

Designing the Reliability of Electronic Components

Marius BÂZU¹, Titu BĂJENESCU²

¹ IMT – Bucharest, Bucharest, Romania; ² La Conversion, Switzerland
maris.bazu@imt.ro

Abstract

A new method of designing electronic components by taking into account the reliability of the future product is introduced. The concept is named Design for Reliability (DfR) and it is linked to the robust design. The proceeding for performing DfR is briefly described, with examples showing the main advantages of the method.

Keywords: Reliability, Design for Reliability, Robust design, Concurrent engineering.

References:

- [1] M.L. George, Lean Six Sigma: Combining Six Sigma Quality with Lean Speed, New York: McGraw-Hill, 2002.
- [2] R. Batson, and M. Elam, Robust Design: An Experiment-based Approach to Design for Reliability, <http://ie.eng.ua.edu/research/MRC/Elam-robustdesign.pdf>.
- [3] W. Kuo, and H. Oh, Design for Reliability, IEEE Trans. on Reliability, Vol. 44, No. 2, June 1995, pp. 170–171.
- [4] G. Taguchi, Quality Engineering (Taguchi methods) for the Development of Electronic–Circuit Technology, IEEE Trans. on Reliability, Vol. 44, No. 2, June 1995, pp. 225–229.
- [5] K. Roy, and S. Prasad, Logic Synthesis for Reliability: an Early Start to Controlling Electromigration and Hot-Carrier Effects, IEEE Trans. on Reliability, Vol. 44, No. 2, June 1995, pp. 251–255.
- [6] M. Bâzu, A Combined Fuzzy Logic and Physics–of–Failure Approach to Reliability Prediction, IEEE Trans. on Reliability, Vol. 44, No. 2, June 1995, pp. 237–242.
- [7] K. Yang, and J. Xue, Reliability Design Based on Dynamic Factorial Experimental Model, Proceedings of the Annual Reliability and Maintainability Symp., Philadelphia, Pennsylvania (USA), Jan. 13–16, 1997, pp. 320–326.
- [8] Linear Technology Corporation, Reliability Assurance Program, http://www.linear.com/designtools/quality/Rel_Assurance_Prog.pdf.