

# RELIABILITY PREDICTION STANDARD REPORT

(Sorted by Part Number)

MIL-HDBK-217F, Notice 2

PRED-FIRST (c) Reliability Prediction Program, BJM Engineering Services

Date: NOV-19-2010

End Item Title : M1U2 SERIES MTBF

End Item Part Number : M1U2-5750V4V (RoHS)

M1U2-5750V4V (RoHS) MTBF : 198,758

Module Title: ZIPPY TECHNOLOGY CORP

Module Part Number : M1U / MTBF

Power Unit Module : M1U-2750V (RoHS)

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.

$$\begin{aligned}\text{Total Failure Rate}(F) &= M \lambda / (3/2) + B \lambda \\ &= 7.039699 / (3/2) + 0.338102 = 5.031235\end{aligned}$$

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

$$\begin{aligned}\text{M1U2-5750V4V (RoHS)(MTBF)} &= F / 10^6 \text{Hrs} = 5.031235 / 10^6 \\ &= 198,758\end{aligned}$$

ZIPPY TECHNOLOGY CORP  
10F, No.50, MIN CHYUAN RD  
SHIN-TIEN, TAIPEI HSIEN, TAIWAN, R.O.C.

RELIABILITY PREDICTION STANDARD REPORT						
		(Sorted by Part Number)				
		MIL - HDBK - 217F, Notice 2				
Date : AUG-17-2009      Time : 14:31:25						
End Item Title : M1U SERIES MTBF						
End Item Part Number : M1U-2750V (RoHS)						
Module Title : ZIPPY TECHNOLOGY CORP						
Module Part Number : M1U/MTBF						
Module Reference Designation : M1U						
Environmental Condition : GB						
Ambient Temperature: 25						
<b><u>M1U-2750V (RoHS)</u></b>						
ITEM	Part	Ref	Qual	Quant	Individual	Total
#	Number	Desig	Level		Failure Rate	Failure Rate
					(F/10 <sup>6</sup> Hrs)	(F/10 <sup>6</sup> Hrs)
1	B102270003	BOM	NMIL	1	0.128027	0.128027
2	B102330003	BOM	NMIL	1	0.132621	0.132621
3	B102330004	BOM	NMIL	1	0.069564	0.069564
4	B102330005	BOM	NMIL	1	0.125731	0.125731
5	B102620003	BOM	NMIL	1	0.074349	0.074349
6	B103080011	BOM	NMIL	1	1.222003	1.222003
7	B103080014	BOM	NMIL	1	0.008316	0.008316
8	B103180007	BOM	NMIL	1	0.044939	0.044939
9	B200000001	BOM	SPECIAL	1	0.094935	0.094935
10	B200000296	BOM	SPECIAL	1	0.094935	0.094935
11	B200000332	BOM	SPECIAL	2	0.094935	0.189870
12	B200000333	BOM	SPECIAL	1	0.094935	0.094935
13	B200000364	BOM	SPECIAL	1	0.094935	0.094935
14	B200010052	BOM	NMIL	3	0.000798	0.002394
15	B200010091	BOM	NMIL	1	0.000798	0.000798
16	B200010098	BOM	NMIL	1	0.000798	0.000798
17	B200010105	BOM	NMIL	6	0.031398	0.188388
18	B200010109	BOM	NMIL	6	0.000798	0.004788
19	B200010112	BOM	NMIL	4	0.031398	0.125592
20	B200020017	BOM	NMIL	2	0.005156	0.010312
21	B200020020	BOM	NMIL	2	0.005156	0.010312

ZIPPY TECHNOLOGY CORP  
10F, No.50, MIN CHYUAN RD  
SHIN-TIEN, TAIPEI HSIEN, TAIWAN, R.O.C.

22	B200020021	BOM	NMIL	1	0.005156	0.005156
23	B200030037	BOM	NMIL	2	0.018136	0.036272
24	B200040053	BOM	NMIL	1	0.016111	0.016111
25	B200040065	BOM	NMIL	1	0.005967	0.005967
26	B200040073	BOM	NMIL	13	0.005967	0.077571
27	B200040083	BOM	NMIL	1	0.016111	0.016111
28	B200040085	BOM	NMIL	1	0.016111	0.016111
29	B200050024	BOM	NMIL	1	0.005218	0.005218
30	B200050032	BOM	NMIL	7	0.005218	0.036526
31	B200050070	BOM	NMIL	2	0.005218	0.010436
32	B200060009	BOM	NMIL	1	0.014607	0.014607
33	B200070007	BOM	NMIL	2	0.013740	0.027480
34	B200090005	BOM	NMIL	1	0.018095	0.018095
35	B200110006	BOM	NMIL	2	0.004650	0.009300
36	B200110042	BOM	NMIL	5	0.004650	0.023250
37	B200110095	BOM	NMIL	10	0.004650	0.046500
38	B200110120	BOM	NMIL	4	0.004650	0.018600
39	B200110123	BOM	NMIL	2	0.004650	0.009300
40	B200110172	BOM	NMIL	6	0.004650	0.027900
41	B200110192	BOM	NMIL	2	0.004650	0.009300
42	B200110202	BOM	NMIL	1	0.004650	0.004650
43	B200110223	BOM	NMIL	4	0.005115	0.020460
44	B200110227	BOM	NMIL	6	0.004650	0.027900
45	B200110235	BOM	NMIL	3	0.004650	0.013950
46	B200110276	BOM	NMIL	4	0.004650	0.018600
47	B200110279	BOM	NMIL	2	0.004650	0.009300
48	B200110282	BOM	NMIL	2	0.004650	0.009300
49	B200110311	BOM	NMIL	1	0.004650	0.004650
50	B200110489	BOM	NMIL	1	0.004650	0.004650
51	B200110493	BOM	NMIL	6	0.005115	0.030690
52	B200110494	BOM	NMIL	2	0.004650	0.009300
53	B200110502	BOM	NMIL	1	0.004650	0.004650
54	B200110503	BOM	NMIL	1	0.005115	0.005115
55	B200110506	BOM	NMIL	2	0.004650	0.009300
56	B200110524	BOM	NMIL	1	0.004650	0.004650
57	B200110525	BOM	NMIL	1	0.004650	0.004650
58	B200110527	BOM	NMIL	1	0.004650	0.004650
59	B200110551	BOM	NMIL	1	0.004650	0.004650
60	B200110583	BOM	NMIL	1	0.004650	0.004650
61	B200110608	BOM	NMIL	3	0.007440	0.022320

ZIPPY TECHNOLOGY CORP  
10F, No.50, MIN CHYUAN RD  
SHIN-TIEN, TAIPEI HSIEN, TAIWAN, R.O.C.

62	B200110659	BOM	NMIL	1	0.004650	0.004650
63	B200120170	BOM	NMIL	1	0.010780	0.010780
64	B200120171	BOM	NMIL	1	0.006870	0.006870
65	B200160028	BOM	NMIL	1	0.065000	0.065000
66	B200170015	BOM	NMIL	2	0.005156	0.010312
67	B200170021	BOM	NMIL	3	0.005156	0.015468
68	B200180075	BOM	N/A	2	0.008923	0.017846
69	B200180079	BOM	N/A	1	0.008923	0.008923
70	B200190024	BOM	N/A	1	0.015889	0.015889
71	B200190065	BOM	N/A	1	0.014104	0.014104
72	B200200012	BOM	N/A	2	0.009203	0.018406
73	B200200017	BOM	N/A	7	0.011856	0.082992
74	B200200053	BOM	N/A	4	0.014056	0.056224
75	B200200057	BOM	N/A	1	0.018108	0.018108
76	B200200060	BOM	N/A	4	0.012930	0.051720
77	B200200062	BOM	N/A	1	0.007791	0.007791
78	B200200069	BOM	N/A	1	0.006575	0.006575
79	B200200096	BOM	N/A	2	0.008147	0.016294
80	B200220010	BOM	N/A	1	0.002761	0.002761
81	B200220021	BOM	N/A	1	0.002337	0.002337
82	B200220036	BOM	N/A	2	0.002647	0.005294
83	B200220047	BOM	N/A	1	0.002537	0.002537
84	B200230226	BOM	N/A	3	0.022233	0.066699
85	B200230277	BOM	N/A	1	0.041493	0.041493
86	B200230337	BOM	N/A	1	0.022047	0.022047
87	B200230356	BOM	N/A	3	0.044090	0.132270
88	B200230381	BOM	N/A	2	0.047121	0.094242
89	B200230383	BOM	N/A	2	0.150432	0.300864
90	B200260219	BOM	NMIL	1	0.088051	0.088051
91	B200260232	BOM	NMIL	1	0.088051	0.088051
92	B200260268	BOM	NMIL	1	0.088051	0.088051
93	B200260269	BOM	NMIL	2	0.088051	0.176102
94	B200280018	BOM	NMIL	1	0.015958	0.015958
95	B200290011	BOM	NMIL	2	0.013740	0.027480
96	B200300283	BOM	NMIL	1	0.026144	0.026144
97	B200300284	BOM	NMIL	1	0.003845	0.003845
98	B210090090	BOM	KNOWNFR	1	2.030494	2.030494
99	B210160002	BOM	N/A	1	0.010000	0.010000
100	B210191093	N/A	STANDARD	1	0.020588	0.020588

ZIPPY TECHNOLOGY CORP  
10F,No.50,MIN CHYUAN RD  
SHIN-TIEN,TAIPEI HSIEN,TAIWAN,R.O.C.

					Total Failure Rate (F/10 <sup>6</sup> Hrs) :	7.039699
					Mean Time (in hours) Between Failures (MTBF) :	142,052