

RELIABILITY PREDICTION STANDARD REPORT

(Sorted by Part Number)

MIL-HDBK-217F, Notice 2

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

Date: APR-03-2008

End Item Title : MRG SERIES MTBF

End Item Part Number : MRG-6500P (RoHS)

MRG-6500P (RoHS) MTBF: 150,162

Module Title: ZIPPY TECHNOLOGY CORP

Module Part Number : MRG/MTBF

Power Unit Module : MRG-6500P-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.

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

λ = failure rate per million hours

$$\text{MRG-6500P (RoHS) (MTBF)} = 3/2\lambda = 3/2 \times 100,108 = 150,162$$

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-02-2008		Time : 18:02:06				
End Item Title : MRG SERIES MTBF						
End Item Part Number : MRG-6500P-R (RoHS)						
Module Title : ZIPPY TECHNOLOGY CORP						
Module Part Number : MRG/MTBF						
Module Reference Designation : MRG						
Environmental Condition : GB						
<u>MRG-6500P-R (RoHS)</u>						
ITEM	Part	Ref	Qual	Quant	Individual	Total
#	Number	Desig	Level		Failure Rate	Failure Rate
					(F/10^6Hrs)	(F/10^6Hrs)
1	B101190009	BOM	NMIL	1	0.904086	0.904086
2	B200000001	BOM	SPECIAL	1	0.094935	0.094935
3	B200000074	BOM	SPECIAL	1	0.094935	0.094935
4	B200000080	BOM	SPECIAL	3	0.094935	0.284805
5	B200000177	BOM	SPECIAL	1	0.102530	0.102530
6	B200010004	BOM	NMIL	2	0.033910	0.067820
7	B200010033	BOM	NMIL	2	0.033910	0.067820
8	B200010057	BOM	NMIL	2	0.033910	0.067820
9	B200010070	BOM	NMIL	1	0.000798	0.000798
10	B200020004	BOM	NMIL	10	0.005156	0.051560
11	B200020014	BOM	NMIL	3	0.005156	0.015468
12	B200030003	BOM	NMIL	3	0.018136	0.054408
13	B200030022	BOM	NMIL	1	0.018136	0.018136
14	B200040005	BOM	NMIL	2	0.125778	0.251556
15	B200040006	BOM	NMIL	1	0.125778	0.125778
16	B200040007	BOM	NMIL	1	0.125778	0.125778
17	B200040016	BOM	NMIL	1	0.125778	0.125778
18	B200040020	BOM	NMIL	1	0.125778	0.125778
19	B200040029	BOM	NMIL	1	0.005156	0.005156
20	B200040030	BOM	NMIL	1	0.019587	0.019587
21	B200040033	BOM	NMIL	1	0.005156	0.005156

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22	B200040034	BOM	NMIL	2	0.005156	0.010312
23	B200050037	BOM	NMIL	2	0.005156	0.010312
24	B200050039	BOM	NMIL	2	0.005156	0.010312
25	B200050041	BOM	NMIL	1	0.005156	0.005156
26	B200050044	BOM	NMIL	2	0.005156	0.010312
27	B200050045	BOM	NMIL	1	0.005156	0.005156
28	B200060008	BOM	NMIL	1	0.021158	0.021158
29	B200110001	BOM	NMIL	2	0.004650	0.009300
30	B200110035	BOM	NMIL	3	0.004650	0.013950
31	B200110040	BOM	NMIL	2	0.004650	0.009300
32	B200110046	BOM	NMIL	4	0.004650	0.018600
33	B200110061	BOM	NMIL	2	0.004650	0.009300
34	B200110073	BOM	NMIL	3	0.005115	0.015345
35	B200110095	BOM	NMIL	3	0.004650	0.013950
36	B200110120	BOM	NMIL	6	0.004650	0.027900
37	B200110127	BOM	NMIL	4	0.007440	0.029760
38	B200110137	BOM	NMIL	1	0.004650	0.004650
39	B200110138	BOM	NMIL	1	0.004650	0.004650
40	B200110144	BOM	NMIL	1	0.004650	0.004650
41	B200110162	BOM	NMIL	1	0.004650	0.004650
42	B200110172	BOM	NMIL	2	0.004650	0.009300
43	B200110176	BOM	NMIL	1	0.004650	0.004650
44	B200110185	BOM	NMIL	1	0.004650	0.004650
45	B200110190	BOM	NMIL	1	0.004650	0.004650
46	B200110198	BOM	NMIL	1	0.004650	0.004650
47	B200110203	BOM	NMIL	3	0.004650	0.013950
48	B200110227	BOM	NMIL	7	0.004650	0.032550
49	B200110235	BOM	NMIL	5	0.004650	0.023250
50	B200110238	BOM	NMIL	2	0.005115	0.010230
51	B200110259	BOM	NMIL	1	0.004650	0.004650
52	B200110276	BOM	NMIL	1	0.004650	0.004650
53	B200110282	BOM	NMIL	1	0.004650	0.004650
54	B200110309	BOM	NMIL	1	0.004650	0.004650
55	B200110317	BOM	NMIL	5	0.004650	0.023250
56	B200110327	BOM	NMIL	6	0.004650	0.027900
57	B200110350	BOM	NMIL	2	0.005115	0.010230
58	B200110365	BOM	NMIL	1	0.004650	0.004650
59	B200110382	BOM	NMIL	2	0.005115	0.010230
60	B200110413	BOM	NMIL	1	0.005115	0.005115
61	B200110422	BOM	NMIL	1	0.004650	0.004650

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62	B200110461	BOM	NMIL	1	0.004650	0.004650
63	B200110464	BOM	NMIL	3	0.004650	0.013950
64	B200120007	BOM	NMIL	1	0.037500	0.037500
65	B200120029	BOM	NMIL	1	0.022500	0.022500
66	B200120043	BOM	NMIL	1	0.019500	0.019500
67	B200120088	BOM	NMIL	1	0.033000	0.033000
68	B200120118	BOM	NMIL	1	0.018000	0.018000
69	B200120119	BOM	NMIL	1	0.016500	0.016500
70	B200160012	BOM	NMIL	1	0.021000	0.021000
71	B200180005	BOM	N/A	1	0.009660	0.009660
72	B200180011	BOM	N/A	1	0.008457	0.008457
73	B200180015	BOM	N/A	1	0.008823	0.008823
74	B200190024	BOM	N/A	1	0.019448	0.019448
75	B200200006	BOM	N/A	2	0.007188	0.014376
76	B200200011	BOM	N/A	1	0.009260	0.009260
77	B200200012	BOM	N/A	6	0.009260	0.055560
78	B200200017	BOM	N/A	4	0.011929	0.047716
79	B200200020	BOM	N/A	1	0.011929	0.011929
80	B200200021	BOM	N/A	3	0.015367	0.046101
81	B200200022	BOM	N/A	1	0.015367	0.015367
82	B200200053	BOM	N/A	1	0.014143	0.014143
83	B200220028	BOM	N/A	3	0.013902	0.041706
84	B200230036	BOM	N/A	1	0.053475	0.053475
85	B200230046	BOM	N/A	3	0.057524	0.172572
86	B200230081	BOM	N/A	2	0.232675	0.465350
87	B200230123	BOM	N/A	4	0.066296	0.265184
88	B200230149	BOM	N/A	2	0.060017	0.120034
89	B200230210	BOM	N/A	1	0.053475	0.053475
90	B200230235	BOM	N/A	1	0.015422	0.015422
91	B200230275	BOM	N/A	3	0.030842	0.092526
92	B200250002	BOM	NMIL	2	0.089487	0.178974
93	B200250009	BOM	NMIL	1	0.089487	0.089487
94	B200260013	BOM	NMIL	1	0.095095	0.095095
95	B200260032	BOM	NMIL	2	0.095095	0.190190
96	B200260055	BOM	NMIL	1	0.095095	0.095095
97	B200260056	BOM	NMIL	1	0.095095	0.095095
98	B200260085	BOM	NMIL	1	0.095095	0.095095
99	B200260116	BOM	NMIL	1	0.095095	0.095095
100	B200260144	BOM	NMIL	1	0.095095	0.095095
101	B200280013	BOM	NMIL	2	0.015958	0.031916

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102	B200290005	BOM	NMIL	1	0.013740	0.013740
103	B200300056	BOM	NMIL	1	0.023342	0.023342
104	B200300106	BOM	NMIL	1	0.023342	0.023342
105	B200300140	BOM	NMIL	1	0.023342	0.023342
106	B210090022	BOM	KNOWNFR	2	2.012088	4.024176
107	B210160001	BOM	N/A	1	0.010000	0.010000
108	B210190643	N/A	STANDARD	1	0.022077	0.022077
			Total Failure Rate (F/10^6Hrs) :			9.989256
		Mean Time (in hours) Between Failures (MTBF) :				100,108