

RELIABILITY PREDICTION STANDARD REPORT

(Sorted by Part Number)

MIL-HDBK-217F, Notice 2

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

Date: JAN-07-2010

End Item Title : MRW SERIES MTBF

End Item Part Number : MRW-5600V4V (RoHS)

MRW-5600V4V (RoHS) MTBF : 160,104

Module Title: ZIPPY TECHNOLOGY CORP

Module Part Number : MRW/MTBF

Power Unit Module : MRW-3600V-R (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.

$$\begin{aligned}\text{Total Failure Rate}(F) &= M \lambda / (3/2) + B \lambda \\ &= 8.325518 / (3/2) + 0.695583 = 6.245928\end{aligned}$$

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

$$\begin{aligned}\text{MRW-5600V4V (RoHS)(MTBF)} &= F/10^6\text{Hrs} = 6.245928/10^6 \\ &= 160,104\end{aligned}$$

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 : JAN-07-2010 Time : 16:32:55						
End Item Title : MRW SERIES MTBF						
End Item Part Number : MRW-3600V-R (RoHS)						
Module Title : ZIPPY TECHNOLOGY CORP						
Module Part Number : MRW/MTBF						
Module Reference Designation : MRW						
Environmental Condition : GB						
<u>MRW-3600V-R (RoHS)</u>						
ITEM	Part	Ref	Qual	Quant	Individual	Total
#	Number	Desig	Level		Failure Rate	Failure Rate
					(F/10^6Hrs)	(F/10^6Hrs)
1	B102130002	BOM	NMIL	1	0.074349	0.074349
2	B102720004	BOM	NMIL	1	0.069564	0.069564
3	B102860002	BOM	NMIL	1	0.216158	0.216158
4	B200000058	BOM	SPECIAL	1	0.094935	0.094935
5	B200000080	BOM	SPECIAL	2	0.094935	0.189870
6	B200000092	BOM	SPECIAL	1	0.098732	0.098732
7	B200000144	BOM	SPECIAL	1	0.094935	0.094935
8	B200000252	BOM	SPECIAL	1	0.094935	0.094935
9	B200000308	BOM	SPECIAL	3	0.094935	0.284805
10	B200000309	BOM	SPECIAL	1	0.094935	0.094935
11	B200010022	BOM	NMIL	1	0.000798	0.000798
12	B200010052	BOM	NMIL	1	0.000798	0.000798
13	B200010056	BOM	NMIL	4	0.000798	0.003192
14	B200010057	BOM	NMIL	2	0.032654	0.065308
15	B200010067	BOM	NMIL	2	0.000798	0.001596
16	B200010080	BOM	NMIL	3	0.032654	0.097962
17	B200010081	BOM	NMIL	2	0.032654	0.065308
18	B200010083	BOM	NMIL	2	0.000830	0.001660
19	B200010084	BOM	NMIL	1	0.032654	0.032654
20	B200020004	BOM	NMIL	12	0.005156	0.061872
21	B200030019	BOM	NMIL	1	0.018136	0.018136

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22	B200040012	BOM	NMIL	1	0.005156	0.005156
23	B200040059	BOM	NMIL	1	0.005156	0.005156
24	B200040063	BOM	NMIL	1	0.018861	0.018861
25	B200050039	BOM	NMIL	1	0.005156	0.005156
26	B200050040	BOM	NMIL	3	0.005156	0.015468
27	B200050045	BOM	NMIL	1	0.005156	0.005156
28	B200050054	BOM	NMIL	1	0.121119	0.121119
29	B200060009	BOM	NMIL	1	0.020375	0.020375
30	B200110001	BOM	NMIL	1	0.004650	0.004650
31	B200110021	BOM	NMIL	2	0.004650	0.009300
32	B200110042	BOM	NMIL	4	0.004650	0.018600
33	B200110046	BOM	NMIL	8	0.004650	0.037200
34	B200110120	BOM	NMIL	3	0.004650	0.013950
35	B200110131	BOM	NMIL	1	0.004650	0.004650
36	B200110177	BOM	NMIL	1	0.004650	0.004650
37	B200110192	BOM	NMIL	2	0.004650	0.009300
38	B200110227	BOM	NMIL	2	0.004650	0.009300
39	B200110261	BOM	NMIL	2	0.004650	0.009300
40	B200110270	BOM	NMIL	3	0.004650	0.013950
41	B200110279	BOM	NMIL	1	0.004650	0.004650
42	B200110282	BOM	NMIL	8	0.004650	0.037200
43	B200110303	BOM	NMIL	4	0.005115	0.020460
44	B200110317	BOM	NMIL	2	0.004650	0.009300
45	B200110321	BOM	NMIL	3	0.005115	0.015345
46	B200110356	BOM	NMIL	1	0.004650	0.004650
47	B200110398	BOM	NMIL	1	0.004650	0.004650
48	B200110487	BOM	NMIL	1	0.004650	0.004650
49	B200110489	BOM	NMIL	2	0.004650	0.009300
50	B200110498	BOM	NMIL	1	0.004650	0.004650
51	B200110503	BOM	NMIL	1	0.005115	0.005115
52	B200110506	BOM	NMIL	1	0.004650	0.004650
53	B200110508	BOM	NMIL	4	0.004650	0.018600
54	B200110510	BOM	NMIL	1	0.004650	0.004650
55	B200110523	BOM	NMIL	1	0.004650	0.004650
56	B200110524	BOM	NMIL	1	0.004650	0.004650
57	B200110525	BOM	NMIL	1	0.004650	0.004650
58	B200110529	BOM	NMIL	5	0.004650	0.023250
59	B200110530	BOM	NMIL	1	0.004650	0.004650
60	B200110541	BOM	NMIL	1	0.004650	0.004650
61	B200110544	BOM	NMIL	1	0.004650	0.004650

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62	B200110550	BOM	NMIL	1	0.004650	0.004650
63	B200110551	BOM	NMIL	2	0.004650	0.009300
64	B200110553	BOM	NMIL	1	0.004650	0.004650
65	B200110554	BOM	NMIL	9	0.004650	0.041850
66	B200110561	BOM	NMIL	1	0.004650	0.004650
67	B200110588	BOM	NMIL	1	0.004650	0.004650
68	B200110600	BOM	NMIL	1	0.004650	0.004650
69	B200110618	BOM	NMIL	1	0.004650	0.004650
70	B200110626	BOM	NMIL	1	0.004650	0.004650
71	B200110641	BOM	NMIL	1	0.005115	0.005115
72	B200110644	BOM	NMIL	2	0.004650	0.009300
73	B200120118	BOM	NMIL	1	0.018000	0.018000
74	B200120119	BOM	NMIL	1	0.016500	0.016500
75	B200120154	BOM	NMIL	1	0.019800	0.019800
76	B200120160	BOM	NMIL	1	0.016500	0.016500
77	B200120161	BOM	NMIL	1	0.016500	0.016500
78	B200160011	BOM	NMIL	1	0.021000	0.021000
79	B200160017	BOM	NMIL	1	0.021000	0.021000
80	B200180015	BOM	N/A	1	0.008823	0.008823
81	B200180016	BOM	N/A	1	0.008823	0.008823
82	B200190033	BOM	N/A	1	0.019448	0.019448
83	B200190038	BOM	N/A	1	0.019448	0.019448
84	B200200006	BOM	N/A	4	0.007188	0.028752
85	B200200007	BOM	N/A	1	0.007188	0.007188
86	B200200012	BOM	N/A	1	0.009260	0.009260
87	B200200017	BOM	N/A	3	0.011929	0.035787
88	B200200018	BOM	N/A	2	0.011929	0.023858
89	B200200021	BOM	N/A	2	0.015367	0.030734
90	B200200047	BOM	N/A	1	0.008522	0.008522
91	B200200060	BOM	N/A	2	0.013010	0.026020
92	B200200061	BOM	N/A	3	0.008522	0.025566
93	B200200062	BOM	N/A	1	0.007839	0.007839
94	B200200071	BOM	N/A	1	0.006085	0.006085
95	B200220021	BOM	N/A	1	0.002352	0.002352
96	B200220042	BOM	N/A	1	0.012692	0.012692
97	B200220055	BOM	N/A	1	0.010546	0.010546
98	B200230057	BOM	N/A	1	0.033307	0.033307
99	B200230198	BOM	N/A	5	0.059347	0.296735
100	B200230210	BOM	N/A	2	0.051495	0.102990
101	B200230213	BOM	N/A	4	0.029699	0.118796

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102	B200230217	BOM	N/A	2	0.043742	0.087484
103	B200230236	BOM	N/A	1	0.017116	0.017116
104	B200230288	BOM	N/A	1	0.019622	0.019622
105	B200230350	BOM	N/A	3	0.150674	0.452022
106	B200250009	BOM	NMIL	1	0.086172	0.086172
107	B200260228	BOM	NMIL	1	0.091573	0.091573
108	B200260245	BOM	NMIL	1	0.091573	0.091573
109	B200260260	BOM	NMIL	1	0.091573	0.091573
110	B200260306	BOM	NMIL	1	0.091573	0.091573
111	B200280012	BOM	NMIL	1	0.015958	0.015958
112	B200280013	BOM	NMIL	2	0.015958	0.031916
113	B200300219	BOM	NMIL	1	0.022478	0.022478
114	B200300236	BOM	NMIL	1	0.022478	0.022478
115	B200300265	BOM	NMIL	1	0.022478	0.022478
116	B200300274	BOM	NMIL	1	0.022478	0.022478
117	B200310007	BOM	NMIL	1	0.031824	0.031824
118	B210090072	BOM	KNOWNFR	2	1.915659	3.831318
119	B210160001	BOM	N/A	1	0.010000	0.010000
120	B210190847	N/A	STANDARD	1	0.022077	0.022077
			Total Failure Rate (F/10 ⁶ Hrs) :			8.325518
			Mean Time (in hours) Between Failures (MTBF) :			120,113