
Ambient Temperature: 25°C

RELIABILITY MODELING OF REDUNDANT UNITS

Four Redundant Units:

Four 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.

$$\text{Total Failure Rate}(F) = M \lambda / (15/4) + B \lambda = 9.829437 / (15/4) + 0.558720 = 3.179903$$

$M \lambda$ = Main power failure rate , $B \lambda$ = Back plane failure rate

$$\text{MHW4-5AG8V2H (RoHS)(MTBF)} = F / 10^6 \text{Hrs} = 3.179903 / 10^6 = 314,475$$

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Date : JAN-12-2015 Time : 09:35:15
End Item Title : MHW SERIES MTBF
End Item Part Number : MHW-5662V (RoHS)
MHW-5662V (RoHS) MTBF : 101,735
Module Title : ZIPPY TECHNOLOGY CORP
Module Part Number : MHW / MTBF
Module Reference Designation : MHW
Environmental Condition : GB
Ambient Temperature: 25°C

MHW-5662V (RoHS)

ITEM #	Part Number	Ref Desig	Qual Level	Quant	Individual Failure Rate (F/10 ⁶ Hrs)	Total Failure Rate (F/10 ⁶ Hrs)
1	B102130002	BOM	NMIL	1	0.074349	0.074349
2	B102920003	BOM	NMIL	2	0.644190	1.288380
3	B103430007	BOM	NMIL	1	0.071032	0.071032
4	B104940002	BOM	NMIL	1	0.881560	0.881560
5	B104940004	BOM	NMIL	1	0.020886	0.020886
6	B200000001	BOM	SPECIAL	1	0.094935	0.094935
7	B200000063	BOM	SPECIAL	1	0.094935	0.094935
8	B200000080	BOM	SPECIAL	1	0.094935	0.094935
9	B200000092	BOM	SPECIAL	1	0.083543	0.083543
10	B200000252	BOM	SPECIAL	1	0.094935	0.094935
11	B200000276	BOM	SPECIAL	1	0.094935	0.094935
12	B200000351	BOM	SPECIAL	1	0.094935	0.094935
13	B200000443	BOM	SPECIAL	1	0.094935	0.094935
14	B200010022	BOM	NMIL	2	0.000798	0.001596
15	B200010052	BOM	NMIL	1	0.000798	0.000798
16	B200010057	BOM	NMIL	3	0.027630	0.082890
17	B200010067	BOM	NMIL	4	0.000798	0.003192
18	B200010080	BOM	NMIL	3	0.027630	0.082890
19	B200010081	BOM	NMIL	2	0.027630	0.055260
20	B200010083	BOM	NMIL	1	0.000702	0.000702
21	B200010084	BOM	NMIL	1	0.027630	0.027630
22	B200010109	BOM	NMIL	5	0.000798	0.003990
23	B200010189	BOM	NMIL	1	0.000702	0.000702
24	B200020016	BOM	NMIL	3	0.005156	0.015468

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25	B200020021	BOM	NMIL	1	0.006751	0.006751
26	B200020024	BOM	NMIL	11	0.005156	0.056716
27	B200030019	BOM	NMIL	1	0.007617	0.007617
28	B200030030	BOM	NMIL	1	0.007617	0.007617
29	B200030046	BOM	NMIL	2	0.007617	0.015234
30	B200040059	BOM	NMIL	2	0.005967	0.011934
31	B200040063	BOM	NMIL	1	0.014178	0.014178
32	B200040073	BOM	NMIL	2	0.005967	0.011934
33	B200040093	BOM	NMIL	1	0.014178	0.014178
34	B200050024	BOM	NMIL	2	0.005218	0.010436
35	B200050039	BOM	NMIL	1	0.005218	0.005218
36	B200050040	BOM	NMIL	4	0.005218	0.020872
37	B200060009	BOM	NMIL	2	0.012854	0.025708
38	B200090005	BOM	NMIL	1	0.001518	0.001518
39	B200110001	BOM	NMIL	6	0.004650	0.027900
40	B200110035	BOM	NMIL	1	0.004650	0.004650
41	B200110040	BOM	NMIL	6	0.004650	0.027900
42	B200110042	BOM	NMIL	9	0.004650	0.041850
43	B200110046	BOM	NMIL	7	0.004650	0.032550
44	B200110123	BOM	NMIL	4	0.004650	0.018600
45	B200110172	BOM	NMIL	9	0.004650	0.041850
46	B200110192	BOM	NMIL	2	0.004650	0.009300
47	B200110202	BOM	NMIL	1	0.004650	0.004650
48	B200110227	BOM	NMIL	4	0.004650	0.018600
49	B200110276	BOM	NMIL	3	0.004650	0.013950
50	B200110279	BOM	NMIL	4	0.004650	0.018600
51	B200110282	BOM	NMIL	5	0.004650	0.023250
52	B200110303	BOM	NMIL	4	0.005115	0.020460
53	B200110309	BOM	NMIL	1	0.004650	0.004650
54	B200110311	BOM	NMIL	1	0.004650	0.004650
55	B200110343	BOM	NMIL	1	0.004650	0.004650
56	B200110402	BOM	NMIL	1	0.004650	0.004650
57	B200110448	BOM	NMIL	2	0.004650	0.009300
58	B200110487	BOM	NMIL	1	0.004650	0.004650
59	B200110488	BOM	NMIL	1	0.004650	0.004650
60	B200110492	BOM	NMIL	1	0.004650	0.004650
61	B200110494	BOM	NMIL	4	0.004650	0.018600
62	B200110496	BOM	NMIL	2	0.004650	0.009300
63	B200110508	BOM	NMIL	1	0.004650	0.004650
64	B200110510	BOM	NMIL	2	0.004650	0.009300
65	B200110512	BOM	NMIL	7	0.004650	0.032550
66	B200110514	BOM	NMIL	1	0.004650	0.004650
67	B200110523	BOM	NMIL	1	0.004650	0.004650
68	B200110525	BOM	NMIL	1	0.004650	0.004650

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69	B200110531	BOM	NMIL	1	0.004650	0.004650
70	B200110551	BOM	NMIL	1	0.004650	0.004650
71	B200110553	BOM	NMIL	1	0.004650	0.004650
72	B200110639	BOM	NMIL	1	0.004650	0.004650
73	B200110659	BOM	NMIL	1	0.004650	0.004650
74	B200120081	BOM	NMIL	1	0.007735	0.007735
75	B200120154	BOM	NMIL	1	0.008509	0.008509
76	B200120160	BOM	NMIL	1	0.005425	0.005425
77	B200140018	BOM	NMIL	1	0.035297	0.035297
78	B200160017	BOM	NMIL	1	0.065000	0.065000
79	B200160022	BOM	NMIL	1	0.065000	0.065000
80	B200170015	BOM	NMIL	9	0.004875	0.043875
81	B200170021	BOM	NMIL	3	0.004875	0.014625
82	B200170029	BOM	NMIL	2	0.004875	0.009750
83	B200180075	BOM	N/A	3	0.008923	0.026769
84	B200190022	BOM	N/A	1	0.015889	0.015889
85	B200190033	BOM	N/A	1	0.013308	0.013308
86	B200190035	BOM	N/A	1	0.015889	0.015889
87	B200200057	BOM	N/A	2	0.018108	0.036216
88	B200200060	BOM	N/A	1	0.012930	0.012930
89	B200200061	BOM	N/A	4	0.008470	0.033880
90	B200200066	BOM	N/A	1	0.010911	0.010911
91	B200200069	BOM	N/A	1	0.006575	0.006575
92	B200200074	BOM	N/A	9	0.015274	0.137466
93	B200200084	BOM	N/A	2	0.005546	0.011092
94	B200200153	BOM	N/A	2	0.009203	0.018406
95	B200200156	BOM	N/A	7	0.011856	0.082992
96	B200200158	BOM	N/A	2	0.007791	0.015582
97	B200210007	BOM	N/A	2	0.021805	0.043610
98	B200220010	BOM	N/A	1	0.002761	0.002761
99	B200220018	BOM	N/A	3	0.002416	0.007248
100	B200220063	BOM	N/A	1	0.002416	0.002416
101	B200230057	BOM	N/A	2	0.027803	0.055606
102	B200230149	BOM	N/A	1	0.048242	0.048242
103	B200230198	BOM	N/A	6	0.051225	0.307350
104	B200230210	BOM	N/A	1	0.044447	0.044447
105	B200230277	BOM	N/A	1	0.036514	0.036514
106	B200230338	BOM	N/A	4	0.025634	0.102536
107	B200230351	BOM	N/A	2	0.141828	0.283656
108	B200250009	BOM	NMIL	1	0.020381	0.020381
109	B200250016	BOM	NMIL	2	0.020381	0.040762
110	B200260204	BOM	NMIL	1	0.024147	0.024147
111	B200260228	BOM	NMIL	1	0.024147	0.024147
112	B200260293	BOM	NMIL	1	0.024147	0.024147

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113	B200260302	BOM	NMIL	1	0.024147	0.024147
114	B200280012	BOM	NMIL	2	0.015958	0.031916
115	B200300219	BOM	NMIL	1	0.003384	0.003384
116	B200300236	BOM	NMIL	1	0.003384	0.003384
117	B200300273	BOM	NMIL	1	0.023007	0.023007
118	B200300387	BOM	NMIL	1	0.003384	0.003384
119	B200310003	BOM	NMIL	1	0.026928	0.026928
120	B210140031	BOM	KNOWNFR	2	1.947362	3.894724
121	B210160025	BOM	N/A	1	0.010000	0.010000
122	B210191838	N/A	STANDARD	1	0.020588	0.020588

Total Failure Rate (F/10 ⁶ Hrs) :	9.829437
Mean Time (in hours) Between Failures (MTBF) :	101,735