



ZIPPY TECHNOLOGY CORP.

**Mean Time Between Failures
PREDICTION REPORT**

MIL-HDBK-217F, Notice 2

Product : Redundant Switching Power Supply

Model/Type : M1K2-5A01V4H(RoHS)

Approval By	<i>Michael Chang</i>	正 式 資 料 用 章	A red circular stamp with a double border. Inside, the text '正式資料' (Official Document) is at the top, 'OCT-16-2018' is in the middle, and '研發本部' (R&D Department) is at the bottom.
Prepared By	<i>Jain Huan Lin</i>		

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: OCT-16-2018
End Item Title : M1K2 SERIES MTBF
End Item Part Number : M1K2-5A01V4H(RoHS)
M1K2-5A01V4H(RoHS) MTBF : 193,743
Module Title: ZIPPY TECHNOLOGY CORP
Module Part Number : M1K / MTBF
Power Unit Module : M1K-2A00V(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.

$$\text{Total Failure Rate}(F) = M \lambda / (3/2) + B \lambda = 6.948257 / (3/2) + 0.529302 = 5.161473$$

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

$$M1K2-5A01V4H(RoHS)(MTBF) = F / 10^6 \text{ (Hrs)} = 1 / (5.161473 / 10^6) = 193,743$$

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RELIABILITY PREDICTION STANDARD REPORT
(Sorted by Part Number)
MIL-HDBK-217F, Notice 2

Date : MAY-06-2010 Time : 16:25:53
End Item Title : M1K SERIES MTBF
End Item Part Number : M1K-2A00V(RoHS)
M1K-2A00V(RoHS) MTBF : 143,921
Module Title : ZIPPY TECHNOLOGY CORP
Module Part Number : M1K / MTBF
Module Reference Designation : M1K
Environmental Condition : GB
Ambient Temperature: 25°C

M1K-2A00V(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	B200000001	BOM	SPECIAL	1	0.094935	0.094935
10	B200000296	BOM	SPECIAL	1	0.094935	0.094935
11	B200000332	BOM	SPECIAL	2	0.094935	0.189870
12	B200000333	BOM	SPECIAL	1	0.094935	0.094935
13	B200000364	BOM	SPECIAL	1	0.094935	0.094935
14	B200010052	BOM	NMIL	4	0.000798	0.003192
15	B200010091	BOM	NMIL	1	0.000798	0.000798
16	B200010098	BOM	NMIL	1	0.000798	0.000798
17	B200010105	BOM	NMIL	7	0.031398	0.219786
18	B200010109	BOM	NMIL	7	0.000798	0.005586
19	B200010147	BOM	NMIL	4	0.031398	0.125592
20	B200020017	BOM	NMIL	2	0.005156	0.010312
21	B200020020	BOM	NMIL	2	0.005156	0.010312
22	B200020021	BOM	NMIL	1	0.006751	0.006751
23	B200030037	BOM	NMIL	2	0.007617	0.015234
24	B200040053	BOM	NMIL	1	0.016111	0.016111

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ITEM #	Part Number	Ref Desig	Qual Level	Quant	Individual Failure Rate (F/10 ⁶ Hrs)	Total Failure Rate (F/10 ⁶ Hrs)
25	B200040065	BOM	NMIL	1	0.005967	0.005967
26	B200040073	BOM	NMIL	13	0.005967	0.077571
27	B200040083	BOM	NMIL	1	0.016111	0.016111
28	B200040085	BOM	NMIL	1	0.016111	0.016111
29	B200050024	BOM	NMIL	1	0.005218	0.005218
30	B200050032	BOM	NMIL	7	0.005218	0.036526
31	B200050070	BOM	NMIL	2	0.005218	0.010436
32	B200060009	BOM	NMIL	1	0.014607	0.014607
33	B200070008	BOM	NMIL	2	0.008352	0.016703
34	B200090005	BOM	NMIL	1	0.001518	0.001518
35	B200110006	BOM	NMIL	2	0.004650	0.009300
36	B200110042	BOM	NMIL	6	0.004650	0.027900
37	B200110095	BOM	NMIL	10	0.004650	0.046500
38	B200110120	BOM	NMIL	4	0.004650	0.018600
39	B200110123	BOM	NMIL	2	0.004650	0.009300
40	B200110172	BOM	NMIL	6	0.004650	0.027900
41	B200110192	BOM	NMIL	2	0.004650	0.009300
42	B200110202	BOM	NMIL	1	0.004650	0.004650
43	B200110223	BOM	NMIL	4	0.005115	0.020460
44	B200110227	BOM	NMIL	6	0.004650	0.027900
45	B200110235	BOM	NMIL	3	0.004650	0.013950
46	B200110276	BOM	NMIL	4	0.004650	0.018600
47	B200110279	BOM	NMIL	2	0.004650	0.009300
48	B200110282	BOM	NMIL	5	0.004650	0.023250
49	B200110311	BOM	NMIL	1	0.004650	0.004650
50	B200110313	BOM	NMIL	1	0.004650	0.004650
51	B200110489	BOM	NMIL	1	0.004650	0.004650
52	B200110493	BOM	NMIL	6	0.005115	0.030690
53	B200110494	BOM	NMIL	2	0.004650	0.009300
54	B200110502	BOM	NMIL	1	0.004650	0.004650
55	B200110503	BOM	NMIL	1	0.005115	0.005115
56	B200110506	BOM	NMIL	2	0.004650	0.009300
57	B200110524	BOM	NMIL	1	0.004650	0.004650
58	B200110525	BOM	NMIL	1	0.004650	0.004650
59	B200110551	BOM	NMIL	1	0.004650	0.004650
60	B200110583	BOM	NMIL	1	0.004650	0.004650
61	B200110608	BOM	NMIL	3	0.007440	0.022320
62	B200110668	BOM	NMIL	1	0.004650	0.004650
63	B200120170	BOM	NMIL	1	0.010780	0.010780
64	B200120171	BOM	NMIL	1	0.011030	0.011030

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ITEM #	Part Number	Ref Desig	Qual Level	Quant	Individual Failure Rate (F/10 ⁶ Hrs)	Total Failure Rate (F/10 ⁶ Hrs)
65	B200160028	BOM	NMIL	1	0.065000	0.065000
66	B200170018	BOM	NMIL	2	0.004875	0.009750
67	B200170032	BOM	NMIL	3	0.004875	0.014625
68	B200180075	BOM	N/A	2	0.008923	0.017846
69	B200180079	BOM	N/A	1	0.008923	0.008923
70	B200190024	BOM	N/A	1	0.015889	0.015889
71	B200190065	BOM	N/A	1	0.014104	0.014104
72	B200200012	BOM	N/A	2	0.009203	0.018406
73	B200200017	BOM	N/A	8	0.011856	0.094848
74	B200200053	BOM	N/A	4	0.014056	0.056224
75	B200200057	BOM	N/A	1	0.018108	0.018108
76	B200200060	BOM	N/A	4	0.012930	0.051720
77	B200200062	BOM	N/A	1	0.007791	0.007791
78	B200200069	BOM	N/A	1	0.006575	0.006575
79	B200200096	BOM	N/A	2	0.008147	0.016294
80	B200220010	BOM	N/A	1	0.002761	0.002761
81	B200220021	BOM	N/A	1	0.002337	0.002337
82	B200220036	BOM	N/A	2	0.002647	0.005294
83	B200220041	BOM	N/A	1	0.002198	0.002198
84	B200230226	BOM	N/A	3	0.022233	0.066699
85	B200230277	BOM	N/A	1	0.041493	0.041493
86	B200230337	BOM	N/A	1	0.022047	0.022047
87	B200230356	BOM	N/A	3	0.044090	0.132270
88	B200230381	BOM	N/A	2	0.047121	0.094242
89	B200230383	BOM	N/A	3	0.150432	0.451296
90	B200260231	BOM	NMIL	1	0.027440	0.027440
91	B200260304	BOM	NMIL	1	0.027440	0.027440
92	B200260305	BOM	NMIL	2	0.027440	0.054880
93	B200260316	BOM	NMIL	1	0.027440	0.027440
94	B200280012	BOM	NMIL	2	0.015958	0.031916
95	B200290009	BOM	NMIL	4	0.013740	0.054960
96	B200290011	BOM	NMIL	2	0.013740	0.027480
97	B200300283	BOM	NMIL	1	0.026144	0.026144
98	B200300284	BOM	NMIL	1	0.003845	0.003845
99	B210090139	BOM	KNOWNFR	1	2.000220	2.000220
100	B210160025	BOM	N/A	1	0.010000	0.010000
101	B210191273	N/A	STANDARD	1	0.020588	0.020588

Total Failure Rate (F/10⁶Hrs) : 6.948257

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ITEM #	Part Number	Ref Desig	Qual Level	Quant	Individual Failure Rate (F/10 ⁶ Hrs)	Total Failure Rate (F/10 ⁶ Hrs)
Mean Time (in hours) Between Failures (MTBF) :						143,921