



ZIPPY TECHNOLOGY CORP.

Mean Time Between Failures PREDICTION REPORT

MIL-HDBK-217F, Notice 2

Product : Redundant Switching Power Supply

Model/Type : R1T2-5500K2V(RoHS)(PMBus WP1.2)

Approval By		正式 資料 用 章	
Prepared By			

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: JUL-12-2022
End Item Title : R1T2 SERIES MTBF
End Item Part Number : R1T2-5500K2V(RoHS)(PMBus WP1.2)
R1T2-5500K2V(RoHS)(PMBus WP1.2) MTBF : 285,298
Module Title: ZIPPY TECHNOLOGY CORP
Module Part Number : R1T / MTBF
Power Unit Module : R1T-2500K2(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.

$$\text{Total Failure Rate}(F) = M\lambda^{(3/2)} + B\lambda = 4.535987/(3/2) + 0.481120 = 3.505111$$

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

$$R1T2-5500K2V(RoHS)(PMBus WP1.2)(MTBF) = F/10^6 \text{ (Hrs)} = 1/(3.505111/10^6) = 285,298$$

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

Date : APR-07-2022 Time : 11:25:47
End Item Title : R1T SERIES MTBF
End Item Part Number : R1T-2500K2(RoHS)(PMBus WP1.2)
R1T-2500K2(RoHS)(PMBus WP1.2) MTBF : 220,459
Module Title : ZIPPY TECHNOLOGY CORP
Module Part Number : R1T / MTBF
Module Reference Designation : R1T
Environmental Condition : GB
Ambient Temperature: 25°C

R1T-2500K2(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	B106280002	BOM	SPECIAL	1	0.208069	0.208069
2	B106840002	BOM	SPECIAL	1	0.209618	0.209618
3	B106840003	BOM	SPECIAL	1	0.674148	0.674148
4	B106840005	BOM	SPECIAL	1	0.093588	0.093588
5	B200000598	BOM	NMIL	1	0.013289	0.013289
6	B200000687	BOM	NMIL	1	0.007343	0.007343
7	B200000709	BOM	NMIL	1	0.005806	0.005806
8	B200010167	BOM	NMIL	2	0.000648	0.001296
9	B200010253	BOM	NMIL	1	0.065527	0.065527
10	B200010269	BOM	NMIL	3	0.000652	0.001956
11	B200010270	BOM	NMIL	1	0.000652	0.000652
12	B200010283	BOM	NMIL	4	0.072168	0.288672
13	B200010304	BOM	NMIL	2	0.073390	0.146780
14	B200020024	BOM	NMIL	1	0.000414	0.000414
15	B200020037	BOM	NMIL	2	0.000414	0.000828
16	B200020045	BOM	NMIL	1	0.001204	0.001204
17	B200030052	BOM	NMIL	1	0.000712	0.000712
18	B200030079	BOM	NMIL	1	0.002772	0.002772
19	B200030107	BOM	NMIL	1	0.001906	0.001906
20	B200040073	BOM	NMIL	4	0.011646	0.046584
21	B200040120	BOM	NMIL	1	0.014427	0.014427
22	B200040162	BOM	NMIL	1	0.003751	0.003751
23	B200050084	BOM	NMIL	2	0.003013	0.006026
24	B200060041	BOM	NMIL	1	0.003026	0.003026

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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	B200070009	BOM	NMIL	1	0.000649	0.000649
26	B200090005	BOM	NMIL	1	0.001476	0.001476
27	B200110035	BOM	NMIL	1	0.002896	0.002896
28	B200110042	BOM	NMIL	5	0.002210	0.011050
29	B200110046	BOM	NMIL	2	0.002896	0.005792
30	B200110095	BOM	NMIL	1	0.002896	0.002896
31	B200110123	BOM	NMIL	3	0.002210	0.006630
32	B200110126	BOM	NMIL	1	0.002032	0.002032
33	B200110235	BOM	NMIL	1	0.002896	0.002896
34	B200110276	BOM	NMIL	1	0.002896	0.002896
35	B200110293	BOM	NMIL	2	0.003039	0.006078
36	B200110317	BOM	NMIL	1	0.002896	0.002896
37	B200110488	BOM	NMIL	1	0.002210	0.002210
38	B200110489	BOM	NMIL	1	0.002210	0.002210
39	B200110494	BOM	NMIL	1	0.002210	0.002210
40	B200110508	BOM	NMIL	3	0.002210	0.006630
41	B200110512	BOM	NMIL	1	0.002210	0.002210
42	B200110705	BOM	NMIL	1	0.002210	0.002210
43	B200111099	BOM	NMIL	2	0.002210	0.004420
44	B200160011	BOM	NMIL	1	0.008611	0.008611
45	B200170018	BOM	NMIL	2	0.003177	0.006354
46	B200170040	BOM	NMIL	2	0.003177	0.006354
47	B200180098	BOM	NMIL	1	0.001845	0.001845
48	B200180107	BOM	NMIL	1	0.001845	0.001845
49	B200190065	BOM	NMIL	1	0.010191	0.010191
50	B200190106	BOM	NMIL	1	0.012110	0.012110
51	B200200092	BOM	NMIL	15	0.009620	0.144300
52	B200200141	BOM	NMIL	2	0.007820	0.015640
53	B200200153	BOM	NMIL	1	0.005166	0.005166
54	B200200156	BOM	NMIL	1	0.006356	0.006356
55	B200200166	BOM	NMIL	1	0.006824	0.006824
56	B200200204	BOM	NMIL	2	0.007306	0.014612
57	B200200205	BOM	NMIL	1	0.007820	0.007820
58	B200220010	BOM	NMIL	1	0.003943	0.003943
59	B200220073	BOM	NMIL	1	0.002605	0.002605
60	B200220082	BOM	NMIL	3	0.001208	0.003624
61	B200220086	BOM	NMIL	2	0.001208	0.002416
62	B200230354	BOM	NMIL	2	0.011845	0.023690
63	B200230630	BOM	NMIL	1	0.018501	0.018501
64	B200240017	BOM	NMIL	1	0.003652	0.003652

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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	B200260208	BOM	NMIL	1	0.000251	0.000251
66	B200260496	BOM	NMIL	1	0.000258	0.000258
67	B200260497	BOM	NMIL	1	0.000219	0.000219
68	B200280012	BOM	NMIL	1	0.000623	0.000623
69	B200290015	BOM	NMIL	2	0.011159	0.022318
70	B200300569	BOM	NMIL	1	0.090676	0.090676
71	B200310019	BOM	NMIL	1	0.005232	0.005232
72	B200370051	BOM	NMIL	1	0.001196	0.001196
73	B200370114	BOM	NMIL	2	0.000962	0.001924
74	B210060154	BOM	NMIL	1	0.024396	0.024396
75	B210090320	BOM	SPECIAL	1	2.182912	2.182912
76	B210160082	BOM	NMIL	1	0.010000	0.010000
77	B210193538	BOM	NMIL	1	0.020842	0.020842

Total Failure Rate (F/10⁶Hrs) : 4.535987
Mean Time (in hours) Between Failures (MTBF) : **220,459**