

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: APR-22-2015
End Item Title : R2K SERIES MTBF
End Item Part Number : R2K-5800K2V(PMBus NP1.2)(RoHS)
R2K-5800K2V(PMBus NP1.2)(RoHS) MTBF : 208,824
Module Title: ZIPPY TECHNOLOGY CORP
Module Part Number : KIN / MTBF
Power Unit Module : KIN-2800K2(PMBus NP1.2)(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.

$$\text{Total Failure Rate}(F) = M \lambda / (3/2) + B \lambda = 6.033137 / (3/2) + 0.766620 = 4.788711$$

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

$$\text{R2K-5800K2V(PMBus NP1.2)(RoHS)(MTBF)} = F / 10^6 \text{Hrs} = 4.788711 / 10^6 = 208,824$$

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MIL-HDBK-217F, Notice 2

Date : APR-22-2015 Time : 13:49:33
End Item Title : KIN SERIES MTBF
End Item Part Number : KIN-2800K2(PMBus NP1.2)(RoHS)
KIN-2800K2(PMBus NP1.2)(RoHS) MTBF : 165,751
Module Title : ZIPPY TECHNOLOGY CORP
Module Part Number : KIN / MTBF
Module Reference Designation : KIN
Environmental Condition : GB
Ambient Temperature: 25°C

KIN-2800K2(PMBus NP1.2)(RoHS)

ITEM #	Part Number	Ref Desig	Qual Level	Quant	Individual Failure Rate (F/10 ⁶ Hrs)	Total Failure Rate (F/10 ⁶ Hrs)
1	B105210006	BOM	SPECIAL	1	0.197783	0.197783
2	B105490002	BOM	SPECIAL	1	0.204674	0.204674
3	B105490003	BOM	SPECIAL	1	0.072499	0.072499
4	B105490008	BOM	SPECIAL	1	0.026430	0.026430
5	B105590002	BOM	SPECIAL	1	0.204674	0.204674
6	B200000018	BOM	NMIL	1	0.030234	0.030234
7	B200000080	BOM	NMIL	1	0.029346	0.029346
8	B200000092	BOM	NMIL	1	0.024831	0.024831
9	B200000144	BOM	NMIL	1	0.033691	0.033691
10	B200000247	BOM	NMIL	1	0.030234	0.030234
11	B200000268	BOM	NMIL	1	0.030234	0.030234
12	B200000277	BOM	NMIL	1	0.031585	0.031585
13	B200000308	BOM	NMIL	3	0.030903	0.092709
14	B200000333	BOM	NMIL	3	0.033691	0.101073
15	B200000377	BOM	NMIL	1	0.031585	0.031585
16	B200000582	BOM	NMIL	1	0.031799	0.031799
17	B200010009	BOM	NMIL	1	0.000438	0.000438
18	B200010022	BOM	NMIL	3	0.000438	0.001314
19	B200010052	BOM	NMIL	1	0.000326	0.000326
20	B200010109	BOM	NMIL	4	0.000798	0.003192
21	B200010147	BOM	NMIL	4	0.026507	0.106028
22	B200010192	BOM	NMIL	2	0.008827	0.017654
23	B200010212	BOM	NMIL	2	0.026507	0.053014
24	B200010236	BOM	NMIL	4	0.026507	0.106028

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25	B200020018	BOM	NMIL	2	0.005156	0.010312
26	B200020024	BOM	NMIL	21	0.005156	0.108276
27	B200020034	BOM	NMIL	1	0.005156	0.005156
28	B200030019	BOM	NMIL	1	0.007617	0.007617
29	B200030055	BOM	NMIL	1	0.007617	0.007617
30	B200030061	BOM	NMIL	6	0.003446	0.020676
31	B200030081	BOM	NMIL	1	0.003446	0.003446
32	B200030103	BOM	NMIL	1	0.003446	0.003446
33	B200040104	BOM	NMIL	1	0.013398	0.013398
34	B200040115	BOM	NMIL	1	0.013398	0.013398
35	B200040120	BOM	NMIL	1	0.005967	0.005967
36	B200040122	BOM	NMIL	1	0.005967	0.005967
37	B200050032	BOM	NMIL	4	0.005218	0.020872
38	B200050035	BOM	NMIL	2	0.005218	0.010436
39	B200050037	BOM	NMIL	3	0.005218	0.015654
40	B200050045	BOM	NMIL	1	0.005218	0.005218
41	B200060024	BOM	NMIL	1	0.012147	0.012147
42	B200090006	BOM	NMIL	1	0.001265	0.001265
43	B200110040	BOM	NMIL	2	0.004650	0.009300
44	B200110042	BOM	NMIL	2	0.004650	0.009300
45	B200110078	BOM	NMIL	1	0.004650	0.004650
46	B200110120	BOM	NMIL	1	0.004650	0.004650
47	B200110123	BOM	NMIL	3	0.004650	0.013950
48	B200110127	BOM	NMIL	2	0.007440	0.014880
49	B200110151	BOM	NMIL	1	0.004650	0.004650
50	B200110162	BOM	NMIL	1	0.004650	0.004650
51	B200110190	BOM	NMIL	1	0.004650	0.004650
52	B200110223	BOM	NMIL	3	0.005115	0.015345
53	B200110279	BOM	NMIL	2	0.004650	0.009300
54	B200110282	BOM	NMIL	2	0.004650	0.009300
55	B200110317	BOM	NMIL	2	0.004650	0.009300
56	B200110343	BOM	NMIL	1	0.004650	0.004650
57	B200110507	BOM	NMIL	1	0.004650	0.004650
58	B200110508	BOM	NMIL	3	0.004650	0.013950
59	B200110523	BOM	NMIL	2	0.004650	0.009300
60	B200110524	BOM	NMIL	1	0.004650	0.004650
61	B200110528	BOM	NMIL	1	0.004650	0.004650
62	B200110529	BOM	NMIL	3	0.004650	0.013950
63	B200110531	BOM	NMIL	1	0.004650	0.004650
64	B200110557	BOM	NMIL	2	0.007440	0.014880
65	B200110564	BOM	NMIL	2	0.004650	0.009300
66	B200110571	BOM	NMIL	1	0.004650	0.004650
67	B200110579	BOM	NMIL	1	0.004650	0.004650
68	B200110588	BOM	NMIL	1	0.004650	0.004650

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69	B200110635	BOM	NMIL	1	0.004650	0.004650
70	B200110691	BOM	NMIL	1	0.004650	0.004650
71	B200110696	BOM	NMIL	3	0.007440	0.022320
72	B200110709	BOM	NMIL	1	0.004650	0.004650
73	B200110729	BOM	NMIL	1	0.004650	0.004650
74	B200110731	BOM	NMIL	2	0.004650	0.009300
75	B200110733	BOM	NMIL	14	0.004650	0.065100
76	B200110738	BOM	NMIL	4	0.004650	0.018600
77	B200110743	BOM	NMIL	1	0.004650	0.004650
78	B200110775	BOM	NMIL	2	0.004650	0.009300
79	B200110794	BOM	NMIL	1	0.004650	0.004650
80	B200110807	BOM	NMIL	1	0.004650	0.004650
81	B200110808	BOM	NMIL	4	0.004650	0.018600
82	B200110811	BOM	NMIL	1	0.004650	0.004650
83	B200110834	BOM	NMIL	1	0.004650	0.004650
84	B200110842	BOM	NMIL	1	0.004650	0.004650
85	B200110844	BOM	NMIL	1	0.004650	0.004650
86	B200110854	BOM	NMIL	2	0.004650	0.009300
87	B200110984	BOM	NMIL	4	0.004650	0.018600
88	B200111006	BOM	NMIL	1	0.004650	0.004650
89	B200111025	BOM	NMIL	2	0.007440	0.014880
90	B200111034	BOM	NMIL	2	0.004650	0.009300
91	B200120146	BOM	NMIL	1	0.008705	0.008705
92	B200160017	BOM	NMIL	1	0.065000	0.065000
93	B200160022	BOM	NMIL	1	0.065000	0.065000
94	B200170023	BOM	NMIL	2	0.004875	0.009750
95	B200170031	BOM	NMIL	4	0.004875	0.019500
96	B200170032	BOM	NMIL	3	0.004875	0.014625
97	B200180094	BOM	NMIL	1	0.008146	0.008146
98	B200180095	BOM	NMIL	2	0.009327	0.018654
99	B200190091	BOM	NMIL	1	0.014987	0.014987
100	B200200075	BOM	NMIL	3	0.018108	0.054324
101	B200200087	BOM	NMIL	3	0.014056	0.042168
102	B200200113	BOM	NMIL	2	0.009203	0.018406
103	B200200114	BOM	NMIL	4	0.011856	0.047424
104	B200200115	BOM	NMIL	5	0.007791	0.038955
105	B200200118	BOM	NMIL	1	0.015274	0.015274
106	B200200121	BOM	NMIL	1	0.012930	0.012930
107	B200200125	BOM	NMIL	1	0.006575	0.006575
108	B200200143	BOM	NMIL	1	0.007144	0.007144
109	B200200156	BOM	NMIL	2	0.011856	0.023712
110	B200200170	BOM	NMIL	3	0.014056	0.042168
111	B200220042	BOM	NMIL	3	0.012681	0.038043
112	B200220046	BOM	NMIL	1	0.011536	0.011536

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113	B200230198	BOM	NMIL	1	0.048408	0.048408
114	B200230315	BOM	NMIL	3	0.129272	0.387816
115	B200230336	BOM	NMIL	1	0.021130	0.021130
116	B200230338	BOM	NMIL	7	0.024225	0.169575
117	B200230356	BOM	NMIL	1	0.036665	0.036665
118	B200230424	BOM	NMIL	6	0.043404	0.260424
119	B200250009	BOM	NMIL	1	0.019260	0.019260
120	B200260293	BOM	NMIL	1	0.022819	0.022819
121	B200260298	BOM	NMIL	2	0.022819	0.045638
122	B200260350	BOM	NMIL	1	0.022819	0.022819
123	B200260377	BOM	NMIL	1	0.022819	0.022819
124	B200260378	BOM	NMIL	1	0.022819	0.022819
125	B200280012	BOM	NMIL	3	0.015958	0.047874
126	B200290005	BOM	NMIL	1	0.013740	0.013740
127	B200300382	BOM	NMIL	2	0.003198	0.006396
128	B200300406	BOM	NMIL	1	0.003198	0.003198
129	B200300432	BOM	NMIL	1	0.003198	0.003198
130	B200300434	BOM	NMIL	1	0.021742	0.021742
131	B200310010	BOM	NMIL	1	0.022772	0.022772
132	B210090177	BOM	SPECIAL	1	2.030495	2.030495
133	B210160002	BOM	NMIL	1	0.010000	0.010000
134	B210192248	BOM	NMIL	1	0.014656	0.014656

Total Failure Rate (F/10 ⁶ Hrs) :	6.033137
Mean Time (in hours) Between Failures (MTBF) :	165,751