




ZIPPY TECHNOLOGY CORP.

**Mean Time Between Failures
PREDICTION REPORT**

MIL-HDBK-217E, Notice 2

Product : Redundant Switching Power Supply

Model/Type : M1R2-5700K2H(RoHS)(PMBus WP1.2)

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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: MAR-09-2018
End Item Title : M1R2 SERIES MTBF
End Item Part Number : M1R2-5700K2H(RoHS)(PMBus WP1.2)
M1R2-5700K2H(RoHS)(PMBus WP1.2) MTBF : 231,576
Module Title: ZIPPY TECHNOLOGY CORP
Module Part Number : M1R / MTBF
Power Unit Module : M1R-2700K2(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.

$$\text{Total Failure Rate}(F) = M \lambda / (3/2) + B \lambda = 5.436235 / (3/2) + 0.694086 = 4.318243$$

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

$$\text{M1R2-5700K2H(RoHS)(PMBus WP1.2)(MTBF)} = F / 10^6 \text{ (Hrs)} = 1 / (4.318243 / 10^6) = 231,576$$

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

Date : MAR-09-2018 Time : 11:14:32
End Item Title : M1R SERIES MTBF
End Item Part Number : M1R-2700K2(RoHS)(PMBus WP1.2)
M1R-2700K2(RoHS)(PMBus WP1.2) MTBF : 183,951
Module Title : ZIPPY TECHNOLOGY CORP
Module Part Number : M1R / MTBF
Module Reference Designation : M1R
Environmental Condition : GB
Ambient Temperature: 25°C

M1R-2700K2(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	B105190088	BOM	SPECIAL	1	0.339641	0.339641
2	B105190091	BOM	SPECIAL	1	0.270313	0.270313
3	B105190092	BOM	SPECIAL	1	0.536205	0.536205
4	B105190095	BOM	SPECIAL	1	0.218347	0.218347
5	B200000627	BOM	NMIL	1	0.008946	0.008946
6	B200000637	BOM	NMIL	1	0.006974	0.006974
7	B200010052	BOM	NMIL	2	0.000337	0.000674
8	B200010109	BOM	NMIL	4	0.000723	0.002892
9	B200010167	BOM	NMIL	2	0.000747	0.001494
10	B200010252	BOM	NMIL	6	0.072168	0.433008
11	B200010253	BOM	NMIL	2	0.062906	0.125812
12	B200010254	BOM	NMIL	2	0.062906	0.125812
13	B200010260	BOM	NMIL	2	0.000674	0.001348
14	B200010262	BOM	NMIL	3	0.072168	0.216504
15	B200020024	BOM	NMIL	1	0.002332	0.002332
16	B200020034	BOM	NMIL	1	0.016175	0.016175
17	B200030069	BOM	NMIL	2	0.002308	0.004616
18	B200030107	BOM	NMIL	1	0.002308	0.002308
19	B200040065	BOM	NMIL	1	0.011646	0.011646
20	B200040073	BOM	NMIL	6	0.011646	0.069876
21	B200040147	BOM	NMIL	1	0.017529	0.017529
22	B200050032	BOM	NMIL	1	0.003013	0.003013
23	B200060030	BOM	NMIL	1	0.008783	0.008783
24	B200090005	BOM	NMIL	1	0.001476	0.001476

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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	B200110006	BOM	NMIL	2	0.002896	0.005792
26	B200110042	BOM	NMIL	6	0.002210	0.013260
27	B200110128	BOM	NMIL	1	0.001551	0.001551
28	B200110223	BOM	NMIL	4	0.003039	0.012156
29	B200110235	BOM	NMIL	2	0.002896	0.005792
30	B200110279	BOM	NMIL	1	0.002210	0.002210
31	B200110317	BOM	NMIL	1	0.002896	0.002896
32	B200110325	BOM	NMIL	2	0.002896	0.005792
33	B200110490	BOM	NMIL	1	0.002210	0.002210
34	B200110496	BOM	NMIL	1	0.002210	0.002210
35	B200110501	BOM	NMIL	1	0.002210	0.002210
36	B200110503	BOM	NMIL	1	0.002210	0.002210
37	B200110550	BOM	NMIL	2	0.002210	0.004420
38	B200110574	BOM	NMIL	1	0.002319	0.002319
39	B200110635	BOM	NMIL	2	0.002210	0.004420
40	B200110652	BOM	NMIL	1	0.002210	0.002210
41	B200110733	BOM	NMIL	1	0.002026	0.002026
42	B200110737	BOM	NMIL	2	0.002210	0.004420
43	B200110743	BOM	NMIL	1	0.002026	0.002026
44	B200110789	BOM	NMIL	1	0.002210	0.002210
45	B200110864	BOM	NMIL	1	0.002026	0.002026
46	B200111088	BOM	NMIL	1	0.002896	0.002896
47	B200111099	BOM	NMIL	2	0.002210	0.004420
48	B200160022	BOM	NMIL	1	0.009711	0.009711
49	B200170018	BOM	NMIL	2	0.003177	0.006354
50	B200170069	BOM	NMIL	3	0.003177	0.009531
51	B200180092	BOM	NMIL	1	0.001845	0.001845
52	B200180095	BOM	NMIL	2	0.001907	0.003814
53	B200190065	BOM	NMIL	1	0.010191	0.010191
54	B200190100	BOM	NMIL	1	0.013004	0.013004
55	B200200070	BOM	NMIL	1	0.007077	0.007077
56	B200200083	BOM	NMIL	1	0.004199	0.004199
57	B200200092	BOM	NMIL	23	0.009620	0.221260
58	B200200126	BOM	NMIL	2	0.010356	0.020712
59	B200200156	BOM	NMIL	2	0.006356	0.012712
60	B200200204	BOM	NMIL	1	0.007306	0.007306
61	B200200205	BOM	NMIL	1	0.007820	0.007820
62	B200200208	BOM	NMIL	1	0.006356	0.006356
63	B200210007	BOM	NMIL	1	0.021267	0.021267
64	B200220010	BOM	NMIL	1	0.003943	0.003943

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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	B200220073	BOM	NMIL	1	0.002605	0.002605
66	B200220074	BOM	NMIL	1	0.002117	0.002117
67	B200220082	BOM	NMIL	5	0.001208	0.006040
68	B200230354	BOM	NMIL	2	0.011110	0.022220
69	B200230542	BOM	NMIL	2	0.021203	0.042406
70	B200240010	BOM	NMIL	2	0.004594	0.009188
71	B200250018	BOM	NMIL	1	0.015026	0.015026
72	B200260332	BOM	NMIL	1	0.024955	0.024955
73	B200260401	BOM	NMIL	1	0.019139	0.019139
74	B200280012	BOM	NMIL	1	0.000623	0.000623
75	B200290015	BOM	NMIL	2	0.011159	0.022318
76	B200300480	BOM	NMIL	1	0.029476	0.029476
77	B200300481	BOM	NMIL	1	0.004607	0.004607
78	B200310019	BOM	NMIL	1	0.005023	0.005023
79	B200370051	BOM	NMIL	1	0.001196	0.001196
80	B200370085	BOM	NMIL	1	0.001196	0.001196
81	B210060136	BOM	NMIL	1	0.024396	0.024396
82	B210090240	BOM	SPECIAL	1	2.276868	2.276868
83	B210160002	BOM	NMIL	1	0.010000	0.010000
84	B210192701	BOM	NMIL	1	0.031846	0.031846
85	B210192704	BOM	NMIL	1	0.000482	0.000482

Total Failure Rate (F/10⁶Hrs) : 5.436235
 Mean Time (in hours) Between Failures (MTBF) : **183,951**