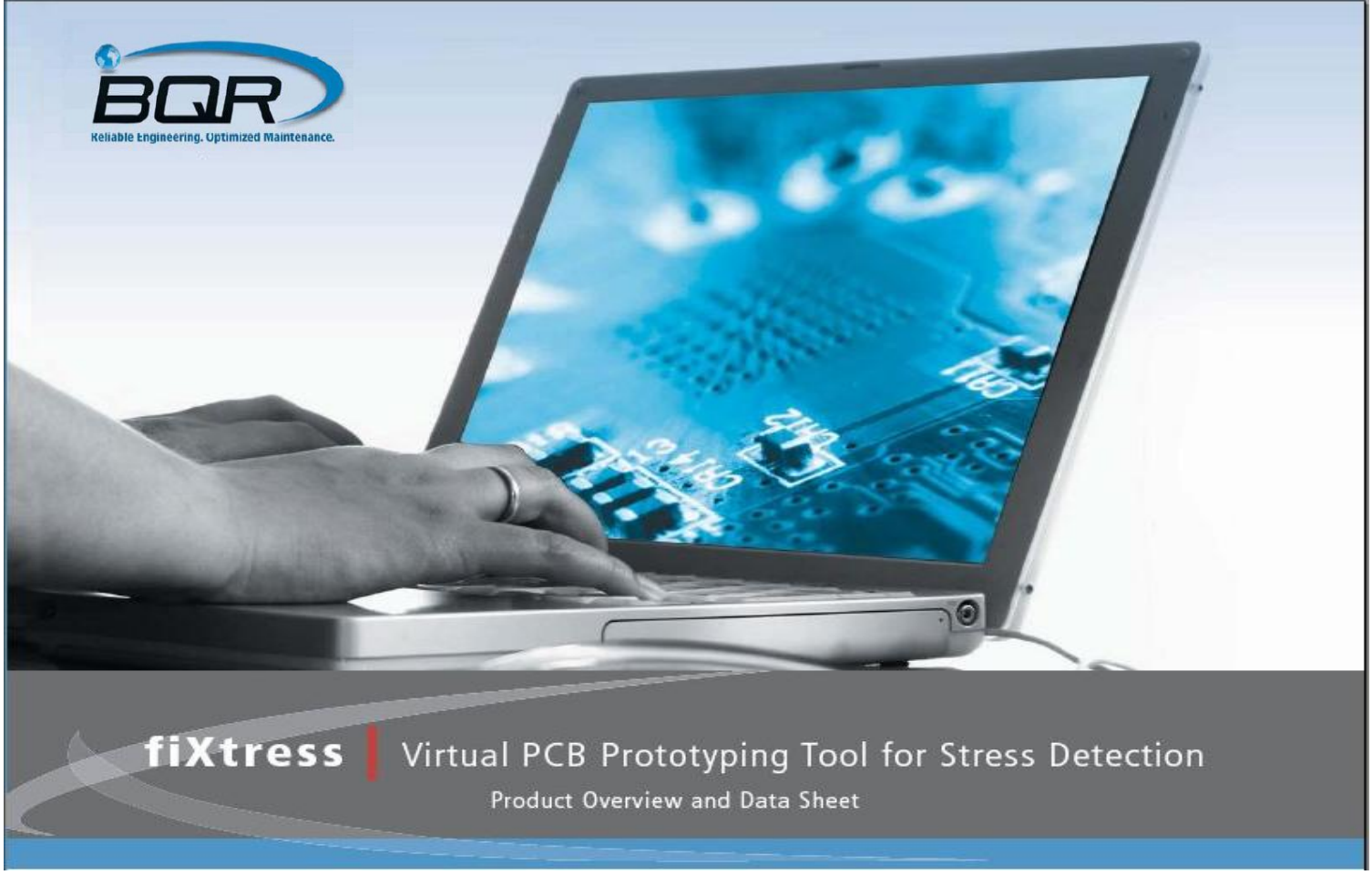

Overview

Correcting functional design errors and reducing electrical power stress are some of the main engineering challenges resulting from today's increasingly large and complex systems.

Functional design errors and power-related constraints are now being imposed throughout the entire design flow in order to maximize performance and reliability. The implementation of reliable circuits and networks, and minimization of power dissipation are primary objectives for design teams.

BQR's fiXtress addresses these challenges and more by providing a solution that leverages a broad range of unique and sophisticated algorithms, enabling schematic-level simulations that result in realistic and easy-to-extract electrical stress models.

With fiXtress's virtual prototyping software tools, design problems are identified early on, reducing the number of prototypes needed to validate a design, and speeding up time to market, resulting in savings of both cost and time.

BQR fiXtress Solution Highlights

- Simulates digital, analog, RF, active and passive components, including high-frequency Bus-Simulation
- Prevents PCB failure by identifying components that are over stressed
- Validates PCB predicted MTBF results against design criteria
- Accelerates fine-tuning of component rating values to meet exact power performance goals
- Identifies issues at an early stage when correction is easier and less costly
- Eliminates the need to build time-consuming complex models, like SPICE
- Accelerates time to market and reduces design spins
- Can be used and combined with any EDA tool to support advanced PCB analysis.
- Intuitive and easy to use

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Schematic Analysis and Functional Errors Detection

BQR fiXtress eliminates time-consuming, manual schematic checking for functional errors. This feature also extends the functionality of traditional DRC tools with the ability to detect errors that normally can only be detected in the field.

Electrical Stress

Measuring the electrical stress on each component during the design phase of an electrical circuit is not an easy task. FiXtress addresses this issue by providing accurate operating power dissipation, voltage and current for each component, enabling reliable stress analysis and improving design process quality.

Stress and De-rating Analysis

BQR fiXtress eliminates the time-consuming, manual de-rating analysis process by automatically determining the applicable stress with any EDA tool. This ensures proper component selection, saves valuable redesign time and maximizes circuit performance and reliability parameters.

Interface Analysis

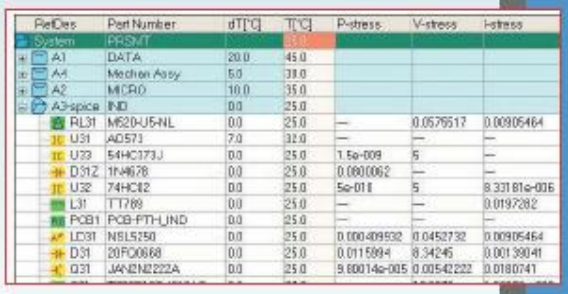
By performing comprehensive interface analyses, fiXtress, ensures that each interface meets the necessary output and input requirements to perform a given function in addition to ensuring that fan-in/fan-out requirements are met.

Design for Reliability

Unlike standard Parts Count analysis, fiXtress uses the actual temperature and electrical stress imposed on each component, and increases system reliability by using comprehensive four-stage analysis.

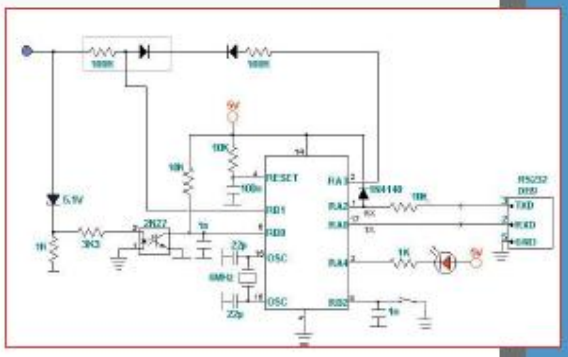
Key Features of BQR fiXtress

- Imports PCB Bill of Materials (BOM) and Netlist directly from all major CAD tools, as well as Excel/CSV import
- Takes into consideration over 40 types of component groups
- Performs high-edge profile analysis, and finds worst-case scenarios
- Designed for quick and easy changes and updates of the PCB design
- Provides recommendations when overstress is detected
- Allows user-defined de-rating curves, in addition to predefined de-rating curves
- Manages project trees, the core-database and HTML reports
- Predicts failure rates according to numerous standards allowing simulation of different environments
- Provides optimization and curve sensitivity for Ambient/Case temperature, quality levels, environments and prediction methods

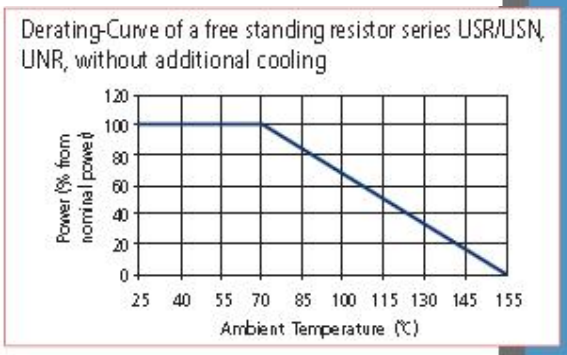


RefDes	Part Number	dT[°C]	T[°C]	P-stress	V-stress	I-stress
System	PRSNT					
A1	DATA	20.0	45.0			
A4	Mechan Assy	5.0	30.0			
A2	MICRO	10.0	35.0			
A3-spice	IND	0.0	25.0			
RL31	MS20-US-NL	0.0	25.0	—	0.0576517	0.00905464
U31	AD573	7.0	32.0	—	—	—
U33	54HC373J	0.0	25.0	1.5e-009	5	—
D31Z	1N4678	0.0	25.0	0.0800062	—	—
U32	74HC82	0.0	25.0	5e-011	5	8.33181e-006
L31	TT789	0.0	25.0	—	—	0.0197282
PCB1	PCB-PTH_UND	0.0	25.0	—	—	—
LC31	NSL5250	0.0	25.0	0.000409532	0.0452732	0.00905464
D31	20FQ0668	0.0	25.0	0.0115894	8.34245	0.0013904
Q31	JANTN2222A	0.0	25.0	9.60014e-005	0.00542222	0.0180741

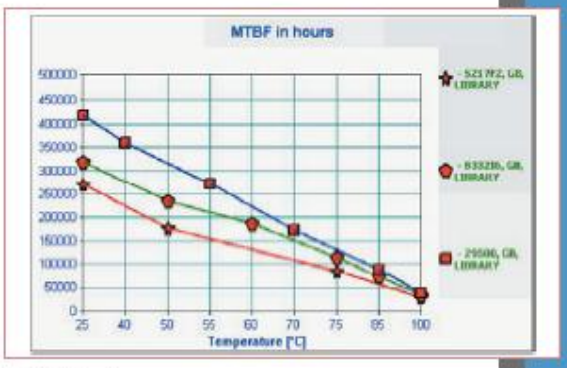
fiXtress Analysis Results



Circuit Example



Derating curve sample



MTBF Graph

About BQR

Established in 1989, BQR provides software tools and consulting services for Reliability, Availability, Maintenance and Safety (RAMS) and Integrated Logistic Support (ILS). Over the years BQR has successfully completed thousands of projects for major customers around the world. The propriety know-how that BQR has developed over the years has been encapsulated in the fiXtress package and is now being provided for customers.