

DFx services

Service	Description		
1 Test coverage analysis	Includes component-by-component detail. Includes percentages of coverage by test phase (AOI, ICT, FCT...), by type of failure (polarity, presence, value...) and by estimated risk level (for example, a polarity failure of a IC with symmetrical legs than another with a footprint that would not allow it to be soldered backwards by mistake).	Input	BOM, CAD (odb++) and schematics of the PCBA to be analyzed
		Output	Detailed report of a design's theoretical coverage
2 Proposal for a test coverage increase	Includes different options to add TPs to the design, with the % coverage that would be gained. (Requires coverage analysis)	Input	Test coverage analysis
		Output	Redesign proposal report to increase coverage
3 Non-covered potential failures	Includes a list of failure cases not covered in the set of verifications in the production process. (Requires coverage analysis)	Input	Test coverage analysis
		Output	Report of not covered components and potential failures
4 Coverage analysis of a test procedure or tool	Requires the creation of a FCT model based on the procedure proposed by the customer, which must be previously analyzed to estimate coverage. It would make it possible to analyze the coverage offered by that FCT over the rest of the verifications available.	Input	Test coverage analysis
		Output	Coverage analysis report of a test procedure or test tool
5 BOM failures detection	Validity analysis of the MPNs in a BOM. The total number of MPNs in the BOM defines the price of the service.	Input	BOM from de engineering department
		Output	Report with the MPNs in a BOM that are not suitable for supply chain management
6 BOM correction	Correction of MPNs in a BOM. The number of MPNs to correct defines the price of the service.	Input	BOM from de engineering department
		Output	Report with the MPNs in a BOM that are not suitable for supply chain management
7 BOM alternatives	Complete a BOM with alternative MPNs. The total number of alternative MPNs to be added defines the cost of the service.	Input	BOM corrected
		Output	BOM corrected with alternative MPNs
8 BOM Criticality analysis	BOM lead time analysis and risky MPNs identification.	Input	BOM corrected
		Output	BOM corrected with risky MPNs identified
9 Analysis of a design focused on its production	Study of interferences in distance between the different pads, tracks, test points and components to avoid future manufacturing problems. The size of the components is also compared to the footprint designed in both SMT and THT.	Input	BOM and CAD (odb++) of the PCBA to be analyzed
		Output	DFM report
10 Mechanical stress analysis	Includes SMT, THT, Depaneling and Assembly.	Input	Physical PCBA to be analyzed
		Output	Mechanical stress report
11 Study for the production process optimization	Analysis of the investment required to reduce and/or automate the manufacturing process of a product.	Input	BOM and CAD (odb++) of the PCBA to be analyzed
		Output	Report of the production process optimization with the required investment

Service	Description		
Soldering analysis 12	Soldering condition checking using metallographic cuts. The metallographic cuts number determines the cost of the service.	Input	Physical PCBA to be analyzed with soldering to analyze marked
		Output	Report of the product's soldering condition
Study and specification of the best packaging option for a product 13	Feasibility analysis to design and implement a returnable packaging. If not possible, a standard packaging solution is provided for the correct transport and handling of the product.	Input	Physical characteristics of the product: weight and dimensions
		Output	Report of packaging recommendations. Packaging technical specifications

Reference images

1

Test coverage analysis

Tester

Test coverage

Cumulative coverage

Escape rate

SPI

17.07%

17.07%

5.537%

AOI_SMD

66.70%

70.00%

2.003%

AOI_THT

0.71%

70.72%

1.955%

FPT

20.16%

74.18%

1.724%

+3.4%

Percentage of boards that are potentially defective

2

Proposal for a test coverage increase

	Top 8 uncovered	Top 20 uncovered	Full access
New test points	+102	+182	+685
FPT coverage	39.40%	50.33%	68.21%
Combined coverage	80.52%	83.31%	86%
Escape rate	1.3%	1.1%	0.9%

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Coverage analysis of a test procedure or tool

Tester

Test coverage

Cumulative coverage

Escape rate

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AOI_SMD

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70.00%

2.003%

AOI_THT

0.71%

70.72%

1.955%

FPT

20.16%

74.18%

1.724%

5

BOM failures detection

MPN	Correct?
CL10_B-04KB8NNWC	✗
R0402TR-07110KL	✗
C0402FR-07150KL	✗

6

BOM correction

MPN	Correct?
CL10B104KB8NNWC	✓
RC0402FR-07110KL	✓
RC0402FR-07150KL	✓

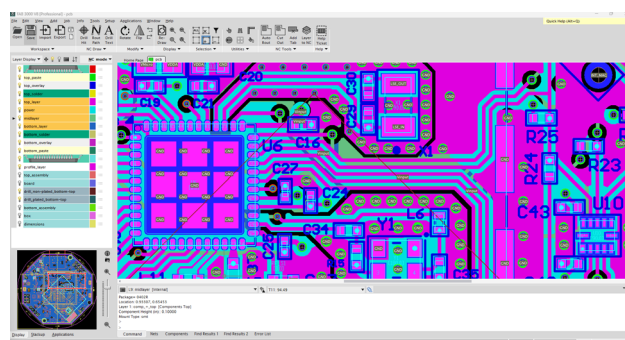
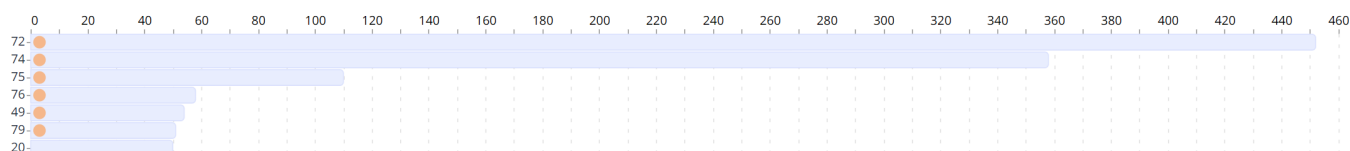
7

BOM alternatives

MPN	Correct?	Alternate 1	Correct?
CL10B104KB8NNWC	✓	C0603C104K5RAC	✓
RC0402FR-07110KL	✓	RK73H1ETTP1103F	✓
RC0402FR-07150KL	✓	CRCW0402150KFKED	✓

	Alternate 2	Correct?
	CC0603KRX7R9BB104	✓
	CRG0402F110K	✓
	MC00625W04021150K	✓

Lead time by Designator ▾



A diagram of a beam under a central point load. A red arrow points downwards at the center of the beam. The beam is supported by two grey blocks. Blue arrows indicate the direction of shear flow: on the top flange, arrows point outwards from the center; on the bottom flange, arrows point inwards towards the center. Dashed lines below the beam represent the deflection curve.