MTBF analysis of production DRXP board

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ELECS INDUSTRY CO.,LTD.

# MTBF

The MTBF per the production DRXP board is 32.754 years under 45 ° C temperature environment.

This value was calculated from the FIT value of the parts used on the board excluding connectors.

Among the components on the board, the top 20 worst MTBFs are shown in section 2.

# MTBF’s Worst Top 20 components list

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| MTBF Worst No | Component | Quantity | FIT | FIT Subtotal | MTBF Subtotal  [H] | MTBF Subtotal [Year] |
| 1 | Ceramic capacitor 0.22uF | 112 | 6 | 672 | 1488095 | 170 |
| 2 | DC-DC convertor | 1 | 470 | 470 | 2127660 | 243 |
| 3 | Inductor 4.7uH | 12 | 36 | 432 | 2314815 | 264 |
| 4 | Ceramic capacitor 0.1uF | 67 | 6 | 402 | 2487562 | 284 |
| 5 | Ceramic capacitor 4.7uF | 38 | 6 | 228 | 4385965 | 501 |
| 6 | Ceramic capacitor 22uF | 33 | 6 | 198 | 5050505 | 577 |
| 7 | DDR3 SDRAM | 8 | 20 | 160 | 6250000 | 713 |
| 8 | Ceramic capacitor 22uF | 24 | 6 | 144 | 6944444 | 793 |
| 9 | Ceramic capacitor 10uF | 21 | 6 | 126 | 7936508 | 906 |
| 10 | Ceramic capacitor 47uF | 19 | 6 | 114 | 8771930 | 1001 |
| 11 | Ceramic capacitor 100uF | 18 | 6 | 108 | 9259259 | 1057 |
| 12 | Ceramic capacitor 1500pF | 13 | 6 | 78 | 12820513 | 1464 |
| 13 | NPN Transistor | 5 | 15 | 75 | 13333333 | 1522 |
| 14 | Aluminum solid electrolytic capacitor 220uF | 5 | 13.5 | 67.5 | 14814815 | 1691 |
| 15 | Ceramic capacitor 820pF | 10 | 6 | 60 | 16666667 | 1903 |
| 16 | Ceramic capacitor 0.01uF | 8 | 6 | 48 | 20833333 | 2378 |
| 17 | Ceramic capacitor 220pF | 5 | 6 | 30 | 33333333 | 3805 |
| 18 | Crystal oscillator 200MHz | 2 | 12 | 24 | 41666667 | 4756 |
| 19 | Crystal oscillator 125MHz | 2 | 12 | 24 | 41666667 | 4756 |
| 20 | SFP+ module | 6 | 4 | 24 | 41666667 | 4756 |