

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-01-2015
End Item Title : M1K2 SERIES MTBF
End Item Part Number : M1K2-5A10V4H(PMBus NP1.2)(RoHS)
M1K2-5A10V4H(PMBus NP1.2)(RoHS) MTBF : 182,541
Module Title: ZIPPY TECHNOLOGY CORP
Module Part Number : M1K / MTBF
Power Unit Module : M1K-2A10V(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.

$$\text{Total Failure Rate}(F) = M \lambda / (3/2) + B \lambda = 7.176201 / (3/2) + 0.694086 = 5.478220$$

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

$$M1K2-5A10V4H(PMBus NP1.2)(RoHS)(MTBF) = F / 10^6 \text{Hrs} = 5.478220 / 10^6 = 182,541$$

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RELIABILITY PREDICTION STANDARD REPORT
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MIL-HDBK-217F, Notice 2

Date : APR-01-2015 Time : 11:19:52
End Item Title : M1K SERIES MTBF
End Item Part Number : M1K-2A10V(PMBus NP1.2)(RoHS)
M1K-2A10V(PMBus NP1.2)(RoHS) MTBF : 139,349
Module Title : ZIPPY TECHNOLOGY CORP
Module Part Number : M1K / MTBF
Module Reference Designation : M1K
Environmental Condition : GB
Ambient Temperature: 25°C

M1K-2A10V(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	B102330003	BOM	NMIL	1	0.132621	0.132621
2	B102330005	BOM	NMIL	1	0.125731	0.125731
3	B102620003	BOM	NMIL	1	0.074349	0.074349
4	B103180007	BOM	NMIL	1	0.044939	0.044939
5	B103430007	BOM	NMIL	1	0.071032	0.071032
6	B103690002	BOM	NMIL	1	0.128027	0.128027
7	B103690003	BOM	NMIL	1	0.008316	0.008316
8	B103690004	BOM	NMIL	1	1.222003	1.222003
9	B103690062	BOM	NMIL	1	0.039645	0.039645
10	B200000001	BOM	SPECIAL	1	0.094935	0.094935
11	B200000296	BOM	SPECIAL	1	0.094935	0.094935
12	B200000332	BOM	SPECIAL	2	0.094935	0.189870
13	B200000333	BOM	SPECIAL	1	0.094935	0.094935
14	B200000364	BOM	SPECIAL	1	0.094935	0.094935
15	B200010052	BOM	NMIL	4	0.000798	0.003192
16	B200010091	BOM	NMIL	1	0.000801	0.000801
17	B200010098	BOM	NMIL	1	0.000798	0.000798
18	B200010105	BOM	NMIL	7	0.031524	0.220668
19	B200010109	BOM	NMIL	7	0.000798	0.005586
20	B200010147	BOM	NMIL	4	0.031524	0.126096
21	B200020017	BOM	NMIL	2	0.005156	0.010312
22	B200020020	BOM	NMIL	2	0.005156	0.010312
23	B200020021	BOM	NMIL	1	0.006751	0.006751
24	B200030037	BOM	NMIL	2	0.007617	0.015234

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25	B200040053	BOM	NMIL	1	0.016175	0.016175
26	B200040065	BOM	NMIL	1	0.005967	0.005967
27	B200040073	BOM	NMIL	13	0.005967	0.077571
28	B200040083	BOM	NMIL	1	0.016175	0.016175
29	B200040085	BOM	NMIL	1	0.016175	0.016175
30	B200050024	BOM	NMIL	1	0.005218	0.005218
31	B200050032	BOM	NMIL	7	0.005218	0.036526
32	B200050070	BOM	NMIL	2	0.005218	0.010436
33	B200060009	BOM	NMIL	1	0.014666	0.014666
34	B200070008	BOM	NMIL	2	0.008385	0.016770
35	B200090005	BOM	NMIL	1	0.001518	0.001518
36	B200110006	BOM	NMIL	2	0.004650	0.009300
37	B200110042	BOM	NMIL	6	0.004650	0.027900
38	B200110095	BOM	NMIL	10	0.004650	0.046500
39	B200110120	BOM	NMIL	4	0.004650	0.018600
40	B200110123	BOM	NMIL	2	0.004650	0.009300
41	B200110172	BOM	NMIL	6	0.004650	0.027900
42	B200110192	BOM	NMIL	2	0.004650	0.009300
43	B200110202	BOM	NMIL	1	0.004650	0.004650
44	B200110223	BOM	NMIL	4	0.005115	0.020460
45	B200110227	BOM	NMIL	6	0.004650	0.027900
46	B200110235	BOM	NMIL	3	0.004650	0.013950
47	B200110276	BOM	NMIL	4	0.004650	0.018600
48	B200110279	BOM	NMIL	2	0.004650	0.009300
49	B200110282	BOM	NMIL	5	0.004650	0.023250
50	B200110311	BOM	NMIL	1	0.004650	0.004650
51	B200110313	BOM	NMIL	1	0.004650	0.004650
52	B200110489	BOM	NMIL	1	0.004650	0.004650
53	B200110493	BOM	NMIL	6	0.005115	0.030690
54	B200110494	BOM	NMIL	2	0.004650	0.009300
55	B200110502	BOM	NMIL	1	0.004650	0.004650
56	B200110503	BOM	NMIL	1	0.005115	0.005115
57	B200110506	BOM	NMIL	2	0.004650	0.009300
58	B200110524	BOM	NMIL	1	0.004650	0.004650
59	B200110525	BOM	NMIL	1	0.004650	0.004650
60	B200110551	BOM	NMIL	1	0.004650	0.004650
61	B200110583	BOM	NMIL	1	0.004650	0.004650
62	B200110608	BOM	NMIL	3	0.007440	0.022320
63	B200110668	BOM	NMIL	1	0.004650	0.004650
64	B200120170	BOM	NMIL	1	0.010780	0.010780
65	B200120171	BOM	NMIL	1	0.011030	0.011030
66	B200160028	BOM	NMIL	1	0.065000	0.065000
67	B200170018	BOM	NMIL	2	0.004875	0.009750
68	B200170032	BOM	NMIL	3	0.004875	0.014625

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69	B200180075	BOM	N/A	2	0.008923	0.017846
70	B200180079	BOM	N/A	1	0.008923	0.008923
71	B200190024	BOM	N/A	1	0.015889	0.015889
72	B200190065	BOM	N/A	1	0.014104	0.014104
73	B200200012	BOM	N/A	2	0.009203	0.018406
74	B200200017	BOM	N/A	8	0.011856	0.094848
75	B200200053	BOM	N/A	4	0.014056	0.056224
76	B200200057	BOM	N/A	1	0.018108	0.018108
77	B200200060	BOM	N/A	4	0.012930	0.051720
78	B200200062	BOM	N/A	1	0.007791	0.007791
79	B200200069	BOM	N/A	1	0.006575	0.006575
80	B200200096	BOM	N/A	2	0.008147	0.016294
81	B200220010	BOM	N/A	1	0.002761	0.002761
82	B200220021	BOM	N/A	1	0.002337	0.002337
83	B200220036	BOM	N/A	2	0.002647	0.005294
84	B200220041	BOM	N/A	1	0.002198	0.002198
85	B200230226	BOM	N/A	3	0.022322	0.066966
86	B200230277	BOM	N/A	1	0.041659	0.041659
87	B200230337	BOM	N/A	1	0.022135	0.022135
88	B200230356	BOM	N/A	3	0.044266	0.132798
89	B200230381	BOM	N/A	2	0.047309	0.094618
90	B200230383	BOM	N/A	3	0.151034	0.453102
91	B200260231	BOM	NMIL	1	0.027550	0.027550
92	B200260304	BOM	NMIL	1	0.027550	0.027550
93	B200260305	BOM	NMIL	2	0.027550	0.055100
94	B200260316	BOM	NMIL	1	0.027550	0.027550
95	B200280012	BOM	NMIL	2	0.015958	0.031916
96	B200290009	BOM	NMIL	4	0.013740	0.054960
97	B200290011	BOM	NMIL	2	0.013740	0.027480
98	B200300283	BOM	NMIL	1	0.026249	0.026249
99	B200300284	BOM	NMIL	1	0.003860	0.003860
100	B210090211	BOM	KNOWNFR	1	2.182912	2.182912
101	B210160025	BOM	N/A	1	0.010000	0.010000
102	B210191273	N/A	STANDARD	1	0.020588	0.020588

Total Failure Rate (F/10⁶Hrs) : 7.176201
Mean Time (in hours) Between Failures (MTBF) : 139,349