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Software Development

Plug-In PCB-Investigator:

„Hazard Analysis“ finds all possible shorts created from conductive material. The list of possible shorts helps to predict effects.

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Hazard Analysis Plug-In

After installing the Plug-In you get a new menu item



The screenshot shows the Hazard Analysis software interface. At the top, there is a menu bar with 'File' and 'Info'. Below it is a 3D model of a PCB with a red vertical bar indicating a hazard. A red text box above the model reads: 'Lists all possible shorts which could be caused by solder balls or metal parts with a certain size'. Below the model is a 'Space' input field set to '1000 μm' and an 'Analyse' button. There are also 'Settings' and 'Filter for Net' (with a dropdown) and 'Filter for CMP' (with a dropdown) options. At the bottom is a table with 7 columns: ID, Layer Na..., CMP-From, Net1, CMP-To, Net2, and Distance. The table contains 19 rows of data.

ID	Layer Na...	CMP-From	Net1	CMP-To	Net2	Distance
1	SMT	R13 - 2	N4068947	R13 - 1	AREF_SOURCE...	300,001
2	SMT	R13 - 2	N4068947	Q6 - 3	GND	946,991
3	SMT	Q6 - 1	N4068947	U8 - 6	N4032252	723,495
4	SMT	Q6 - 1	N4068947	Q6 - 2	N4032252	800,065
5	SMT	Q6 - 1	N4068947	U8 - 5	+5.0V	850,438
6	SMT	Q6 - 1	N4068947	Q6 - 3	GND	643,994
7	SMT	R12 - 2	N4032252	R12 - 1	+5.0V	300,001
8	SMT	U8 - 6	N4032252	U8 - 4	AREF_SWITCH...	949,988
9	SMT	U8 - 6	N4032252	U8 - 5	+5.0V	299,988
10	SMT	U8 - 6	N4032252	Q6 - 3	GND	877,750
11	SMT	Q6 - 2	N4032252	Q6 - 3	GND	800,065
12	SMT	U2 - 70	AREF_SOURCE...	U2 - 72	IRQ	700,001
13	SMT	U2 - 70	AREF_SOURCE...	U2 - 71	/MICRO_SD_C...	200,001
14	SMT	U2 - 70	AREF_SOURCE...	U2 - 69	LED	200,001
15	SMT	U2 - 70	AREF_SOURCE...	U2 - 2	GND	700,001
16	SMT	C11 - 1	AREF_SWITCH...	L1 - 2	AREF_FILTERED	520,212
17	SMT	C11 - 1	AREF_SWITCH...	C12 - 1	AREF_FILTERED	350,001
18	SMT	C11 - 1	AREF_SWITCH...	C10 - 2	GND	574,995
19	SMT	C11 - 1	AREF_SWITCH...	C11 - 2	GND	249,989

This value defines the area taken into the calculation

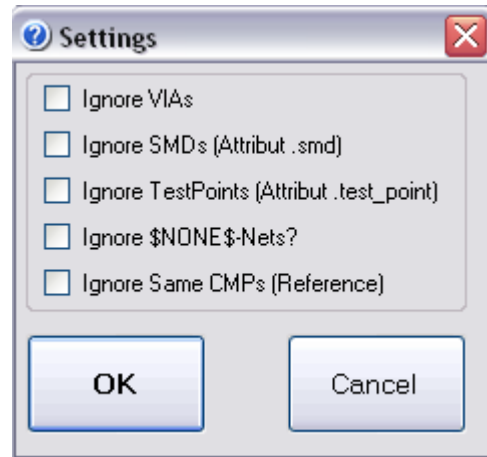
Start the Analysis

Analyse only certain nets or components

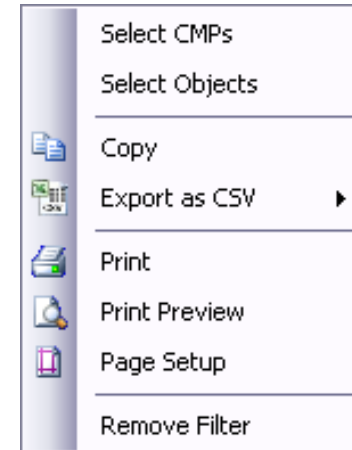
Filter the results, either by manual input or with the drop-down menu

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Settings and context menu for the list of results:



➤Analyse without these parts



➤Show components
or objects color marked
in the pcb

➤Copy, export or print the results

➤See the results without the filter
(if set)

Hazard Analysis Plug-In

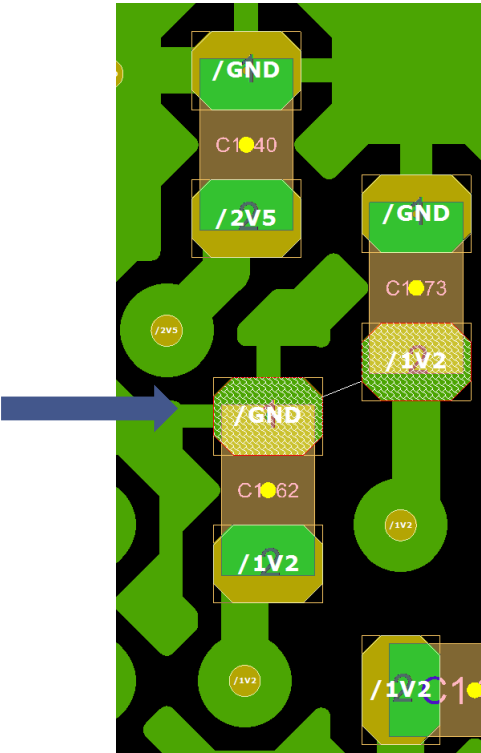
Lists all possible shorts which could be caused by solder balls or metal parts with a certain size

Space 1000 µm Analyse Settings

Filter for Net Filter for CMP

ID	Layer Na...	CMP-From	Net1	CMP-To	Net2	Distance
1	SMT	R13 - 2	N4068947	R13 - 1	AREF_SOURCE...	300,001
2	SMT	R13 - 2	N4068947	Q6 - 3	GND	946,991
3	SMT	Q6 - 1	N4068947	U8 - 6	N4032252	723,495
4	SMT	Q6 - 1	N4068947	Q6 - 2	N4032252	800,065
5	SMT	Q6 - 1	N4068947	U8 - 5	+5.0V	850,438
6	SMT	Q6 - 1	N4068947	Q6 - 3	GND	643,001
7	SMT	R12 - 2	N4032252	R12 - 1	+5.0V	300,001
8	SMT	U8 - 6	N4032252	U8 - 4	AREF_SWITCH...	949,988
9	SMT	U8 - 6	N4032252	U8 - 5	+5.0V	299,988
10	SMT	U8 - 6	N4032252	Q6 - 3	GND	877,750
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13	SMT	U2 - 70	AREF_SOURCE...	U2 - 71	/MICRO_SD_C...	200,001
14	SMT	U2 - 70	AREF_SOURCE...	U2 - 69	LED	200,001
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19	SMT	C11 - 1	AREF_SWITCH...	C11 - 2	GND	249,989

Use double click to select and highlight the result



Hazard Analysis Plug-In

- „Hazard Analysis“ finds all possible shorts created from conductive material. The list of possible shorts helps to predict effects on the production.
- Define the area around the copper pad which will be included in the calculation.
- To analyse only certain nets or components, use the corresponding filter.
- Sharpen the result with ignore-settings.
- Analyse now your whole PCB to find possible shorts.
- Filter the results by choosing only certain nets, components, distances etc. with the drop-down menu or by manual input.
- By double clicking on a result, the short will be visualized in the pcb.
- You can copy, print or export your results or reset a filter with the context menu. Here you can also choose to show all components or nets in the printed circuit board.