

RELIABILITY PREDICTION STANDARD REPORT

(Sorted by Part Number)

MIL-HDBK-217F, Notice 2

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

Date: MAY-04-2010

End Item Title : MRW SERIES MTBF

End Item Part Number : MRW-6420P (RoHS)

MRW-6420P (RoHS) MTBF: 188,030

Module Title: ZIPPY TECHNOLOGY CORP

Module Part Number : MRW/MTBF

Power Unit Module : MRW-6420P-R (RoHS)

Environmental Condition: GB

Ambient Temperature: 25°C

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.

$$\begin{aligned}\text{MTBF} &= (1/\lambda) + (1/\lambda) - (1/(\lambda + \lambda)) \\ &= (3/2) \lambda\end{aligned}$$

λ = failure rate per million hours

$$\text{MRW-6420P (RoHS)(MTBF)} = (3/2) \lambda = (3/2) \times 125,353 = 188,030$$

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 : MAY-04-2010 Time : 15:43:28						
End Item Title : MRW SERIES MTBF						
End Item Part Number : MRW-6420P-R (RoHS)						
Module Title : ZIPPY TECHNOLOGY CORP						
Module Part Number : MRW/MTBF						
Module Reference Designation : MRW						
Environmental Condition : GB						
Ambient Temperature: 25°C						
<u>MRW-6420P-R (RoHS)</u>						
ITEM	Part	Ref	Qual	Quant	Individual	Total
#	Number	Desig	Level		Failure Rate	Failure Rate
					(F/10^6Hrs)	(F/10^6Hrs)
1	B100230061	BOM	NMIL	1	0.204674	0.204674
2	B109020018	BOM	NMIL	1	0.081240	0.081240
3	B200000001	BOM	SPECIAL	2	0.094935	0.189870
4	B200000055	BOM	SPECIAL	1	0.094935	0.094935
5	B200000074	BOM	SPECIAL	1	0.094935	0.094935
6	B200000080	BOM	SPECIAL	3	0.094935	0.284805
7	B200000177	BOM	SPECIAL	1	0.095694	0.095694
8	B200010004	BOM	NMIL	2	0.031649	0.063298
9	B200010014	BOM	NMIL	1	0.000798	0.000798
10	B200010033	BOM	NMIL	1	0.031649	0.031649
11	B200010056	BOM	NMIL	3	0.000798	0.002394
12	B200010057	BOM	NMIL	2	0.031649	0.063298
13	B200010070	BOM	NMIL	2	0.000798	0.001596
14	B200010075	BOM	NMIL	1	0.000798	0.000798
15	B200020004	BOM	NMIL	10	0.005156	0.051560
16	B200020014	BOM	NMIL	1	0.006751	0.006751
17	B200030003	BOM	NMIL	3	0.007617	0.022851
18	B200040004	BOM	NMIL	1	0.007972	0.007972
19	B200040005	BOM	NMIL	2	0.016240	0.032480
20	B200040007	BOM	NMIL	1	0.016240	0.016240
21	B200040016	BOM	NMIL	1	0.007972	0.007972

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22	B200040018	BOM	NMIL	1	0.016240	0.016240
23	B200040027	BOM	NMIL	1	0.002929	0.002929
24	B200040029	BOM	NMIL	1	0.005967	0.005967
25	B200040033	BOM	NMIL	1	0.002929	0.002929
26	B200040034	BOM	NMIL	2	0.005967	0.011934
27	B200050018	BOM	NMIL	1	0.129655	0.129655
28	B200050037	BOM	NMIL	4	0.005218	0.020872
29	B200050041	BOM	NMIL	1	0.005218	0.005218
30	B200050043	BOM	NMIL	3	0.005218	0.015654
31	B200050044	BOM	NMIL	2	0.005218	0.010436
32	B200050045	BOM	NMIL	1	0.005218	0.005218
33	B200060003	BOM	NMIL	1	0.014724	0.014724
34	B200090006	BOM	NMIL	1	0.001518	0.001518
35	B200110035	BOM	NMIL	3	0.004650	0.013950
36	B200110040	BOM	NMIL	3	0.004650	0.013950
37	B200110046	BOM	NMIL	4	0.004650	0.018600
38	B200110058	BOM	NMIL	3	0.004650	0.013950
39	B200110061	BOM	NMIL	2	0.004650	0.009300
40	B200110095	BOM	NMIL	3	0.004650	0.013950
41	B200110120	BOM	NMIL	8	0.004650	0.037200
42	B200110127	BOM	NMIL	4	0.007440	0.029760
43	B200110138	BOM	NMIL	3	0.004650	0.013950
44	B200110144	BOM	NMIL	1	0.004650	0.004650
45	B200110162	BOM	NMIL	1	0.004650	0.004650
46	B200110172	BOM	NMIL	4	0.004650	0.018600
47	B200110176	BOM	NMIL	1	0.004650	0.004650
48	B200110185	BOM	NMIL	1	0.004650	0.004650
49	B200110190	BOM	NMIL	1	0.004650	0.004650
50	B200110198	BOM	NMIL	1	0.004650	0.004650
51	B200110203	BOM	NMIL	3	0.004650	0.013950
52	B200110206	BOM	NMIL	1	0.004650	0.004650
53	B200110227	BOM	NMIL	7	0.004650	0.032550
54	B200110235	BOM	NMIL	4	0.004650	0.018600
55	B200110259	BOM	NMIL	3	0.004650	0.013950
56	B200110276	BOM	NMIL	1	0.004650	0.004650
57	B200110309	BOM	NMIL	1	0.004650	0.004650
58	B200110317	BOM	NMIL	3	0.004650	0.013950
59	B200110327	BOM	NMIL	6	0.004650	0.027900
60	B200110362	BOM	NMIL	1	0.004650	0.004650
61	B200110365	BOM	NMIL	1	0.004650	0.004650

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62	B200110382	BOM	NMIL	4	0.005115	0.020460
63	B200110413	BOM	NMIL	1	0.005115	0.005115
64	B200110461	BOM	NMIL	1	0.004650	0.004650
65	B200120007	BOM	NMIL	1	0.007735	0.007735
66	B200120029	BOM	NMIL	1	0.006870	0.006870
67	B200120043	BOM	NMIL	1	0.007735	0.007735
68	B200120088	BOM	NMIL	2	0.009800	0.019600
69	B200120094	BOM	NMIL	1	0.008705	0.008705
70	B200160012	BOM	NMIL	1	0.065000	0.065000
71	B200180005	BOM	N/A	1	0.009769	0.009769
72	B200180015	BOM	N/A	1	0.008923	0.008923
73	B200200007	BOM	N/A	2	0.007144	0.014288
74	B200200011	BOM	N/A	1	0.009203	0.009203
75	B200200013	BOM	N/A	6	0.009203	0.055218
76	B200200018	BOM	N/A	5	0.011856	0.059280
77	B200200020	BOM	N/A	1	0.011856	0.011856
78	B200200022	BOM	N/A	3	0.015274	0.045822
79	B200200054	BOM	N/A	2	0.014056	0.028112
80	B200220028	BOM	N/A	1	0.002647	0.002647
81	B200230036	BOM	N/A	1	0.050912	0.050912
82	B200230046	BOM	N/A	2	0.054767	0.109534
83	B200230101	BOM	N/A	1	0.225980	0.225980
84	B200230123	BOM	N/A	4	0.063118	0.252472
85	B200230136	BOM	N/A	1	0.164969	0.164969
86	B200230149	BOM	N/A	2	0.055260	0.110520
87	B200230210	BOM	N/A	1	0.050912	0.050912
88	B200230275	BOM	N/A	5	0.029363	0.146815
89	B200250002	BOM	NMIL	1	0.083521	0.083521
90	B200250007	BOM	NMIL	1	0.083521	0.083521
91	B200250009	BOM	NMIL	1	0.023345	0.023345
92	B200260013	BOM	NMIL	1	0.027660	0.027660
93	B200260055	BOM	NMIL	1	0.027660	0.027660
94	B200260085	BOM	NMIL	1	0.027660	0.027660
95	B200260116	BOM	NMIL	1	0.027660	0.027660
96	B200260123	BOM	NMIL	1	0.027660	0.027660
97	B200260124	BOM	NMIL	1	0.027660	0.027660
98	B200260127	BOM	NMIL	1	0.027660	0.027660
99	B200280012	BOM	NMIL	2	0.015958	0.031916
100	B200290005	BOM	NMIL	1	0.013740	0.013740
101	B200300056	BOM	NMIL	1	0.003876	0.003876

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102	B200300115	BOM	NMIL	1	0.003876	0.003876
103	B200300127	BOM	NMIL	1	0.026353	0.026353
104	B210090022	BOM	KNOWNFR	2	2.012088	4.024176
105	B210160021	BOM	N/A	1	0.010000	0.010000
106	B210190642	N/A	STANDARD	1	0.022077	0.022077
			Total Failure Rate (F/10^6Hrs) :			7.977487
		Mean Time (in hours) Between Failures (MTBF) :				125,353