



ZIPPY TECHNOLOGY CORP.

Mean Time Between Failures PREDICTION REPORT

MIL-HDBK-217F, Notice 2

Product : Redundant Switching Power Supply

Model/Type : DM1K2-5AF0V2H(RoHS)(PMBus WP1.2)

Approval By	<i>Matthew - Chiu</i>	正式 資料 用 章	A red circular stamp with a double-line border. Inside, the text '正式資料' (Official Document) is at the top, 'DEC-22-2021' is in the middle, and '研發本部' (R&D Department) is at the bottom, all in red Chinese characters.
Prepared By	<i>Tain Huan Lin</i>		

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-21-2021
End Item Title : DM1K2 SERIES MTBF
End Item Part Number : DM1K2-5AF0V2H(RoHS)(PMBus WP1.2)
DM1K2-5AF0V2H(RoHS)(PMBus WP1.2) MTBF : 176,636
Module Title: ZIPPY TECHNOLOGY CORP
Module Part Number : DM1K / MTBF
Power Unit Module : DM1K-2AF0V2(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.

$$\text{Total Failure Rate}(F) = M\lambda^{(3/2)} + B\lambda = 7.816791/(3/2) + 0.450172 = 5.661366$$

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

$$\text{DM1K2-5AF0V2H(RoHS)(PMBus WP1.2)(MTBF)} = F/10^6 \text{ (Hrs)} = 1/(5.661366/10^6) = 176,636$$

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

Date : DEC-21-2021 Time : 10:29:38
End Item Title : DM1K SERIES MTBF
End Item Part Number : DM1K-2AF0V2(RoHS)(PMBus WP1.2)
DM1K-2AF0V2(RoHS)(PMBus WP1.2) MTBF : 127,930
Module Title : ZIPPY TECHNOLOGY CORP
Module Part Number : DM1K / MTBF
Module Reference Designation : DM1K
Environmental Condition : GB
Ambient Temperature: 25°C

DM1K-2AF0V2(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	B106800003	BOM	SPECIAL	1	1.470691	1.470691
2	B106800004	BOM	SPECIAL	1	0.321421	0.321421
3	B106800005	BOM	SPECIAL	1	0.512498	0.512498
4	B106800006	BOM	SPECIAL	1	0.478373	0.478373
5	B106800007	BOM	SPECIAL	1	1.002490	1.002490
6	B106800008	BOM	SPECIAL	1	0.033029	0.033029
7	B200000637	BOM	NMIL	1	0.006974	0.006974
8	B200000640	BOM	NMIL	3	0.006522	0.019566
9	B200000737	BOM	NMIL	2	0.008063	0.016126
10	B200010167	BOM	NMIL	2	0.000648	0.001296
11	B200010192	BOM	NMIL	1	0.009694	0.009694
12	B200010249	BOM	NMIL	2	0.001157	0.002314
13	B200010262	BOM	NMIL	2	0.072168	0.144336
14	B200010291	BOM	NMIL	4	0.072168	0.288672
15	B200010324	BOM	NMIL	7	0.049461	0.346227
16	B200030115	BOM	NMIL	4	0.000712	0.002848
17	B200040065	BOM	NMIL	1	0.008485	0.008485
18	B200040139	BOM	NMIL	2	0.015829	0.031658
19	B200040141	BOM	NMIL	11	0.008485	0.093335
20	B200040151	BOM	NMIL	1	0.008485	0.008485
21	B200040152	BOM	NMIL	1	0.014427	0.014427
22	B200050036	BOM	NMIL	2	0.003013	0.006026
23	B200050070	BOM	NMIL	2	0.003013	0.006026
24	B200050082	BOM	NMIL	1	0.003013	0.003013

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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	2	0.003013	0.006026
26	B200090005	BOM	NMIL	1	0.001476	0.001476
27	B200110042	BOM	NMIL	3	0.002210	0.006630
28	B200110120	BOM	NMIL	1	0.002896	0.002896
29	B200110172	BOM	NMIL	1	0.002896	0.002896
30	B200110202	BOM	NMIL	1	0.002896	0.002896
31	B200110346	BOM	NMIL	1	0.002896	0.002896
32	B200110357	BOM	NMIL	2	0.002896	0.005792
33	B200110432	BOM	NMIL	1	0.003039	0.003039
34	B200110449	BOM	NMIL	1	0.003039	0.003039
35	B200110500	BOM	NMIL	4	0.002210	0.008840
36	B200110508	BOM	NMIL	1	0.002210	0.002210
37	B200110512	BOM	NMIL	7	0.002210	0.015470
38	B200110584	BOM	NMIL	3	0.002896	0.008688
39	B200110729	BOM	NMIL	1	0.002026	0.002026
40	B200110730	BOM	NMIL	6	0.002026	0.012156
41	B200110733	BOM	NMIL	7	0.002026	0.014182
42	B200110737	BOM	NMIL	3	0.002210	0.006630
43	B200110739	BOM	NMIL	5	0.002026	0.010130
44	B200110740	BOM	NMIL	2	0.002026	0.004052
45	B200110744	BOM	NMIL	2	0.002026	0.004052
46	B200110821	BOM	NMIL	2	0.002126	0.004252
47	B200110831	BOM	NMIL	2	0.002026	0.004052
48	B200110835	BOM	NMIL	2	0.002026	0.004052
49	B200110844	BOM	NMIL	2	0.002026	0.004052
50	B200110890	BOM	NMIL	4	0.002026	0.008104
51	B200160053	BOM	NMIL	1	0.008611	0.008611
52	B200160063	BOM	NMIL	1	0.002852	0.002852
53	B200170073	BOM	NMIL	1	0.002424	0.002424
54	B200170074	BOM	NMIL	5	0.002840	0.014200
55	B200200070	BOM	NMIL	1	0.007077	0.007077
56	B200200082	BOM	NMIL	6	0.008395	0.050370
57	B200200085	BOM	NMIL	1	0.007553	0.007553
58	B200200119	BOM	NMIL	1	0.004827	0.004827
59	B200200123	BOM	NMIL	6	0.003413	0.020478
60	B200200141	BOM	NMIL	1	0.007820	0.007820
61	B200200155	BOM	NMIL	1	0.005166	0.005166
62	B200200156	BOM	NMIL	3	0.006356	0.019068
63	B200200174	BOM	NMIL	2	0.006356	0.012712
64	B200200186	BOM	NMIL	1	0.003189	0.003189

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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	B200200205	BOM	NMIL	4	0.007820	0.031280
66	B200200218	BOM	NMIL	8	0.009620	0.076960
67	B200210007	BOM	NMIL	1	0.000166	0.000166
68	B200220010	BOM	NMIL	1	0.003943	0.003943
69	B200220082	BOM	NMIL	1	0.001208	0.001208
70	B200220084	BOM	NMIL	2	0.001294	0.002588
71	B200230472	BOM	NMIL	2	0.013699	0.027398
72	B200230537	BOM	NMIL	3	0.016249	0.048747
73	B200250018	BOM	NMIL	1	0.000231	0.000231
74	B200260421	BOM	NMIL	1	0.000251	0.000251
75	B200260464	BOM	NMIL	1	0.000251	0.000251
76	B200260489	BOM	NMIL	1	0.000251	0.000251
77	B200260490	BOM	NMIL	1	0.000264	0.000264
78	B200260491	BOM	NMIL	1	0.000251	0.000251
79	B200260492	BOM	NMIL	1	0.000217	0.000217
80	B200280023	BOM	NMIL	2	0.000623	0.001246
81	B200290009	BOM	NMIL	2	0.011159	0.022318
82	B200340045	BOM	NMIL	1	0.079074	0.079074
83	B210000120	BOM	NMIL	3	0.002450	0.007350
84	B210090285	BOM	SPECIAL	1	2.276868	2.276868
85	B210160043	BOM	NMIL	2	0.010000	0.020000
86	B210193497	BOM	NMIL	1	0.071038	0.071038

Total Failure Rate (F/10⁶Hrs) : 7.816791
Mean Time (in hours) Between Failures (MTBF) : 127,930