

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-08-2017
End Item Title : ZRP2 SERIES MTBF
End Item Part Number : ZRP2-5600K2V(PMBus NP1.2)(RoHS)
ZRP2-5600K2V(PMBus NP1.2)(RoHS) MTBF : 257,279
Module Title: ZIPPY TECHNOLOGY CORP
Module Part Number : ZRP / MTBF
Power Unit Module : ZRPS-2600K2(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.

$$\text{Total Failure Rate}(F) = M \lambda / (3/2) + B \lambda = 4.991732 / (3/2) + 0.558998 = 3.886819$$

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

$$\text{ZRP2-5600K2V(PMBus NP1.2)(RoHS)(MTBF)} = F / 10^6 \text{ (Hrs)} = 1 / (3.886819 / 10^6) = 257,279$$

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MIL-HDBK-217F, Notice 2

Date : JUN-06-2016 Time : 11:28:22
End Item Title : ZRP SERIES MTBF
End Item Part Number : ZRP-2600K2(PMBus NP1.2)(RoHS)
ZRP-2600K2(PMBus NP1.2)(RoHS) MTBF : 200,331
Module Title : ZIPPY TECHNOLOGY CORP
Module Part Number : ZRP / MTBF
Module Reference Designation : ZRP
Environmental Condition : GB
Ambient Temperature: 25°C

ZRP-2600K2(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	B105830004	BOM	SPECIAL	1	0.073329	0.073329
2	B105830005	BOM	SPECIAL	1	0.190893	0.190893
3	B105900002	BOM	SPECIAL	1	0.209267	0.209267
4	B105900003	BOM	SPECIAL	1	0.334998	0.334998
5	B105900004	BOM	SPECIAL	1	0.026034	0.026034
6	B200000092	BOM	NMIL	1	0.029860	0.029860
7	B200000144	BOM	NMIL	1	0.033691	0.033691
8	B200000207	BOM	NMIL	1	0.030234	0.030234
9	B200000268	BOM	NMIL	1	0.030234	0.030234
10	B200000308	BOM	NMIL	4	0.030903	0.123612
11	B200000595	BOM	NMIL	1	0.034409	0.034409
12	B200000603	BOM	NMIL	2	0.028843	0.057686
13	B200000605	BOM	NMIL	1	0.022999	0.022999
14	B200010022	BOM	NMIL	1	0.000438	0.000438
15	B200010052	BOM	NMIL	9	0.000326	0.002934
16	B200010109	BOM	NMIL	5	0.000798	0.003990
17	B200010192	BOM	NMIL	1	0.008827	0.008827
18	B200010204	BOM	NMIL	6	0.018915	0.113490
19	B200010242	BOM	NMIL	4	0.029406	0.117624
20	B200020024	BOM	NMIL	6	0.005156	0.030936
21	B200020034	BOM	NMIL	1	0.005156	0.005156
22	B200030080	BOM	NMIL	1	0.005259	0.005259
23	B200030082	BOM	NMIL	1	0.007617	0.007617
24	B200030083	BOM	NMIL	1	0.001995	0.001995

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25	B200040101	BOM	NMIL	1	0.016111	0.016111
26	B200040120	BOM	NMIL	1	0.005967	0.005967
27	B200040133	BOM	NMIL	14	0.005967	0.083538
28	B200040136	BOM	NMIL	1	0.010501	0.010501
29	B200050036	BOM	NMIL	4	0.005218	0.020872
30	B200050045	BOM	NMIL	1	0.005218	0.005218
31	B200060028	BOM	NMIL	1	0.005423	0.005423
32	B200090005	BOM	NMIL	1	0.001265	0.001265
33	B200110120	BOM	NMIL	1	0.004650	0.004650
34	B200110123	BOM	NMIL	1	0.004650	0.004650
35	B200110177	BOM	NMIL	1	0.004650	0.004650
36	B200110185	BOM	NMIL	1	0.004650	0.004650
37	B200110279	BOM	NMIL	2	0.004650	0.009300
38	B200110282	BOM	NMIL	1	0.004650	0.004650
39	B200110311	BOM	NMIL	1	0.004650	0.004650
40	B200110337	BOM	NMIL	2	0.005115	0.010230
41	B200110343	BOM	NMIL	1	0.004650	0.004650
42	B200110488	BOM	NMIL	1	0.004650	0.004650
43	B200110506	BOM	NMIL	1	0.004650	0.004650
44	B200110508	BOM	NMIL	1	0.004650	0.004650
45	B200110515	BOM	NMIL	1	0.004650	0.004650
46	B200110524	BOM	NMIL	2	0.004650	0.009300
47	B200110529	BOM	NMIL	2	0.004650	0.009300
48	B200110530	BOM	NMIL	2	0.004650	0.009300
49	B200110545	BOM	NMIL	1	0.004650	0.004650
50	B200110564	BOM	NMIL	1	0.004650	0.004650
51	B200110632	BOM	NMIL	2	0.007440	0.014880
52	B200110696	BOM	NMIL	3	0.007440	0.022320
53	B200110729	BOM	NMIL	3	0.004650	0.013950
54	B200110730	BOM	NMIL	2	0.004650	0.009300
55	B200110733	BOM	NMIL	14	0.004650	0.065100
56	B200110734	BOM	NMIL	1	0.004650	0.004650
57	B200110735	BOM	NMIL	1	0.004650	0.004650
58	B200110739	BOM	NMIL	1	0.004650	0.004650
59	B200110743	BOM	NMIL	2	0.004650	0.009300
60	B200110775	BOM	NMIL	2	0.004650	0.009300
61	B200110776	BOM	NMIL	4	0.004650	0.018600
62	B200110800	BOM	NMIL	2	0.004650	0.009300
63	B200110805	BOM	NMIL	2	0.004650	0.009300
64	B200110806	BOM	NMIL	1	0.004650	0.004650
65	B200110807	BOM	NMIL	1	0.004650	0.004650
66	B200110808	BOM	NMIL	8	0.004650	0.037200
67	B200110811	BOM	NMIL	1	0.004650	0.004650
68	B200110813	BOM	NMIL	1	0.004650	0.004650

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69	B200110814	BOM	NMIL	1	0.004650	0.004650
70	B200110821	BOM	NMIL	1	0.005115	0.005115
71	B200110834	BOM	NMIL	2	0.004650	0.009300
72	B200110870	BOM	NMIL	1	0.005115	0.005115
73	B200110891	BOM	NMIL	1	0.005115	0.005115
74	B200110928	BOM	NMIL	1	0.004650	0.004650
75	B200110957	BOM	NMIL	1	0.004650	0.004650
76	B200111014	BOM	NMIL	1	0.004650	0.004650
77	B200111016	BOM	NMIL	1	0.004650	0.004650
78	B200111066	BOM	NMIL	1	0.004650	0.004650
79	B200120198	BOM	NMIL	1	0.007735	0.007735
80	B200160009	BOM	NMIL	1	0.065000	0.065000
81	B200160017	BOM	NMIL	1	0.065000	0.065000
82	B200170024	BOM	NMIL	1	0.004875	0.004875
83	B200170026	BOM	NMIL	2	0.004875	0.009750
84	B200170032	BOM	NMIL	2	0.004875	0.009750
85	B200180075	BOM	NMIL	1	0.003177	0.003177
86	B200180102	BOM	NMIL	1	0.001243	0.001243
87	B200190038	BOM	NMIL	2	0.013308	0.026616
88	B200200057	BOM	NMIL	1	0.014689	0.014689
89	B200200074	BOM	NMIL	2	0.012200	0.024400
90	B200200083	BOM	NMIL	1	0.005325	0.005325
91	B200200113	BOM	NMIL	2	0.007020	0.014040
92	B200200114	BOM	NMIL	4	0.009254	0.037016
93	B200200115	BOM	NMIL	1	0.005854	0.005854
94	B200200116	BOM	NMIL	4	0.005325	0.021300
95	B200200121	BOM	NMIL	1	0.010173	0.010173
96	B200200140	BOM	NMIL	1	0.004441	0.004441
97	B200200156	BOM	NMIL	1	0.009254	0.009254
98	B200200158	BOM	NMIL	1	0.005854	0.005854
99	B200200193	BOM	NMIL	1	0.006412	0.006412
100	B200220080	BOM	NMIL	2	0.018637	0.037274
101	B200220084	BOM	NMIL	1	0.018637	0.018637
102	B200230057	BOM	NMIL	1	0.005460	0.005460
103	B200230210	BOM	NMIL	1	0.022409	0.022409
104	B200230276	BOM	NMIL	2	0.004738	0.009476
105	B200230281	BOM	NMIL	2	0.017185	0.034370
106	B200230336	BOM	NMIL	1	0.004391	0.004391
107	B200230338	BOM	NMIL	3	0.004872	0.014616
108	B200230436	BOM	NMIL	1	0.006259	0.006259
109	B200230470	BOM	NMIL	1	0.045078	0.045078
110	B200230483	BOM	NMIL	1	0.012312	0.012312
111	B200230486	BOM	NMIL	4	0.014670	0.058680
112	B200250009	BOM	NMIL	1	0.012238	0.012238

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113	B200260389	BOM	NMIL	1	0.013104	0.013104
114	B200260392	BOM	NMIL	1	0.021662	0.021662
115	B200260395	BOM	NMIL	1	0.014402	0.014402
116	B200280012	BOM	NMIL	2	0.015958	0.031916
117	B200290005	BOM	NMIL	1	0.013740	0.013740
118	B200300382	BOM	NMIL	1	0.003845	0.003845
119	B200300410	BOM	NMIL	1	0.003962	0.003962
120	B200300452	BOM	NMIL	1	0.003617	0.003617
121	B200300453	BOM	NMIL	1	0.023704	0.023704
122	B200310004	BOM	NMIL	1	0.027383	0.027383
123	B200330004	BOM	NMIL	2	0.007000	0.014000
124	B200350028	BOM	NMIL	1	0.001022	0.001022
125	B200360064	BOM	NMIL	1	0.000841	0.000841
126	B200370003	BOM	NMIL	1	0.000665	0.000665
127	B200370005	BOM	NMIL	1	0.000692	0.000692
128	B200370069	BOM	NMIL	1	0.000778	0.000778
129	B200370085	BOM	NMIL	1	0.000719	0.000719
130	B210060136	BOM	NMIL	1	0.034577	0.034577
131	B210090169	BOM	SPECIAL	1	2.030495	2.030495
132	B210160046	BOM	NMIL	1	0.010000	0.010000
133	B210191722	BOM	NMIL	1	0.019996	0.019996
134	B210192435	BOM	NMIL	1	0.015788	0.015788
135	B210192436	BOM	NMIL	1	0.015788	0.015788

Total Failure Rate (F/10 ⁶ Hrs) :	4.991732
Mean Time (in hours) Between Failures (MTBF) :	200,331