



ZIPPY TECHNOLOGY CORP.

Mean Time Between Failures PREDICTION REPORT

MIL-HDBK-217F, Notice 2

Product : Redundant Switching Power Supply

Model/Type : R1U2-5700K2H(RoHS)(PMBus WP1.2)

Approval By		正式 資料 用 章	
Prepared By			

ZIPPY TECHNOLOGY CORP.
6F.,NO.48,WUQUAN RD.,
WUGU 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: DEC-16-2022
End Item Title : R1U2 SERIES MTBF
End Item Part Number : R1U2-5700K2H(RoHS)(PMBus WP1.2)
R1U2-5700K2H(RoHS)(PMBus WP1.2) MTBF : 235,082
Module Title: ZIPPY TECHNOLOGY CORP
Module Part Number : R1U / MTBF
Power Unit Module : R1U-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.

$$\text{Total Failure Rate}(F) = M\lambda / (3/2) + B\lambda = 5.339616 / (3/2) + 0.694086 = 4.253830$$

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

$$R1U2-5700K2H(RoHS)(PMBus WP1.2)(MTBF) = F/10^6 \text{ (Hrs)} = 1/(4.253830/10^6) = 235,082$$

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

Date : DEC-16-2022 Time : 10:41:32
End Item Title : R1U SERIES MTBF
End Item Part Number : R1U-2700K2(RoHS)(PMBus WP1.2)
R1U-2700K2(RoHS)(PMBus WP1.2) MTBF : 187,279
Module Title : ZIPPY TECHNOLOGY CORP
Module Part Number : R1U / MTBF
Module Reference Designation : R1U
Environmental Condition : GB
Ambient Temperature: 25°C

R1U-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	B106080037	BOM	SPECIAL	1	0.290589	0.290589
2	B106080045	BOM	SPECIAL	1	0.111854	0.111854
3	B106080046	BOM	SPECIAL	1	0.868599	0.868599
4	B106670019	BOM	SPECIAL	1	0.199806	0.199806
5	B200000308	BOM	NMIL	2	0.013289	0.026578
6	B200000574	BOM	NMIL	1	0.005806	0.005806
7	B200000776	BOM	NMIL	1	0.005248	0.005248
8	B200010068	BOM	NMIL	1	0.072552	0.072552
9	B200010243	BOM	NMIL	6	0.072168	0.433008
10	B200010259	BOM	NMIL	2	0.076326	0.152652
11	B200010266	BOM	NMIL	1	0.078929	0.078929
12	B200010269	BOM	NMIL	3	0.000652	0.001956
13	B200010270	BOM	NMIL	4	0.000652	0.002608
14	B200020024	BOM	NMIL	1	0.002332	0.002332
15	B200020048	BOM	NMIL	1	0.000755	0.000755
16	B200030069	BOM	NMIL	1	0.002308	0.002308
17	B200030081	BOM	NMIL	1	0.001224	0.001224
18	B200030083	BOM	NMIL	1	0.002308	0.002308
19	B200040073	BOM	NMIL	8	0.011646	0.093168
20	B200040120	BOM	NMIL	1	0.011646	0.011646
21	B200040133	BOM	NMIL	2	0.011646	0.023292
22	B200040150	BOM	NMIL	1	0.011646	0.011646
23	B200040173	BOM	NMIL	1	0.003901	0.003901
24	B200050081	BOM	NMIL	5	0.003013	0.015065

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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	B200050084	BOM	NMIL	1	0.003013	0.003013
26	B200050088	BOM	NMIL	1	0.003013	0.003013
27	B200060029	BOM	NMIL	1	0.014225	0.014225
28	B200090055	BOM	NMIL	1	0.001476	0.001476
29	B200110001	BOM	NMIL	1	0.002896	0.002896
30	B200110035	BOM	NMIL	1	0.002896	0.002896
31	B200110123	BOM	NMIL	1	0.002210	0.002210
32	B200110128	BOM	NMIL	1	0.001551	0.001551
33	B200110162	BOM	NMIL	1	0.002896	0.002896
34	B200110177	BOM	NMIL	1	0.002896	0.002896
35	B200110185	BOM	NMIL	1	0.002896	0.002896
36	B200110192	BOM	NMIL	1	0.002210	0.002210
37	B200110235	BOM	NMIL	1	0.002896	0.002896
38	B200110279	BOM	NMIL	1	0.002210	0.002210
39	B200110282	BOM	NMIL	1	0.002896	0.002896
40	B200110337	BOM	NMIL	2	0.003039	0.006078
41	B200110473	BOM	NMIL	3	0.002896	0.008688
42	B200110530	BOM	NMIL	1	0.002210	0.002210
43	B200110544	BOM	NMIL	1	0.002210	0.002210
44	B200110580	BOM	NMIL	2	0.002319	0.004638
45	B200110608	BOM	NMIL	3	0.002835	0.008505
46	B200110709	BOM	NMIL	1	0.002026	0.002026
47	B200110715	BOM	NMIL	2	0.002896	0.005792
48	B200110733	BOM	NMIL	6	0.002026	0.012156
49	B200110734	BOM	NMIL	2	0.002026	0.004052
50	B200110737	BOM	NMIL	2	0.002210	0.004420
51	B200110738	BOM	NMIL	5	0.002026	0.010130
52	B200110739	BOM	NMIL	1	0.002026	0.002026
53	B200110775	BOM	NMIL	1	0.002026	0.002026
54	B200110777	BOM	NMIL	1	0.002026	0.002026
55	B200110797	BOM	NMIL	1	0.002126	0.002126
56	B200110808	BOM	NMIL	1	0.002026	0.002026
57	B200110811	BOM	NMIL	1	0.002026	0.002026
58	B200110814	BOM	NMIL	1	0.002026	0.002026
59	B200110819	BOM	NMIL	1	0.002026	0.002026
60	B200110846	BOM	NMIL	1	0.002126	0.002126
61	B200110870	BOM	NMIL	1	0.002126	0.002126
62	B200110872	BOM	NMIL	1	0.002026	0.002026
63	B200110891	BOM	NMIL	1	0.002126	0.002126
64	B200110928	BOM	NMIL	1	0.002026	0.002026

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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	B200111016	BOM	NMIL	1	0.002026	0.002026
66	B200111024	BOM	NMIL	1	0.002026	0.002026
67	B200120170	BOM	NMIL	1	0.004786	0.004786
68	B200160009	BOM	NMIL	1	0.007893	0.007893
69	B200160017	BOM	NMIL	1	0.004760	0.004760
70	B200170024	BOM	NMIL	3	0.002840	0.008520
71	B200170055	BOM	NMIL	1	0.003721	0.003721
72	B200170074	BOM	NMIL	2	0.002840	0.005680
73	B200180095	BOM	NMIL	1	0.001907	0.001907
74	B200180108	BOM	NMIL	1	0.001974	0.001974
75	B200190064	BOM	NMIL	1	0.012538	0.012538
76	B200200075	BOM	NMIL	1	0.009676	0.009676
77	B200200116	BOM	NMIL	4	0.004199	0.016796
78	B200200140	BOM	NMIL	1	0.003664	0.003664
79	B200200142	BOM	NMIL	1	0.007306	0.007306
80	B200200158	BOM	NMIL	1	0.004508	0.004508
81	B200200170	BOM	NMIL	2	0.007306	0.014612
82	B200200193	BOM	NMIL	1	0.004827	0.004827
83	B200200197	BOM	NMIL	1	0.005939	0.005939
84	B200200207	BOM	NMIL	1	0.005166	0.005166
85	B200200208	BOM	NMIL	4	0.006356	0.025424
86	B200200213	BOM	NMIL	1	0.004224	0.004224
87	B200220020	BOM	NMIL	1	0.003440	0.003440
88	B200220082	BOM	NMIL	3	0.001208	0.003624
89	B200220087	BOM	NMIL	2	0.001125	0.002250
90	B200230263	BOM	NMIL	3	0.001314	0.003942
91	B200230281	BOM	NMIL	1	0.008808	0.008808
92	B200230288	BOM	NMIL	1	0.001298	0.001298
93	B200230381	BOM	NMIL	1	0.007031	0.007031
94	B200230465	BOM	NMIL	1	0.022120	0.022120
95	B200230524	BOM	NMIL	2	0.001875	0.003750
96	B200230537	BOM	NMIL	3	0.013551	0.040653
97	B200230608	BOM	NMIL	1	0.009361	0.009361
98	B200230633	BOM	NMIL	1	0.001727	0.001727
99	B200240012	BOM	NMIL	1	0.005171	0.005171
100	B200250009	BOM	NMIL	1	0.012728	0.012728
101	B200260382	BOM	NMIL	1	0.022528	0.022528
102	B200260413	BOM	NMIL	1	0.011448	0.011448
103	B200260475	BOM	NMIL	1	0.010585	0.010585
104	B200280012	BOM	NMIL	1	0.000623	0.000623

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105	B200300476	BOM	NMIL	1	0.003771	0.003771
106	B200300540	BOM	NMIL	1	0.098317	0.098317
107	B200310019	BOM	NMIL	1	0.005441	0.005441
108	B200370088	BOM	NMIL	1	0.001373	0.001373
109	B200370115	BOM	NMIL	1	0.001196	0.001196
110	B210060136	BOM	NMIL	1	0.024396	0.024396
111	B210090240	BOM	SPECIAL	1	2.276868	2.276868
112	B210160060	BOM	NMIL	1	0.010000	0.010000
113	B210193608	BOM	NMIL	1	0.023541	0.023541

Total Failure Rate (F/10⁶Hrs) : 5.339616
Mean Time (in hours) Between Failures (MTBF) : **187,279**