

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: NOV-02-2016
End Item Title : DM1P2 SERIES MTBF
End Item Part Number : DM1P2-5420V4V(RoHS)(PMBus NP1.2)
DM1P2-5420V4V(RoHS)(PMBus NP1.2) MTBF : 208,832
Module Title: ZIPPY TECHNOLOGY CORP
Module Part Number : DM1P / MTBF
Power Unit Module : DM1P-2420V(RoHS)(PMBus NP1.2)
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.

$$\text{Total Failure Rate}(F) = M \lambda / (3/2) + B \lambda = 6.086206 / (3/2) + 0.731046 = 4.788517$$

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

$$\text{DM1P2-5420V4V(RoHS)(PMBus NP1.2)(MTBF)} = F / 10^6 \text{ (Hrs)} = 1 / (4.788517 / 10^6) = 208,832$$

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(Sorted by Part Number)
MIL-HDBK-217F, Notice 2

Date : NOV-02-2016 Time : 13:48:36
End Item Title : DM1P SERIES MTBF
End Item Part Number : DM1P-2420V(RoHS)(PMBus NP1.2)
DM1P-2420V(RoHS)(PMBus NP1.2) MTBF : 164,306
Module Title : ZIPPY TECHNOLOGY CORP
Module Part Number : DM1P / MTBF
Module Reference Designation : DM1P
Environmental Condition : GB
Ambient Temperature: 25°C

DM1P-2420V(RoHS)(PMBus NP1.2)

ITEM #	Part Number	Ref Desig	Qual Level	Quant	Individual Failure Rate (F/10 ⁶ Hrs)	Total Failure Rate (F/10 ⁶ Hrs)
1	B102330004	BOM	NMIL	1	0.069564	0.069564
2	B103120002	BOM	NMIL	1	0.080219	0.080219
3	B103210004	BOM	NMIL	1	0.065162	0.065162
4	B104090003	BOM	NMIL	1	0.132621	0.132621
5	B104170002	BOM	NMIL	1	0.220943	0.220943
6	B104170009	BOM	NMIL	1	0.026034	0.026034
7	B200000001	BOM	SPECIAL	3	0.094935	0.284805
8	B200000080	BOM	SPECIAL	3	0.094935	0.284805
9	B200000144	BOM	SPECIAL	1	0.094935	0.094935
10	B200000207	BOM	SPECIAL	1	0.094935	0.094935
11	B200000257	BOM	SPECIAL	1	0.094935	0.094935
12	B200000268	BOM	SPECIAL	1	0.094935	0.094935
13	B200000308	BOM	SPECIAL	1	0.094935	0.094935
14	B200000316	BOM	SPECIAL	1	0.094935	0.094935
15	B200000377	BOM	SPECIAL	1	0.094935	0.094935
16	B200010009	BOM	NMIL	1	0.000798	0.000798
17	B200010022	BOM	NMIL	1	0.000798	0.000798
18	B200010052	BOM	NMIL	1	0.000798	0.000798
19	B200010056	BOM	NMIL	3	0.000798	0.002394
20	B200010067	BOM	NMIL	2	0.000798	0.001596
21	B200010080	BOM	NMIL	2	0.030393	0.060786
22	B200010153	BOM	NMIL	2	0.030393	0.060786
23	B200010161	BOM	NMIL	2	0.030393	0.060786
24	B200010162	BOM	NMIL	1	0.030393	0.030393

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25	B200020004	BOM	NMIL	15	0.005156	0.077340
26	B200030018	BOM	NMIL	4	0.007617	0.030468
27	B200030042	BOM	NMIL	1	0.007617	0.007617
28	B200040015	BOM	NMIL	1	0.005967	0.005967
29	B200040059	BOM	NMIL	1	0.005967	0.005967
30	B200040063	BOM	NMIL	1	0.015595	0.015595
31	B200040084	BOM	NMIL	1	0.007656	0.007656
32	B200050024	BOM	NMIL	1	0.005218	0.005218
33	B200050027	BOM	NMIL	2	0.005218	0.010436
34	B200050036	BOM	NMIL	2	0.005218	0.010436
35	B200050040	BOM	NMIL	2	0.005218	0.010436
36	B200090005	BOM	NMIL	1	0.001518	0.001518
37	B200110001	BOM	NMIL	1	0.004650	0.004650
38	B200110022	BOM	NMIL	1	0.004650	0.004650
39	B200110042	BOM	NMIL	8	0.004650	0.037200
40	B200110046	BOM	NMIL	7	0.004650	0.032550
41	B200110073	BOM	NMIL	2	0.005115	0.010230
42	B200110095	BOM	NMIL	1	0.004650	0.004650
43	B200110123	BOM	NMIL	6	0.004650	0.027900
44	B200110172	BOM	NMIL	1	0.004650	0.004650
45	B200110190	BOM	NMIL	3	0.004650	0.013950
46	B200110192	BOM	NMIL	3	0.004650	0.013950
47	B200110227	BOM	NMIL	2	0.004650	0.009300
48	B200110261	BOM	NMIL	2	0.004650	0.009300
49	B200110270	BOM	NMIL	2	0.004650	0.009300
50	B200110276	BOM	NMIL	1	0.004650	0.004650
51	B200110279	BOM	NMIL	2	0.004650	0.009300
52	B200110343	BOM	NMIL	1	0.004650	0.004650
53	B200110488	BOM	NMIL	1	0.004650	0.004650
54	B200110489	BOM	NMIL	1	0.004650	0.004650
55	B200110492	BOM	NMIL	1	0.004650	0.004650
56	B200110493	BOM	NMIL	1	0.005115	0.005115
57	B200110494	BOM	NMIL	3	0.004650	0.013950
58	B200110498	BOM	NMIL	1	0.004650	0.004650
59	B200110501	BOM	NMIL	1	0.004650	0.004650
60	B200110503	BOM	NMIL	1	0.005115	0.005115
61	B200110505	BOM	NMIL	1	0.004650	0.004650
62	B200110508	BOM	NMIL	1	0.004650	0.004650
63	B200110510	BOM	NMIL	1	0.004650	0.004650
64	B200110512	BOM	NMIL	3	0.004650	0.013950

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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	B200110514	BOM	NMIL	1	0.004650	0.004650
66	B200110519	BOM	NMIL	2	0.004650	0.009300
67	B200110523	BOM	NMIL	2	0.004650	0.009300
68	B200110524	BOM	NMIL	1	0.004650	0.004650
69	B200110525	BOM	NMIL	1	0.004650	0.004650
70	B200110544	BOM	NMIL	1	0.004650	0.004650
71	B200110545	BOM	NMIL	1	0.004650	0.004650
72	B200110550	BOM	NMIL	1	0.004650	0.004650
73	B200110551	BOM	NMIL	1	0.004650	0.004650
74	B200110554	BOM	NMIL	4	0.004650	0.018600
75	B200110560	BOM	NMIL	1	0.004650	0.004650
76	B200110561	BOM	NMIL	6	0.004650	0.027900
77	B200110565	BOM	NMIL	1	0.004650	0.004650
78	B200110571	BOM	NMIL	1	0.004650	0.004650
79	B200110588	BOM	NMIL	1	0.004650	0.004650
80	B200110590	BOM	NMIL	1	0.005115	0.005115
81	B200110613	BOM	NMIL	2	0.004650	0.009300
82	B200110627	BOM	NMIL	1	0.005115	0.005115
83	B200110658	BOM	NMIL	2	0.004650	0.009300
84	B200120012	BOM	NMIL	3	0.007735	0.023205
85	B200120017	BOM	NMIL	1	0.009576	0.009576
86	B200120032	BOM	NMIL	1	0.006870	0.006870
87	B200120091	BOM	NMIL	1	0.007735	0.007735
88	B200120174	BOM	NMIL	1	0.004820	0.004820
89	B200160017	BOM	NMIL	1	0.065000	0.065000
90	B200160034	BOM	NMIL	1	0.105000	0.105000
91	B200170020	BOM	NMIL	2	0.004875	0.009750
92	B200170029	BOM	NMIL	3	0.004875	0.014625
93	B200190031	BOM	N/A	1	0.017894	0.017894
94	B200200021	BOM	N/A	5	0.015274	0.076370
95	B200200060	BOM	N/A	1	0.012930	0.012930
96	B200200061	BOM	N/A	3	0.008470	0.025410
97	B200200066	BOM	N/A	1	0.010911	0.010911
98	B200200069	BOM	N/A	1	0.006575	0.006575
99	B200200071	BOM	N/A	1	0.006048	0.006048
100	B200200078	BOM	N/A	1	0.010037	0.010037
101	B200200083	BOM	N/A	3	0.007144	0.021432
102	B200200089	BOM	N/A	4	0.016657	0.066628
103	B200200101	BOM	N/A	1	0.016657	0.016657
104	B200200153	BOM	N/A	3	0.009203	0.027609

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105	B200200156	BOM	N/A	6	0.011856	0.071136
106	B200200157	BOM	N/A	1	0.011856	0.011856
107	B200200158	BOM	N/A	2	0.007791	0.015582
108	B200210007	BOM	N/A	1	0.021805	0.021805
109	B200220018	BOM	N/A	3	0.002416	0.007248
110	B200220020	BOM	N/A	1	0.002337	0.002337
111	B200220028	BOM	N/A	1	0.002647	0.002647
112	B200220071	BOM	N/A	1	0.002767	0.002767
113	B200230198	BOM	N/A	5	0.056347	0.281735
114	B200230210	BOM	N/A	1	0.048892	0.048892
115	B200230276	BOM	N/A	1	0.026537	0.026537
116	B200230277	BOM	N/A	1	0.040165	0.040165
117	B200230338	BOM	N/A	3	0.028198	0.084594
118	B200230370	BOM	N/A	1	0.045051	0.045051
119	B200230377	BOM	N/A	2	0.027670	0.055340
120	B200250009	BOM	NMIL	1	0.022419	0.022419
121	B200260271	BOM	NMIL	1	0.026562	0.026562
122	B200260325	BOM	NMIL	1	0.026562	0.026562
123	B200260327	BOM	NMIL	1	0.026562	0.026562
124	B200300219	BOM	NMIL	1	0.003722	0.003722
125	B200300236	BOM	NMIL	1	0.003722	0.003722
126	B200300269	BOM	NMIL	1	0.003722	0.003722
127	B200300298	BOM	NMIL	1	0.025307	0.025307
128	B210090085	BOM	KNOWNFR	1	1.995000	1.995000
129	B210160052	BOM	N/A	1	0.010000	0.010000
130	B210191504	N/A	STANDARD	1	0.022077	0.022077

Total Failure Rate (F/10⁶Hrs) : 6.086206
 Mean Time (in hours) Between Failures (MTBF) : 164,306