

ZIPPY TECHNOLOGY CORP.
10F.,No.50,MINQUAN RD.,
XINDIAN DIST.,NEW TAIPEI CITY,TAIWAN,R.O.C.
RELIABILITY PREDICTION STANDARD REPORT
(Sorted by Part Number)
MIL-HDBK-217F, Notice 2

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

Date: SEP-07-2017
End Item Title : ZRH2 SERIES MTBF
End Item Part Number : ZRH2-5AB0K2V(RoHS)(PMBus WP1.2)
ZRH2-5AB0K2V(RoHS)(PMBus WP1.2) MTBF : 240,924
Module Title: ZIPPY TECHNOLOGY CORP
Module Part Number : ZRH / MTBF
Power Unit Module : ZRH-2AB0K2(RoHS)(PMBus WP1.2)
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.

$$\text{Total Failure Rate}(F) = M \lambda / (3/2) + B \lambda = 5.387527 / (3/2) + 0.558998 = 4.150683$$

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

$$\text{ZRH2-5AB0K2V(RoHS)(PMBus WP1.2)(MTBF)} = F / 10^6 \text{ (Hrs)} = 1 / (4.150683 / 10^6) = 240,924$$

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(Sorted by Part Number)
MIL-HDBK-217F, Notice 2

Date : SEP-07-2017 Time : 16:45:23
End Item Title : ZRH SERIES MTBF
End Item Part Number : ZRH-2AB0K2(RoHS)(PMBus WP1.2)
ZRH-2AB0K2(RoHS)(PMBus WP1.2) MTBF : 185,614
Module Title : ZIPPY TECHNOLOGY CORP
Module Part Number : ZRH / MTBF
Module Reference Designation : ZRH
Environmental Condition : GB
Ambient Temperature: 25°C

ZRH-2AB0K2(RoHS)(PMBus WP1.2)

ITEM #	Part Number	Ref Desig	Qual Level	Quant	Individual Failure Rate (F/10 ⁶ Hrs)	Total Failure Rate (F/10 ⁶ Hrs)
1	B106020003	BOM	SPECIAL	1	1.428742	1.428742
2	B106020004	BOM	SPECIAL	1	0.229334	0.229334
3	B106020006	BOM	SPECIAL	1	0.191658	0.191658
4	B200000582	BOM	NMIL	1	0.009454	0.009454
5	B200000640	BOM	NMIL	3	0.006522	0.019566
6	B200000641	BOM	NMIL	2	0.006522	0.013044
7	B200010052	BOM	NMIL	1	0.000337	0.000337
8	B200010109	BOM	NMIL	1	0.000723	0.000723
9	B200010192	BOM	NMIL	1	0.008014	0.008014
10	B200010235	BOM	NMIL	4	0.065527	0.262108
11	B200010253	BOM	NMIL	2	0.065527	0.131054
12	B200010261	BOM	NMIL	1	0.000290	0.000290
13	B200010262	BOM	NMIL	7	0.012629	0.088403
14	B200010263	BOM	NMIL	1	0.001343	0.001343
15	B200020039	BOM	NMIL	1	0.002332	0.002332
16	B200030109	BOM	NMIL	1	0.002308	0.002308
17	B200030110	BOM	NMIL	1	0.002308	0.002308
18	B200040062	BOM	NMIL	1	0.000870	0.000870
19	B200040141	BOM	NMIL	13	0.000253	0.003289
20	B200040142	BOM	NMIL	1	0.011646	0.011646
21	B200040143	BOM	NMIL	1	0.002465	0.002465
22	B200050070	BOM	NMIL	1	0.003013	0.003013
23	B200050082	BOM	NMIL	1	0.003013	0.003013
24	B200050085	BOM	NMIL	2	0.003013	0.006026

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25	B200050090	BOM	NMIL	2	0.003013	0.006026
26	B200060024	BOM	NMIL	1	0.015643	0.015643
27	B200090055	BOM	NMIL	1	0.001476	0.001476
28	B200110042	BOM	NMIL	6	0.002210	0.013260
29	B200110046	BOM	NMIL	2	0.002896	0.005792
30	B200110120	BOM	NMIL	1	0.002896	0.002896
31	B200110223	BOM	NMIL	3	0.003039	0.009117
32	B200110325	BOM	NMIL	1	0.002896	0.002896
33	B200110346	BOM	NMIL	1	0.002896	0.002896
34	B200110470	BOM	NMIL	3	0.003716	0.011148
35	B200110508	BOM	NMIL	1	0.002210	0.002210
36	B200110512	BOM	NMIL	6	0.002210	0.013260
37	B200110573	BOM	NMIL	4	0.002319	0.009276
38	B200110574	BOM	NMIL	6	0.002319	0.013914
39	B200110629	BOM	NMIL	4	0.002319	0.009276
40	B200110727	BOM	NMIL	2	0.002210	0.004420
41	B200110732	BOM	NMIL	1	0.002026	0.002026
42	B200110733	BOM	NMIL	10	0.002026	0.020260
43	B200110737	BOM	NMIL	1	0.002210	0.002210
44	B200110739	BOM	NMIL	8	0.002026	0.016208
45	B200110744	BOM	NMIL	2	0.002026	0.004052
46	B200110771	BOM	NMIL	1	0.002026	0.002026
47	B200110775	BOM	NMIL	1	0.002026	0.002026
48	B200110789	BOM	NMIL	6	0.002210	0.013260
49	B200110821	BOM	NMIL	2	0.002126	0.004252
50	B200110850	BOM	NMIL	1	0.002126	0.002126
51	B200110865	BOM	NMIL	1	0.002026	0.002026
52	B200110890	BOM	NMIL	2	0.002026	0.004052
53	B200111014	BOM	NMIL	1	0.002026	0.002026
54	B200111107	BOM	NMIL	3	0.003716	0.011148
55	B200111108	BOM	NMIL	1	0.002605	0.002605
56	B200160054	BOM	NMIL	1	0.001469	0.001469
57	B200160056	BOM	NMIL	1	0.008899	0.008899
58	B200170029	BOM	NMIL	2	0.003721	0.007442
59	B200170073	BOM	NMIL	1	0.002424	0.002424
60	B200170074	BOM	NMIL	4	0.002840	0.011360
61	B200170075	BOM	NMIL	1	0.002424	0.002424
62	B200180105	BOM	NMIL	1	0.001845	0.001845
63	B200180106	BOM	NMIL	1	0.001845	0.001845
64	B200190077	BOM	NMIL	1	0.012538	0.012538

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ITEM #	Part Number	Ref Desig	Qual Level	Quant	Individual Failure Rate (F/10^6Hrs)	Total Failure Rate (F/10^6Hrs)
65	B200200017	BOM	NMIL	3	0.006356	0.019068
66	B200200085	BOM	NMIL	1	0.007553	0.007553
67	B200200117	BOM	NMIL	1	0.005546	0.005546
68	B200200119	BOM	NMIL	1	0.004827	0.004827
69	B200200123	BOM	NMIL	5	0.003413	0.017065
70	B200200141	BOM	NMIL	1	0.007820	0.007820
71	B200200167	BOM	NMIL	1	0.009620	0.009620
72	B200200186	BOM	NMIL	3	0.003189	0.009567
73	B200200205	BOM	NMIL	4	0.007820	0.031280
74	B200200207	BOM	NMIL	1	0.005166	0.005166
75	B200200208	BOM	NMIL	2	0.006356	0.012712
76	B200200217	BOM	NMIL	3	0.006356	0.019068
77	B200200218	BOM	NMIL	13	0.009620	0.125060
78	B200200219	BOM	NMIL	3	0.005166	0.015498
79	B200220084	BOM	NMIL	2	0.001294	0.002588
80	B200220087	BOM	NMIL	3	0.001125	0.003375
81	B200230470	BOM	NMIL	1	0.028457	0.028457
82	B200230524	BOM	NMIL	1	0.001991	0.001991
83	B200230525	BOM	NMIL	3	0.014229	0.042687
84	B200260409	BOM	NMIL	1	0.019936	0.019936
85	B200260410	BOM	NMIL	1	0.019936	0.019936
86	B200260411	BOM	NMIL	1	0.019936	0.019936
87	B200270021	BOM	NMIL	1	0.015000	0.015000
88	B200280012	BOM	NMIL	1	0.000623	0.000623
89	B200310012	BOM	NMIL	1	0.005232	0.005232
90	B210000120	BOM	NMIL	3	0.002026	0.006078
91	B210000121	BOM	NMIL	1	0.001565	0.001565
92	B210060136	BOM	NMIL	1	0.024396	0.024396
93	B210090235	BOM	SPECIAL	1	2.182912	2.182912
94	B210160078	BOM	NMIL	1	0.010000	0.010000
95	B210192629	BOM	NMIL	1	0.025102	0.025102
96	B210192635	BOM	NMIL	1	0.002468	0.002468

Total Failure Rate (F/10^6Hrs) : 5.387527
Mean Time (in hours) Between Failures (MTBF) : 185,614