

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: DEC-21-2016
End Item Title : ZSR2 SERIES MTBF
End Item Part Number : ZSR2-5500G2V(RoHS)(PMNus NP1.2)
ZSR2-5500G2V(RoHS)(PMNus NP1.2) MTBF : 216,919
Module Title: ZIPPY TECHNOLOGY CORP
Module Part Number : M1R / MTBF
Power Unit Module : M1R-2500G(RoHS)(PMNus 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.

$$\text{Total Failure Rate}(F) = M \lambda / (3/2) + B \lambda = 5.357858 / (3/2) + 1.038101 = 4.610006$$

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

$$\text{ZSR2-5500G2V(RoHS)(PMNus NP1.2)(MTBF)} = F / 10^6 \text{ (Hrs)} = 1 / (4.610006 / 10^6) = 216,919$$

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

Date : FEB-21-2017 Time : 10:43:28
End Item Title : M1R SERIES MTBF
End Item Part Number : M1R-2500G(RoHS)(PMBus NP1.2)
M1R-2500G(RoHS)(PMBus NP1.2) MTBF : 186,642
Module Title : ZIPPY TECHNOLOGY CORP
Module Part Number : M1R / MTBF
Module Reference Designation : M1R
Environmental Condition : GB
Ambient Temperature: 25°C

M1R-2500G(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	B105190002	BOM	NMIL	1	0.265242	0.265242
2	B105190003	BOM	NMIL	1	0.195295	0.195295
3	B105190004	BOM	NMIL	1	0.802617	0.802617
4	B105190005	BOM	NMIL	1	0.318861	0.318861
5	B105190034	BOM	NMIL	1	0.026430	0.026430
6	B200000001	BOM	SPECIAL	1	0.094935	0.094935
7	B200000516	BOM	SPECIAL	1	0.094935	0.094935
8	B200010052	BOM	NMIL	2	0.000798	0.001596
9	B200010091	BOM	NMIL	1	0.000798	0.000798
10	B200010098	BOM	NMIL	1	0.000798	0.000798
11	B200010105	BOM	NMIL	3	0.031398	0.094194
12	B200010109	BOM	NMIL	3	0.000798	0.002394
13	B200020020	BOM	NMIL	2	0.005156	0.010312
14	B200020021	BOM	NMIL	1	0.006751	0.006751
15	B200040053	BOM	NMIL	1	0.016111	0.016111
16	B200040065	BOM	NMIL	1	0.005967	0.005967
17	B200040073	BOM	NMIL	4	0.005967	0.023868
18	B200040083	BOM	NMIL	1	0.016111	0.016111
19	B200040104	BOM	NMIL	1	0.016111	0.016111
20	B200050024	BOM	NMIL	1	0.005218	0.005218
21	B200050070	BOM	NMIL	2	0.005218	0.010436
22	B200050081	BOM	NMIL	4	0.005218	0.020872
23	B200060022	BOM	NMIL	1	0.014607	0.014607
24	B200070007	BOM	NMIL	2	0.006229	0.012458

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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	B200090005	BOM	NMIL	1	0.001518	0.001518
26	B200110030	BOM	NMIL	4	0.005115	0.020460
27	B200110042	BOM	NMIL	4	0.004650	0.018600
28	B200110120	BOM	NMIL	4	0.004650	0.018600
29	B200110172	BOM	NMIL	2	0.004650	0.009300
30	B200110192	BOM	NMIL	1	0.004650	0.004650
31	B200110202	BOM	NMIL	1	0.004650	0.004650
32	B200110223	BOM	NMIL	4	0.005115	0.020460
33	B200110227	BOM	NMIL	6	0.004650	0.027900
34	B200110235	BOM	NMIL	2	0.004650	0.009300
35	B200110279	BOM	NMIL	2	0.004650	0.009300
36	B200110313	BOM	NMIL	1	0.004650	0.004650
37	B200110325	BOM	NMIL	1	0.004650	0.004650
38	B200110406	BOM	NMIL	1	0.004650	0.004650
39	B200110488	BOM	NMIL	1	0.004650	0.004650
40	B200110494	BOM	NMIL	2	0.004650	0.009300
41	B200110498	BOM	NMIL	2	0.004650	0.009300
42	B200110502	BOM	NMIL	1	0.004650	0.004650
43	B200110508	BOM	NMIL	1	0.004650	0.004650
44	B200110514	BOM	NMIL	1	0.004650	0.004650
45	B200110523	BOM	NMIL	1	0.004650	0.004650
46	B200110524	BOM	NMIL	1	0.004650	0.004650
47	B200110525	BOM	NMIL	1	0.004650	0.004650
48	B200110551	BOM	NMIL	1	0.004650	0.004650
49	B200110608	BOM	NMIL	3	0.007440	0.022320
50	B200110611	BOM	NMIL	1	0.004650	0.004650
51	B200110636	BOM	NMIL	1	0.005115	0.005115
52	B200110930	BOM	NMIL	3	0.004650	0.013950
53	B200160028	BOM	NMIL	1	0.065000	0.065000
54	B200170035	BOM	NMIL	2	0.004005	0.008010
55	B200170041	BOM	NMIL	2	0.005940	0.011880
56	B200180075	BOM	N/A	1	0.008923	0.008923
57	B200180092	BOM	N/A	1	0.008923	0.008923
58	B200190084	BOM	N/A	1	0.015889	0.015889
59	B200190085	BOM	N/A	1	0.015889	0.015889
60	B200200064	BOM	N/A	1	0.008470	0.008470
61	B200200069	BOM	N/A	1	0.006575	0.006575
62	B200200075	BOM	N/A	1	0.018108	0.018108
63	B200200083	BOM	N/A	1	0.007144	0.007144
64	B200200156	BOM	N/A	4	0.011856	0.047424

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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	B200200158	BOM	N/A	1	0.007791	0.007791
66	B200220010	BOM	N/A	1	0.002761	0.002761
67	B200220021	BOM	N/A	1	0.002337	0.002337
68	B200220036	BOM	N/A	3	0.013891	0.041673
69	B200220073	BOM	N/A	1	0.008751	0.008751
70	B200220074	BOM	N/A	1	0.006445	0.006445
71	B200230277	BOM	N/A	1	0.041493	0.041493
72	B200230381	BOM	N/A	2	0.047121	0.094242
73	B200230424	BOM	N/A	1	0.052193	0.052193
74	B200230434	BOM	N/A	2	0.150432	0.300864
75	B200230443	BOM	N/A	1	0.022047	0.022047
76	B200230444	BOM	N/A	2	0.025409	0.050818
77	B200240006	BOM	N/A	1	0.027583	0.027583
78	B200260208	BOM	NMIL	1	0.027440	0.027440
79	B200260352	BOM	NMIL	1	0.027440	0.027440
80	B200260353	BOM	NMIL	1	0.027440	0.027440
81	B200280012	BOM	NMIL	1	0.015958	0.015958
82	B200300284	BOM	NMIL	1	0.003845	0.003845
83	B210090091	BOM	KNOWNFR	1	2.030495	2.030495
84	B210160038	BOM	N/A	1	0.010000	0.010000
85	B210191933	N/A	STANDARD	1	0.016567	0.016567

Total Failure Rate (F/10⁶Hrs) : 5.357858
 Mean Time (in hours) Between Failures (MTBF) : **186,642**