

RELIABILITY PREDICTION STANDARD REPORT

(Sorted by Part Number)

MIL-HDBK-217F, Notice 2

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

Date: NOV-13-2009

End Item Title : MRG SERIES MTBF

End Item Part Number : MRG-5800V4V (RoHS)

MRG-5800V4V (RoHS) MTBF : 166,314

Module Title: ZIPPY TECHNOLOGY CORP

Module Part Number : MRG / MTBF

Power Unit Module : MRG-3800V-R (RoHS)

Environmental Condition: GB

Ambient Temperature: 25

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.

$$\begin{aligned}\text{Total Failure Rate}(F) &= M \lambda / (3 / 2) + B \lambda \\ &= 7.869182 / (3 / 2) + 0.766620 = 6.012741\end{aligned}$$

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

$$\begin{aligned}\text{MRG-5800V4V (RoHS)(MTBF)} &= F / 10^6 \text{Hrs} = 6.012741 / 10^6 \\ &= 166,314\end{aligned}$$

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 : NOV-13-2009 Time : 09:05:12						
End Item Title : MRG SERIES MTBF						
End Item Part Number : MRG-3800V-R (RoHS)						
Module Title : ZIPPY TECHNOLOGY CORP						
Module Part Number : MRG/MTBF						
Module Reference Designation : MRG						
Environmental Condition : GB						
Ambient Temperature: 25						
<u>MRG-3800V-R (RoHS)</u>						
ITEM	Part	Ref	Qual	Quant	Individual	Total
#	Number	Desig	Level		Failure Rate	Failure Rate
					(F/10 ⁶ Hrs)	(F/10 ⁶ Hrs)
1	B102130002	BOM	NMIL	1	0.074349	0.074349
2	B102680004	BOM	NMIL	1	0.216158	0.216158
3	B102720004	BOM	NMIL	1	0.069564	0.069564
4	B103210004	BOM	NMIL	1	0.065162	0.065162
5	B200000058	BOM	SPECIAL	1	0.094935	0.094935
6	B200000080	BOM	SPECIAL	2	0.094935	0.189870
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	B200000385	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	5	0.000798	0.003990
14	B200010057	BOM	NMIL	3	0.031398	0.094194
15	B200010067	BOM	NMIL	2	0.000798	0.001596
16	B200010080	BOM	NMIL	3	0.031398	0.094194
17	B200010081	BOM	NMIL	2	0.031398	0.062796
18	B200010083	BOM	NMIL	1	0.000798	0.000798
19	B200010084	BOM	NMIL	1	0.031398	0.031398
20	B200020004	BOM	NMIL	10	0.005156	0.051555
21	B200030019	BOM	NMIL	1	0.001995	0.001995

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22	B200040012	BOM	NMIL	1	0.005967	0.005967
23	B200040059	BOM	NMIL	1	0.005967	0.005967
24	B200040063	BOM	NMIL	1	0.016111	0.016111
25	B200040067	BOM	NMIL	1	0.016111	0.016111
26	B200050039	BOM	NMIL	1	0.005218	0.005218
27	B200050040	BOM	NMIL	3	0.005218	0.015654
28	B200050045	BOM	NMIL	1	0.005218	0.005218
29	B200050060	BOM	NMIL	1	0.005218	0.005218
30	B200060009	BOM	NMIL	1	0.014607	0.014607
31	B200090006	BOM	NMIL	1	0.018095	0.018095
32	B200110035	BOM	NMIL	1	0.004650	0.004650
33	B200110042	BOM	NMIL	4	0.004650	0.018600
34	B200110046	BOM	NMIL	13	0.004650	0.060450
35	B200110120	BOM	NMIL	3	0.004650	0.013950
36	B200110123	BOM	NMIL	1	0.004650	0.004650
37	B200110130	BOM	NMIL	1	0.004650	0.004650
38	B200110172	BOM	NMIL	1	0.004650	0.004650
39	B200110177	BOM	NMIL	1	0.004650	0.004650
40	B200110192	BOM	NMIL	2	0.004650	0.009300
41	B200110227	BOM	NMIL	2	0.004650	0.009300
42	B200110261	BOM	NMIL	2	0.004650	0.009300
43	B200110270	BOM	NMIL	3	0.004650	0.013950
44	B200110282	BOM	NMIL	6	0.004650	0.027900
45	B200110303	BOM	NMIL	4	0.005115	0.020460
46	B200110343	BOM	NMIL	1	0.004650	0.004650
47	B200110398	BOM	NMIL	1	0.004650	0.004650
48	B200110444	BOM	NMIL	1	0.004650	0.004650
49	B200110489	BOM	NMIL	2	0.004650	0.009300
50	B200110503	BOM	NMIL	1	0.005115	0.005115
51	B200110506	BOM	NMIL	2	0.004650	0.009300
52	B200110508	BOM	NMIL	1	0.004650	0.004650
53	B200110510	BOM	NMIL	1	0.004650	0.004650
54	B200110512	BOM	NMIL	3	0.004650	0.013950
55	B200110523	BOM	NMIL	1	0.004650	0.004650
56	B200110525	BOM	NMIL	1	0.004650	0.004650
57	B200110529	BOM	NMIL	5	0.004650	0.023250
58	B200110530	BOM	NMIL	1	0.004650	0.004650
59	B200110541	BOM	NMIL	1	0.004650	0.004650
60	B200110544	BOM	NMIL	1	0.004650	0.004650
61	B200110550	BOM	NMIL	1	0.004650	0.004650

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62	B200110554	BOM	NMIL	10	0.004650	0.046500
63	B200110561	BOM	NMIL	1	0.004650	0.004650
64	B200110588	BOM	NMIL	1	0.004650	0.004650
65	B200110600	BOM	NMIL	1	0.004650	0.004650
66	B200110606	BOM	NMIL	1	0.004650	0.004650
67	B200110626	BOM	NMIL	1	0.004650	0.004650
68	B200110641	BOM	NMIL	1	0.005115	0.005115
69	B200110694	BOM	NMIL	3	0.004650	0.013950
70	B200110695	BOM	NMIL	3	0.007440	0.022320
71	B200110696	BOM	NMIL	3	0.007440	0.022320
72	B200120154	BOM	NMIL	1	0.008509	0.008509
73	B200160017	BOM	NMIL	1	0.065000	0.065000
74	B200160036	BOM	NMIL	1	0.065000	0.065000
75	B200170021	BOM	NMIL	3	0.008810	0.026430
76	B200180015	BOM	N/A	2	0.008923	0.017846
77	B200180018	BOM	N/A	1	0.009327	0.009327
78	B200190024	BOM	N/A	1	0.015889	0.015889
79	B200190033	BOM	N/A	1	0.013308	0.013308
80	B200200006	BOM	N/A	1	0.007144	0.007144
81	B200200012	BOM	N/A	1	0.009203	0.009203
82	B200200017	BOM	N/A	8	0.011856	0.094848
83	B200200060	BOM	N/A	2	0.012930	0.025860
84	B200200061	BOM	N/A	4	0.008470	0.033880
85	B200200062	BOM	N/A	1	0.007791	0.007791
86	B200200071	BOM	N/A	1	0.006048	0.006048
87	B200200074	BOM	N/A	1	0.015274	0.015274
88	B200220028	BOM	N/A	1	0.002647	0.002647
89	B200230057	BOM	N/A	1	0.031594	0.031594
90	B200230198	BOM	N/A	5	0.058210	0.291050
91	B200230210	BOM	N/A	2	0.050508	0.101016
92	B200230213	BOM	N/A	3	0.029130	0.087390
93	B200230217	BOM	N/A	3	0.041493	0.124479
94	B200230236	BOM	N/A	1	0.016788	0.016788
95	B200230350	BOM	N/A	3	0.144509	0.433527
96	B200250009	BOM	NMIL	1	0.023160	0.023160
97	B200260175	BOM	NMIL	1	0.043960	0.043960
98	B200260195	BOM	NMIL	1	0.043960	0.043960
99	B200260198	BOM	NMIL	1	0.043960	0.043960
100	B200260236	BOM	NMIL	1	0.043960	0.043960
101	B200280012	BOM	NMIL	3	0.015958	0.047874

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102	B200290005	BOM	NMIL	2	0.013740	0.027480
103	B200300219	BOM	NMIL	1	0.003845	0.003845
104	B200300236	BOM	NMIL	1	0.003845	0.003845
105	B200300244	BOM	NMIL	1	0.026144	0.026144
106	B200300305	BOM	NMIL	1	0.003845	0.003845
107	B210090072	BOM	KNOWNFR	2	1.915659	3.831318
108	B210160001	BOM	N/A	1	0.010000	0.010000
109	B210191046	N/A	STANDARD	1	0.022077	0.022077
			Total Failure Rate (F/10^6Hrs) :			7.869182
		Mean Time (in hours) Between Failures (MTBF) :				127,078