

RELIABILITY PREDICTION STANDARD REPORT

(Sorted by Part Number)

MIL-HDBK-217F, Notice 2

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

Date: JUL-23-2007

End Item Title : R3G SERIES MTBF

End Item Part Number : R3G-6650P (RoHS)

R3G-6650P (RoHS) MTBF : 283,514

Module Title: ZIPPY TECHNOLOGY CORP

Module Part Number : GIN / MTBF

Power Unit Module : GIN-6350P (RoHS)

Environmental Condition: GB

RELIABILITY MODELING OF REDUNDANT UNITS

Three Redundant Units:

Three 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.

$$\begin{aligned}\text{MTBF} &= (1/\lambda) + (1/\lambda) + (1/\lambda) - \text{【}1/(\lambda + \lambda + \lambda)\text{】} \\ &= 3(1/\lambda) - (1/3)(1/\lambda) = (3 - 1/3)1/\lambda \\ &= 8/3\lambda\end{aligned}$$

λ = failure rate per million hours

$$\text{R3G-6650P (RoHS) (MTBF)} = 8/3\lambda = 8/3 \times 106,318 = 283,514$$

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 : JUL-23-2007 Time : 14:32:15						
End Item Title : GIN SERIES MTBF						
End Item Part Number : GIN-6350P (RoHS)						
Module Title : ZIPPY TECHNOLOGY CORP						
Module Part Number : GIN/MTBF						
Module Reference Designation : GIN						
Environmental Condition : GB						
<u>GIN-6350P (RoHS)</u>						
ITEM	Part	Ref	Qual	Quant	Individual	Total
#	Number	Desig	Level		Failure Rate	Failure Rate
					(F/10^6Hrs)	(F/10^6Hrs)
1	B100780001	BOM	NMIL	1	0.789328	0.789328
2	B100780008	BOM	NMIL	1	0.531639	0.531639
3	B109020018	BOM	NMIL	1	0.262262	0.262262
4	B200000001	BOM	SPECIAL	2	0.094935	0.189870
5	B200000055	BOM	SPECIAL	1	0.094935	0.094935
6	B200000074	BOM	SPECIAL	1	0.094935	0.094935
7	B200000080	BOM	SPECIAL	6	0.094935	0.569610
8	B200000177	BOM	SPECIAL	1	0.096834	0.096834
9	B200010009	BOM	NMIL	1	0.000798	0.000798
10	B200010014	BOM	NMIL	1	0.000798	0.000798
11	B200010043	BOM	NMIL	1	0.000798	0.000798
12	B200010056	BOM	NMIL	1	0.000798	0.000798
13	B200010057	BOM	NMIL	4	0.032026	0.128104
14	B200010070	BOM	NMIL	1	0.000798	0.000798
15	B200010075	BOM	NMIL	1	0.000798	0.000798
16	B200020004	BOM	NMIL	6	0.005156	0.030936
17	B200020014	BOM	NMIL	1	0.005156	0.005156
18	B200020015	BOM	NMIL	1	0.005156	0.005156
19	B200030003	BOM	NMIL	2	0.018136	0.036272
20	B200040002	BOM	NMIL	1	0.118790	0.118790
21	B200040005	BOM	NMIL	3	0.118790	0.356370

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22	B200040007	BOM	NMIL	1	0.118790	0.118790
23	B200040020	BOM	NMIL	1	0.118790	0.118790
24	B200040032	BOM	NMIL	1	0.005259	0.005259
25	B200040033	BOM	NMIL	1	0.005156	0.005156
26	B200050018	BOM	NMIL	1	0.118790	0.118790
27	B200050023	BOM	NMIL	1	0.005156	0.005156
28	B200050037	BOM	NMIL	9	0.005156	0.046404
29	B200050039	BOM	NMIL	2	0.005156	0.010312
30	B200050044	BOM	NMIL	2	0.005156	0.010312
31	B200050045	BOM	NMIL	1	0.005156	0.005156
32	B200060003	BOM	NMIL	1	0.019983	0.019983
33	B200110001	BOM	NMIL	1	0.004650	0.004650
34	B200110035	BOM	NMIL	2	0.004650	0.009300
35	B200110040	BOM	NMIL	3	0.004650	0.013950
36	B200110046	BOM	NMIL	8	0.004650	0.037200
37	B200110058	BOM	NMIL	3	0.004650	0.013950
38	B200110061	BOM	NMIL	1	0.004650	0.004650
39	B200110084	BOM	NMIL	1	0.005115	0.005115
40	B200110120	BOM	NMIL	17	0.004650	0.079050
41	B200110131	BOM	NMIL	1	0.004650	0.004650
42	B200110138	BOM	NMIL	1	0.004650	0.004650
43	B200110144	BOM	NMIL	2	0.004650	0.009300
44	B200110162	BOM	NMIL	4	0.004650	0.018600
45	B200110172	BOM	NMIL	5	0.004650	0.023250
46	B200110185	BOM	NMIL	1	0.004650	0.004650
47	B200110198	BOM	NMIL	1	0.004650	0.004650
48	B200110203	BOM	NMIL	1	0.004650	0.004650
49	B200110206	BOM	NMIL	2	0.004650	0.009300
50	B200110227	BOM	NMIL	5	0.004650	0.023250
51	B200110259	BOM	NMIL	2	0.004650	0.009300
52	B200110276	BOM	NMIL	2	0.004650	0.009300
53	B200110303	BOM	NMIL	4	0.005115	0.020460
54	B200110317	BOM	NMIL	5	0.004650	0.023250
55	B200110327	BOM	NMIL	4	0.004650	0.018600
56	B200110340	BOM	NMIL	1	0.004650	0.004650
57	B200110362	BOM	NMIL	1	0.004650	0.004650
58	B200110365	BOM	NMIL	1	0.004650	0.004650
59	B200110382	BOM	NMIL	5	0.005115	0.025575
60	B200110503	BOM	NMIL	1	0.005115	0.005115
61	B200120007	BOM	NMIL	1	0.042000	0.042000

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62	B200120043	BOM	NMIL	1	0.042000	0.042000
63	B200120092	BOM	NMIL	1	0.048000	0.048000
64	B200120099	BOM	NMIL	2	0.022500	0.045000
65	B200140010	BOM	NMIL	1	0.046200	0.046200
66	B200140011	BOM	NMIL	1	0.033000	0.033000
67	B200140015	BOM	NMIL	2	0.046200	0.092400
68	B200140016	BOM	NMIL	1	0.046200	0.046200
69	B200140018	BOM	NMIL	1	0.036000	0.036000
70	B200160008	BOM	NMIL	1	0.021000	0.021000
71	B200170002	BOM	NMIL	7	0.005156	0.036092
72	B200180011	BOM	N/A	2	0.008457	0.016914
73	B200180015	BOM	N/A	2	0.008823	0.017646
74	B200200007	BOM	N/A	1	0.007188	0.007188
75	B200200013	BOM	N/A	3	0.009260	0.027779
76	B200200018	BOM	N/A	7	0.011929	0.083502
77	B200200020	BOM	N/A	1	0.011929	0.011929
78	B200200022	BOM	N/A	5	0.015367	0.076837
79	B200220018	BOM	N/A	2	0.012692	0.025384
80	B200220028	BOM	N/A	1	0.013902	0.013902
81	B200230026	BOM	N/A	2	0.050504	0.101008
82	B200230036	BOM	N/A	1	0.064934	0.064934
83	B200230100	BOM	N/A	2	0.074835	0.149670
84	B200230101	BOM	N/A	1	0.228001	0.228001
85	B200230210	BOM	N/A	1	0.050504	0.050504
86	B200230235	BOM	N/A	1	0.018727	0.018727
87	B200230275	BOM	N/A	4	0.037450	0.149800
88	B200230277	BOM	N/A	1	0.054819	0.054819
89	B200230278	BOM	N/A	2	0.050504	0.101008
90	B200230280	BOM	N/A	2	0.044086	0.088172
91	B200250002	BOM	NMIL	1	0.084515	0.084515
92	B200250009	BOM	NMIL	1	0.084515	0.084515
93	B200260004	BOM	NMIL	1	0.089812	0.089812
94	B200260013	BOM	NMIL	2	0.089812	0.179624
95	B200260016	BOM	NMIL	2	0.089812	0.179624
96	B200260054	BOM	NMIL	1	0.089812	0.089812
97	B200260055	BOM	NMIL	1	0.089812	0.089812
98	B200260056	BOM	NMIL	1	0.089812	0.089812
99	B200260095	BOM	NMIL	1	0.089812	0.089812
100	B200260096	BOM	NMIL	1	0.089812	0.089812
101	B200260121	BOM	NMIL	1	0.089812	0.089812

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102	B200260214	BOM	NMIL	1	0.089812	0.089812
103	B200280013	BOM	NMIL	2	0.015958	0.031916
104	B200290005	BOM	NMIL	1	0.013740	0.013740
105	B200300056	BOM	NMIL	1	0.022045	0.022045
106	B200300111	BOM	NMIL	1	0.022045	0.022045
107	B200300117	BOM	NMIL	1	0.022045	0.022045
108	B210090028	BOM	KNOWNFR	1	2.060000	2.060000
109	B210160021	BOM	N/A	1	0.010000	0.010000
110	B210190692	N/A	STANDARD	1	0.022077	0.022077
			Total Failure Rate (F/10^6Hrs) :			9.405715
		Mean Time (in hours) Between Failures (MTBF) :			106,318	