

## RELIABILITY PREDICTION STANDARD REPORT

(Sorted by Part Number)

MIL-HDBK-217F, Notice 2

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

Date: AUG-26-2009

End Item Title : PSS2 SERIES MTBF

End Item Part Number : PSS2-5A00V3H (RoHS)

PSS2-5A00V3H (RoHS) MTBF : 181,387

Module Title: ZIPPY TECHNOLOGY CORP

Module Part Number : PSS / MTBF

Power Unit Module : PSS-2A00V (RoHS)

Environmental Condition: GB

Ambient Temperature: 25

### 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.

$$\begin{aligned}\text{Total Failure Rate}(F) &= M \lambda / ( 3 / 2 ) + B \lambda \\ &= 7.762468 / ( 3 / 2 ) + 0.338102 = 5.513081\end{aligned}$$

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

$$\begin{aligned}\text{PSS2-5A00V3H (RoHS)(MTBF)} &= F / 10^6 \text{Hrs} = 5.513081 / 10^6 \\ &= 181,387\end{aligned}$$

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-26-2009      Time : 09:03:28 |                                        |                             |              |              |                     |                     |
| End Item Title : PSS SERIES MTBF        |                                        |                             |              |              |                     |                     |
| End Item Part Number : PSS-2A00V (RoHS) |                                        |                             |              |              |                     |                     |
| Module Title : ZIPPY TECHNOLOGY CORP    |                                        |                             |              |              |                     |                     |
| Module Part Number : PSS/MTBF           |                                        |                             |              |              |                     |                     |
| Module Reference Designation : PSS      |                                        |                             |              |              |                     |                     |
| Environmental Condition : GB            |                                        |                             |              |              |                     |                     |
| Ambient Temperature: 25                 |                                        |                             |              |              |                     |                     |
|                                         |                                        |                             |              |              |                     |                     |
| <b><u>PSS-2A00V (RoHS)</u></b>          |                                        |                             |              |              |                     |                     |
|                                         |                                        |                             |              |              |                     |                     |
| <b>ITEM</b>                             | <b>Part</b>                            | <b>Ref</b>                  | <b>Qual</b>  | <b>Quant</b> | <b>Individual</b>   | <b>Total</b>        |
| <b>#</b>                                | <b>Number</b>                          | <b>Desig</b>                | <b>Level</b> |              | <b>Failure Rate</b> | <b>Failure Rate</b> |
|                                         |                                        |                             |              |              | <b>(F/10^6Hrs)</b>  | <b>(F/10^6Hrs)</b>  |
| 1                                       | B102130002                             | BOM                         | NMIL         | 1            | 0.074349            | 0.074349            |
| 2                                       | B102270003                             | BOM                         | NMIL         | 1            | 0.128027            | 0.128027            |
| 3                                       | B102330003                             | BOM                         | NMIL         | 1            | 0.132621            | 0.132621            |
| 4                                       | B102330005                             | BOM                         | NMIL         | 1            | 0.125731            | 0.125731            |
| 5                                       | B102720004                             | BOM                         | NMIL         | 1            | 0.069564            | 0.069564            |
| 6                                       | B102840007                             | BOM                         | NMIL         | 1            | 0.190893            | 0.190893            |
| 7                                       | B103180004                             | BOM                         | NMIL         | 1            | 1.222003            | 1.222003            |
| 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         | 5            | 0.000798            | 0.003990            |
| 15                                      | B200010091                             | BOM                         | NMIL         | 1            | 0.000798            | 0.000798            |
| 16                                      | B200010098                             | BOM                         | NMIL         | 1            | 0.000798            | 0.000798            |
| 17                                      | B200010105                             | BOM                         | NMIL         | 7            | 0.031398            | 0.219786            |
| 18                                      | B200010109                             | BOM                         | NMIL         | 9            | 0.000798            | 0.007182            |
| 19                                      | B200010112                             | BOM                         | NMIL         | 6            | 0.031398            | 0.188388            |
| 20                                      | B200020016                             | BOM                         | NMIL         | 1            | 0.005156            | 0.005156            |
| 21                                      | B200020017                             | BOM                         | NMIL         | 1            | 0.005156            | 0.005156            |

ZIPPY TECHNOLOGY CORP  
10F,No.50,MIN CHYUAN RD  
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|    |            |     |      |    |          |          |
|----|------------|-----|------|----|----------|----------|
| 22 | B200020020 | BOM | NMIL | 2  | 0.005156 | 0.010312 |
| 23 | B200020021 | BOM | NMIL | 1  | 0.005156 | 0.005156 |
| 24 | B200030038 | BOM | NMIL | 1  | 0.018136 | 0.018136 |
| 25 | B200040053 | BOM | NMIL | 1  | 0.016111 | 0.016111 |
| 26 | B200040065 | BOM | NMIL | 1  | 0.005967 | 0.005967 |
| 27 | B200040072 | BOM | NMIL | 2  | 0.005967 | 0.011934 |
| 28 | B200040073 | BOM | NMIL | 14 | 0.005967 | 0.083538 |
| 29 | B200040083 | BOM | NMIL | 1  | 0.016111 | 0.016111 |
| 30 | B200040085 | BOM | NMIL | 1  | 0.016111 | 0.016111 |
| 31 | B200050024 | BOM | NMIL | 1  | 0.005218 | 0.005218 |
| 32 | B200050032 | BOM | NMIL | 7  | 0.005218 | 0.036526 |
| 33 | B200050070 | BOM | NMIL | 2  | 0.005218 | 0.010436 |
| 34 | B200060009 | BOM | NMIL | 1  | 0.014607 | 0.014607 |
| 35 | B200070008 | BOM | NMIL | 2  | 0.008352 | 0.016703 |
| 36 | B200090006 | BOM | NMIL | 1  | 0.018095 | 0.018095 |
| 37 | B200110001 | BOM | NMIL | 1  | 0.004650 | 0.004650 |
| 38 | B200110006 | BOM | NMIL | 1  | 0.004650 | 0.004650 |
| 39 | B200110016 | BOM | NMIL | 6  | 0.004650 | 0.027900 |
| 40 | B200110040 | BOM | NMIL | 7  | 0.004650 | 0.032550 |
| 41 | B200110042 | BOM | NMIL | 4  | 0.004650 | 0.018600 |
| 42 | B200110095 | BOM | NMIL | 14 | 0.004650 | 0.065100 |
| 43 | B200110120 | BOM | NMIL | 4  | 0.004650 | 0.018600 |
| 44 | B200110123 | BOM | NMIL | 2  | 0.004650 | 0.009300 |
| 45 | B200110172 | BOM | NMIL | 6  | 0.004650 | 0.027900 |
| 46 | B200110176 | BOM | NMIL | 2  | 0.004650 | 0.009300 |
| 47 | B200110192 | BOM | NMIL | 2  | 0.004650 | 0.009300 |
| 48 | B200110202 | BOM | NMIL | 1  | 0.004650 | 0.004650 |
| 49 | B200110223 | BOM | NMIL | 3  | 0.005115 | 0.015345 |
| 50 | B200110227 | BOM | NMIL | 5  | 0.004650 | 0.023250 |
| 51 | B200110279 | BOM | NMIL | 1  | 0.004650 | 0.004650 |
| 52 | B200110282 | BOM | NMIL | 3  | 0.004650 | 0.013950 |
| 53 | B200110303 | BOM | NMIL | 4  | 0.005115 | 0.020460 |
| 54 | B200110311 | BOM | NMIL | 1  | 0.004650 | 0.004650 |
| 55 | B200110313 | BOM | NMIL | 1  | 0.004650 | 0.004650 |
| 56 | B200110441 | BOM | NMIL | 1  | 0.004650 | 0.004650 |
| 57 | B200110490 | BOM | NMIL | 1  | 0.004650 | 0.004650 |
| 58 | B200110493 | BOM | NMIL | 3  | 0.005115 | 0.015345 |
| 59 | B200110494 | BOM | NMIL | 3  | 0.004650 | 0.013950 |
| 60 | B200110502 | BOM | NMIL | 1  | 0.004650 | 0.004650 |
| 61 | B200110503 | BOM | NMIL | 1  | 0.005115 | 0.005115 |

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|-----|------------|-----|------|----|----------|----------|
| 62  | B200110506 | BOM | NMIL | 3  | 0.004650 | 0.013950 |
| 63  | B200110508 | BOM | NMIL | 1  | 0.004650 | 0.004650 |
| 64  | B200110523 | BOM | NMIL | 1  | 0.004650 | 0.004650 |
| 65  | B200110525 | BOM | NMIL | 1  | 0.004650 | 0.004650 |
| 66  | B200110530 | BOM | NMIL | 1  | 0.004650 | 0.004650 |
| 67  | B200110551 | BOM | NMIL | 1  | 0.004650 | 0.004650 |
| 68  | B200110608 | BOM | NMIL | 3  | 0.007440 | 0.022320 |
| 69  | B200110686 | BOM | NMIL | 1  | 0.004650 | 0.004650 |
| 70  | B200110687 | BOM | NMIL | 1  | 0.004650 | 0.004650 |
| 71  | B200120170 | BOM | NMIL | 1  | 0.010780 | 0.010780 |
| 72  | B200120171 | BOM | NMIL | 1  | 0.006870 | 0.006870 |
| 73  | B200160022 | BOM | NMIL | 1  | 0.065000 | 0.065000 |
| 74  | B200170021 | BOM | NMIL | 3  | 0.005156 | 0.015468 |
| 75  | B200170031 | BOM | NMIL | 3  | 0.005156 | 0.015468 |
| 76  | B200180075 | BOM | N/A  | 2  | 0.008923 | 0.017846 |
| 77  | B200190024 | BOM | N/A  | 1  | 0.015889 | 0.015889 |
| 78  | B200190035 | BOM | N/A  | 1  | 0.015889 | 0.015889 |
| 79  | B200200012 | BOM | N/A  | 1  | 0.009203 | 0.009203 |
| 80  | B200200017 | BOM | N/A  | 12 | 0.011856 | 0.142272 |
| 81  | B200200018 | BOM | N/A  | 7  | 0.011856 | 0.082992 |
| 82  | B200200053 | BOM | N/A  | 4  | 0.014056 | 0.056224 |
| 83  | B200200057 | BOM | N/A  | 1  | 0.018108 | 0.018108 |
| 84  | B200200060 | BOM | N/A  | 1  | 0.012930 | 0.012930 |
| 85  | B200200062 | BOM | N/A  | 2  | 0.007791 | 0.015582 |
| 86  | B200200069 | BOM | N/A  | 1  | 0.006575 | 0.006575 |
| 87  | B200200096 | BOM | N/A  | 4  | 0.008147 | 0.032588 |
| 88  | B200200100 | BOM | N/A  | 1  | 0.021459 | 0.021459 |
| 89  | B200220010 | BOM | N/A  | 1  | 0.002761 | 0.002761 |
| 90  | B200220021 | BOM | N/A  | 1  | 0.002337 | 0.002337 |
| 91  | B200220028 | BOM | N/A  | 3  | 0.002647 | 0.007941 |
| 92  | B200230226 | BOM | N/A  | 2  | 0.022233 | 0.044466 |
| 93  | B200230277 | BOM | N/A  | 1  | 0.041493 | 0.041493 |
| 94  | B200230337 | BOM | N/A  | 1  | 0.022047 | 0.022047 |
| 95  | B200230338 | BOM | N/A  | 1  | 0.029130 | 0.029130 |
| 96  | B200230356 | BOM | N/A  | 4  | 0.044090 | 0.176360 |
| 97  | B200230381 | BOM | N/A  | 2  | 0.047121 | 0.094242 |
| 98  | B200230383 | BOM | N/A  | 3  | 0.150432 | 0.451296 |
| 99  | B200260219 | BOM | NMIL | 1  | 0.088051 | 0.088051 |
| 100 | B200260278 | BOM | NMIL | 1  | 0.088051 | 0.088051 |
| 101 | B200260279 | BOM | NMIL | 2  | 0.088051 | 0.176102 |

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|     |            |     |                                                |   |          |                |
|-----|------------|-----|------------------------------------------------|---|----------|----------------|
| 102 | B200260283 | BOM | NMIL                                           | 1 | 0.088051 | 0.088051       |
| 103 | B200280012 | BOM | NMIL                                           | 1 | 0.015958 | 0.015958       |
| 104 | B200290011 | BOM | NMIL                                           | 2 | 0.013740 | 0.027480       |
| 105 | B200300219 | BOM | NMIL                                           | 1 | 0.003845 | 0.003845       |
| 106 | B200300248 | BOM | NMIL                                           | 1 | 0.003845 | 0.003845       |
| 107 | B200300297 | BOM | NMIL                                           | 1 | 0.026144 | 0.026144       |
| 108 | B210140023 | BOM | KNOWNFR                                        | 1 | 2.070549 | 2.070549       |
| 109 | B210160025 | BOM | N/A                                            | 1 | 0.010000 | 0.010000       |
| 110 | B210191056 | N/A | STANDARD                                       | 1 | 0.020588 | 0.020588       |
|     |            |     |                                                |   |          |                |
|     |            |     |                                                |   |          |                |
|     |            |     | Total Failure Rate (F/10 <sup>6</sup> Hrs) :   |   |          | 7.762468       |
|     |            |     | Mean Time (in hours) Between Failures (MTBF) : |   |          | <b>128,825</b> |