

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-13-2017
End Item Title : DZRP2 SERIES MTBF
End Item Part Number : DZRP2-5600V2V(RoHS)(PMBus NP1.2)
DZRP2-5600V2V(RoHS)(PMBus NP1.2) MTBF : 252,865
Module Title: ZIPPY TECHNOLOGY CORP
Module Part Number : DZRP / MTBF
Power Unit Module : DZRP-2600V2(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.

$$\text{Total Failure Rate}(F) = M \lambda / (3/2) + B \lambda = 5.093511 / (3/2) + 0.558998 = 3.954672$$

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

$$\text{DZRP2-5600V2V(RoHS)(PMBus NP1.2)(MTBF)} = F / 10^6 \text{ (Hrs)} = 1 / (3.954672 / 10^6) = 252,865$$

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

Date : NOV-13-2017 Time : 13:24:42
End Item Title : DZRP SERIES MTBF
End Item Part Number : DZRP-2600V2(RoHS)(PMBus NP1.2)
DZRP-2600V2(RoHS)(PMBus NP1.2) MTBF : 196,328
Module Title : ZIPPY TECHNOLOGY CORP
Module Part Number : DZRP / MTBF
Module Reference Designation : DZRP
Environmental Condition : GB
Ambient Temperature: 25°C

DZRP-2600V2(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	B103210004	BOM	SPECIAL	1	0.075116	0.075116
2	B105970002	BOM	SPECIAL	1	0.135797	0.135797
3	B105970003	BOM	SPECIAL	1	0.216597	0.216597
4	B105970004	BOM	SPECIAL	1	0.146804	0.146804
5	B105970006	BOM	SPECIAL	1	0.243978	0.243978
6	B105970007	BOM	SPECIAL	1	0.047835	0.047835
7	B106080003	BOM	SPECIAL	1	0.104791	0.104791
8	B200000066	BOM	NMIL	1	0.006152	0.006152
9	B200000144	BOM	NMIL	1	0.004901	0.004901
10	B200000296	BOM	NMIL	1	0.005248	0.005248
11	B200000308	BOM	NMIL	4	0.013289	0.053156
12	B200000357	BOM	NMIL	1	0.013289	0.013289
13	B200000364	BOM	NMIL	1	0.020588	0.020588
14	B200000377	BOM	NMIL	1	0.006368	0.006368
15	B200000565	BOM	NMIL	1	0.007379	0.007379
16	B200000603	BOM	NMIL	2	0.005248	0.010496
17	B200000612	BOM	NMIL	1	0.004716	0.004716
18	B200000628	BOM	NMIL	1	0.006015	0.006015
19	B200010022	BOM	NMIL	1	0.000453	0.000453
20	B200010052	BOM	NMIL	10	0.000337	0.003370
21	B200010056	BOM	NMIL	6	0.000323	0.001938
22	B200010162	BOM	NMIL	1	0.073390	0.073390
23	B200010190	BOM	NMIL	1	0.002434	0.002434
24	B200010192	BOM	NMIL	1	0.008014	0.008014

ZIPPY TECHNOLOGY CORP.
10F.,No.50,MINQUAN RD.,
XINDIAN DIST.,NEW TAIPEI CITY,TAIWAN,R.O.C.

ITEM #	Part Number	Ref Desig	Qual Level	Quant	Individual Failure Rate (F/10 ⁶ Hrs)	Total Failure Rate (F/10 ⁶ Hrs)
25	B200010201	BOM	NMIL	4	0.065527	0.262108
26	B200010204	BOM	NMIL	6	0.072168	0.433008
27	B200010238	BOM	NMIL	2	0.073390	0.146780
28	B200020024	BOM	NMIL	4	0.002332	0.009328
29	B200020037	BOM	NMIL	1	0.002332	0.002332
30	B200030107	BOM	NMIL	5	0.002308	0.011540
31	B200040073	BOM	NMIL	12	0.011646	0.139752
32	B200040109	BOM	NMIL	1	0.000261	0.000261
33	B200040120	BOM	NMIL	1	0.011646	0.011646
34	B200040123	BOM	NMIL	1	0.015829	0.015829
35	B200040133	BOM	NMIL	2	0.011646	0.023292
36	B200050036	BOM	NMIL	4	0.003013	0.012052
37	B200050085	BOM	NMIL	1	0.003013	0.003013
38	B200090005	BOM	NMIL	1	0.001476	0.001476
39	B200110042	BOM	NMIL	3	0.002210	0.006630
40	B200110046	BOM	NMIL	1	0.002896	0.002896
41	B200110061	BOM	NMIL	2	0.002896	0.005792
42	B200110120	BOM	NMIL	2	0.002896	0.005792
43	B200110123	BOM	NMIL	1	0.002210	0.002210
44	B200110235	BOM	NMIL	1	0.002896	0.002896
45	B200110279	BOM	NMIL	2	0.002210	0.004420
46	B200110282	BOM	NMIL	1	0.002896	0.002896
47	B200110311	BOM	NMIL	1	0.002210	0.002210
48	B200110357	BOM	NMIL	2	0.002896	0.005792
49	B200110487	BOM	NMIL	2	0.002896	0.005792
50	B200110488	BOM	NMIL	1	0.002210	0.002210
51	B200110503	BOM	NMIL	2	0.002210	0.004420
52	B200110504	BOM	NMIL	2	0.002319	0.004638
53	B200110505	BOM	NMIL	1	0.002210	0.002210
54	B200110506	BOM	NMIL	1	0.002210	0.002210
55	B200110520	BOM	NMIL	1	0.002210	0.002210
56	B200110524	BOM	NMIL	1	0.002210	0.002210
57	B200110530	BOM	NMIL	1	0.002210	0.002210
58	B200110532	BOM	NMIL	1	0.002210	0.002210
59	B200110541	BOM	NMIL	1	0.002210	0.002210
60	B200110548	BOM	NMIL	1	0.002210	0.002210
61	B200110598	BOM	NMIL	2	0.002210	0.004420
62	B200110617	BOM	NMIL	1	0.002319	0.002319
63	B200110705	BOM	NMIL	2	0.002210	0.004420
64	B200110709	BOM	NMIL	1	0.002026	0.002026

ZIPPY TECHNOLOGY CORP.
10F.,No.50,MINQUAN RD.,
XINDIAN DIST.,NEW TAIPEI CITY,TAIWAN,R.O.C.

ITEM #	Part Number	Ref Desig	Qual Level	Quant	Individual Failure Rate (F/10^6Hrs)	Total Failure Rate (F/10^6Hrs)
65	B200110729	BOM	NMIL	4	0.002026	0.008104
66	B200110730	BOM	NMIL	2	0.002026	0.004052
67	B200110731	BOM	NMIL	1	0.002026	0.002026
68	B200110733	BOM	NMIL	11	0.002026	0.022286
69	B200110734	BOM	NMIL	1	0.002026	0.002026
70	B200110735	BOM	NMIL	2	0.002026	0.004052
71	B200110743	BOM	NMIL	6	0.002026	0.012156
72	B200110746	BOM	NMIL	2	0.002026	0.004052
73	B200110775	BOM	NMIL	1	0.002026	0.002026
74	B200110794	BOM	NMIL	1	0.002026	0.002026
75	B200110800	BOM	NMIL	2	0.002026	0.004052
76	B200110806	BOM	NMIL	1	0.002026	0.002026
77	B200110807	BOM	NMIL	1	0.002026	0.002026
78	B200110808	BOM	NMIL	6	0.002026	0.012156
79	B200110811	BOM	NMIL	2	0.002026	0.004052
80	B200110813	BOM	NMIL	2	0.002026	0.004052
81	B200110820	BOM	NMIL	1	0.002026	0.002026
82	B200110825	BOM	NMIL	1	0.002126	0.002126
83	B200110834	BOM	NMIL	1	0.002026	0.002026
84	B200110842	BOM	NMIL	1	0.002026	0.002026
85	B200110847	BOM	NMIL	1	0.002026	0.002026
86	B200110861	BOM	NMIL	1	0.002026	0.002026
87	B200110864	BOM	NMIL	2	0.002026	0.004052
88	B200110928	BOM	NMIL	1	0.002026	0.002026
89	B200110965	BOM	NMIL	2	0.002026	0.004052
90	B200111016	BOM	NMIL	1	0.002026	0.002026
91	B200111117	BOM	NMIL	1	0.002026	0.002026
92	B200120102	BOM	NMIL	1	0.007441	0.007441
93	B200120172	BOM	NMIL	1	0.004848	0.004848
94	B200120174	BOM	NMIL	1	0.004541	0.004541
95	B200160017	BOM	NMIL	1	0.004760	0.004760
96	B200160034	BOM	NMIL	1	0.029693	0.029693
97	B200170020	BOM	NMIL	2	0.003721	0.007442
98	B200170047	BOM	NMIL	2	0.003721	0.007442
99	B200180068	BOM	NMIL	2	0.001845	0.003690
100	B200200075	BOM	NMIL	1	0.009676	0.009676
101	B200200082	BOM	NMIL	7	0.008395	0.058765
102	B200200116	BOM	NMIL	2	0.004199	0.008398
103	B200200119	BOM	NMIL	1	0.004827	0.004827
104	B200200140	BOM	NMIL	1	0.003664	0.003664

ZIPPY TECHNOLOGY CORP.
10F.,No.50,MINQUAN RD.,
XINDIAN DIST.,NEW TAIPEI CITY,TAIWAN,R.O.C.

ITEM #	Part Number	Ref Desig	Qual Level	Quant	Individual Failure Rate (F/10 ⁶ Hrs)	Total Failure Rate (F/10 ⁶ Hrs)
105	B200200153	BOM	NMIL	3	0.005166	0.015498
106	B200200155	BOM	NMIL	1	0.005166	0.005166
107	B200200156	BOM	NMIL	3	0.006356	0.019068
108	B200200187	BOM	NMIL	1	0.009037	0.009037
109	B200200203	BOM	NMIL	1	0.003924	0.003924
110	B200200205	BOM	NMIL	3	0.007820	0.023460
111	B200200206	BOM	NMIL	1	0.008395	0.008395
112	B200200207	BOM	NMIL	6	0.005166	0.030996
113	B200200208	BOM	NMIL	5	0.006356	0.031780
114	B200200210	BOM	NMIL	1	0.007820	0.007820
115	B200200224	BOM	NMIL	1	0.004199	0.004199
116	B200220010	BOM	NMIL	3	0.003943	0.011829
117	B200220038	BOM	NMIL	1	0.001385	0.001385
118	B200220081	BOM	NMIL	2	0.001125	0.002250
119	B200230210	BOM	NMIL	1	0.008794	0.008794
120	B200230276	BOM	NMIL	3	0.001395	0.004185
121	B200230281	BOM	NMIL	3	0.008469	0.025407
122	B200230337	BOM	NMIL	1	0.001484	0.001484
123	B200230377	BOM	NMIL	2	0.009871	0.019742
124	B200230460	BOM	NMIL	2	0.010491	0.020982
125	B200230462	BOM	NMIL	4	0.013588	0.054352
126	B200230499	BOM	NMIL	1	0.010862	0.010862
127	B200250009	BOM	NMIL	1	0.012238	0.012238
128	B200260271	BOM	NMIL	1	0.019936	0.019936
129	B200260277	BOM	NMIL	1	0.019936	0.019936
130	B200280017	BOM	NMIL	1	0.000623	0.000623
131	B200300382	BOM	NMIL	1	0.005228	0.005228
132	B200300462	BOM	NMIL	1	0.004212	0.004212
133	B200300463	BOM	NMIL	1	0.004241	0.004241
134	B200300464	BOM	NMIL	1	0.024824	0.024824
135	B200330002	BOM	NMIL	1	0.015429	0.015429
136	B200360067	BOM	NMIL	1	0.001671	0.001671
137	B200370003	BOM	NMIL	1	0.000962	0.000962
138	B200370069	BOM	NMIL	1	0.001373	0.001373
139	B200370081	BOM	NMIL	2	0.000962	0.001924
140	B200370085	BOM	NMIL	3	0.001196	0.003588
141	B210090231	BOM	SPECIAL	1	1.995000	1.995000
142	B210160043	BOM	NMIL	1	0.010000	0.010000
143	B210192550	BOM	NMIL	1	0.001193	0.001193
144	B210192590	BOM	NMIL	1	0.017022	0.017022

ZIPPY TECHNOLOGY CORP.
10F.,No.50,MINQUAN RD.,
XINDIAN DIST.,NEW TAIPEI CITY,TAIWAN,R.O.C.

ITEM #	Part Number	Ref Desig	Qual Level	Quant	Individual Failure Rate (F/10^6Hrs)	Total Failure Rate (F/10^6Hrs)
-----------	----------------	--------------	---------------	-------	---	--------------------------------------

Total Failure Rate (F/10^6Hrs) :	5.093511
Mean Time (in hours) Between Failures (MTBF) :	196,328