

# **Your PCB layout First time right**

**“Smart menus & PCB visualizer”  
DRC/DFM – free online tools**

**s’Hertogenbosch  
29 October 2014**

# PCB visualisation - Goals

- Help busy designers get boards
  - on time
  - accurate to their intentions
  - at best total cost
- Two inter-related topics
  - Design for Manufacturability (DFM)
    - What are the features that increase board costs?
    - What makes my board harder or impossible to make?
  - Clear data presentation
    - How can I be sure the data transfer is accurate?
    - Are there any data issues that will delay delivery?

“Wonderful, but I barely have time to design the circuitry, let alone sort out fabrication.”

# What you should know before you start to layout your board.

- What are the PCB cost drivers
  - Board size
  - Base material
  - Number of layers
  - Copper thickness
  - Special multilayer build
  - Blind and buried vias
  - Smallest hole size
  - Minimum track and gap
  - Surface finish
  - Soldermask colour
  - Legend colour
  - .....
- What makes a PCB harder/impossible to make?
  - Heavy copper + narrow tracks/gaps
  - Too small holes in too thick boards (aspect ratio)
  - Incompatible surface finishes
  - Blind/buried via combinations .....

“Stop! How can I take all this on board?”

# Which tools are available?

- Design for manufacturability (DFM) services
  - offline as part of RFQ
    - slow
    - inflexible – 1 option at a time
    - completed design
  - online
    - immediate
    - flexible – try several options in turn
    - at any stage of development
- Eurocircuits offers new DFM tools
  - smart menus
  - visual analysis tools
  - based on standard technology
    - that any fabricator can make

# Services based on choice of base material!

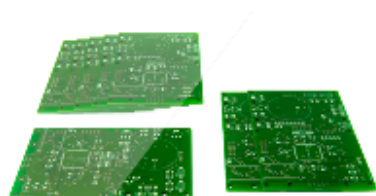
Eurocircuits - fast and easy PCB procurement

[Read more](#)

[Price calculator](#)

[Analyse your data](#)

[Launch inquiry](#)



## PCB proto

- ▶ 1, 2 or 5 PCBs in 2, 3, 5 or 7 working days
- ▶ 2 and 4 layers; 150µm technology



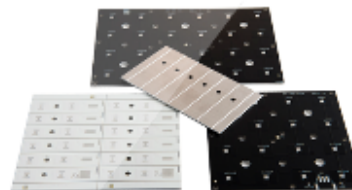
## STANDARD pool

- ▶ FR-4 lead-free soldering compatible material up to 16 layers
- ▶ Layout technology down to 90µm
- ▶ Deliveries from 2 working days
- ▶ Probably the widest range of pooling options in Europe



## RF pool


- ▶ Isola I-TERA and Rogers 4000 series material
- ▶ 2 - 4 layers, down to 100µm technology
- ▶ Deliveries from 3 working days



## IMS pool

- ▶ Single layer Insulated Metal Substrate PCBs (ALU)
- ▶ White/Black soldermask/legend or vice versa
- ▶ Deliveries from 3 working days

# Smart menus !



Delivery format

PCB quantity

Delivery term

Number of layers

PCB width (X) (mm)

PCB height (Y) (mm)

eC-registration compatible PCB ☐

► Stencils

Material definition Select pre-defined buildup

Board thickness <input type="text" value="1.55 mm"/>	Board buildup <input type="text" value="Standard"/>
Material Tg <input type="text" value="145-150 °C"/>	
Outer layer copper foil <input type="text" value="18 µm (end 35 µm)"/>	Inner layer copper foil <input type="text" value="35 µm"/>
Extra PTH runs <input type="text" value="0"/>	Extra press cycles <input type="text" value="0"/>

▼ Board technology Select classification

Outer layer trackwidth (OL-TW) <input type="text" value="0.150 mm"/>	Outer layer isolation distance (OL-TT-TP-PP) <input type="text" value="0.150 mm"/>
Outer layer annular ring (OAR) <input type="text" value="0.125 mm"/>	Inner layer trackwidth (IL-TW) <input type="text" value="0.150 mm"/>
Inner layer isolation distance (IL-TT-TP-PP) <input type="text" value="0.150 mm"/>	Inner layer annular ring (IAR) <input type="text" value="0.125 mm"/>
Smallest final hole <input type="text" value="0.25 mm"/>	Hole density <input type="text" value=" &lt; 1000/dm²"/>
Technology class <input type="text" value="6C"/>	Holes <= may be reduced <input type="text" value="0.45 mm"/>

Board definition


Top soldermask <input type="text" value="Green"/>	Bottom soldermask <input type="text" value="Green"/>
Top legend <input type="text" value="White"/>	Bottom legend <input type="text" value="White"/>
Surface finish <input type="text" value="Any lead free finish"/>	Milling <input type="text" value="No"/>
Bare Board Testing <input checked="" type="checkbox"/>	UL marking <input type="checkbox"/>

► Advanced options


Summary Business customer? Select here. ☐

Service	STANDARD pool	
Delivery term	7 working days	
Estimated shipment date	01-10-2013	
Quantity	10 PCBs	
Board surface / Order surface	0.80 dm² / 8.00 dm²	
Prices	Net	Gross*
Single PCB	€ 31.79	€ 38.47
Total boards	€ 317.92	€ 384.68
Express transport	€ 12.48	€ 15.10
Economy transport	€ 10.49	€ 12.69
Total	€ 330.39	€ 399.77

\* The gross prices include 21.00% VAT.

 Add to basket

Useful documents

 → PCB Calculator user guide Read more...

→ PCB design guidelines Read more...

Alternatives Customized matrix

<p>10 PCBs 7 working days</p> <table> <tr> <td>Net</td> <td>Gross*</td> </tr> <tr> <td>€ 31.79</td> <td>€ 38.47</td> </tr> <tr> <td>€ 317.92</td> <td>€ 384.68</td> </tr> </table> <p>Select</p>	Net	Gross*	€ 31.79	€ 38.47	€ 317.92	€ 384.68	<p>20 PCBs 7 working days</p> <table> <tr> <td>Net</td> <td>Gross*</td> </tr> <tr> <td>€ 21.17</td> <td>€ 25.62</td> </tr> <tr> <td>€ 423.49</td> <td>€ 512.43</td> </tr> </table> <p>Select</p>	Net	Gross*	€ 21.17	€ 25.62	€ 423.49	€ 512.43	<p>30 PCBs 7 working days</p> <table> <tr> <td>Net</td> <td>Gross*</td> </tr> <tr> <td>€ 17.00</td> <td>€ 20.58</td> </tr> <tr> <td>€ 510.13</td> <td>€ 617.26</td> </tr> </table> <p>Select</p>	Net	Gross*	€ 17.00	€ 20.58	€ 510.13	€ 617.26
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\* The gross prices include 21.00% VAT.  
The transport costs and total price are calculated and shown in the summary according to the selection.

# Build-up validation!

- Technical support
  - Build wizard
    - 700 builds

Board buildup

Number of layers
6

Board thickness
1.55 mm

Board buildup
Reversed - 0.200 mm core(s)

Extra PTH runs
3

Outer layer copper foil	Inner layer copper foil
12 $\mu$ m (end 30 $\mu$ m)	12 $\mu$ m
18 $\mu$ m (end 35 $\mu$ m)	18 $\mu$ m
35 $\mu$ m (end 60 $\mu$ m)	35 $\mu$ m
70 $\mu$ m (end 95 $\mu$ m)	70 $\mu$ m

Top copper - 0.018mm  
Core - FR4-Improved - 0.2mm  
Inner copper 1 - 0.018mm  
Prepreg - PR2125 - 0.1mm  
Prepreg - PR2125 - 0.1mm  
Prepreg - PR2125 - 0.1mm  
Prepreg - PR2125 - 0.1mm  
Inner copper 2 - 0.018mm  
Core - FR4-Improved - 0.2mm  
Inner copper 3 - 0.018mm  
Prepreg - PR2125 - 0.1mm  
Prepreg - PR2125 - 0.1mm  
Prepreg - PR2125 - 0.1mm  
Prepreg - PR2125 - 0.1mm  
Inner copper 4 - 0.018mm  
Core - FR4-Improved - 0.2mm  
Bottom copper - 0.018mm  
Via  
Via  
Via

➤ faster prices, faster deliveries, lower costs



# Technical validations!

- Technical support
  - Technical validation
    - 300 rules

Material definition

Select pre-defined buildup

Board thickness

1.55 mm

Board buildup

Standard

Material Tg

145-150 °C

Outer layer copper foil

70 µm (end 95 µm)

▼ Board technology

Select classification

Outer layer trackwidth (OL-TW)

0.100 mm

Outer layer isolation distance (OL-TT-TP-PP)

0.125 mm

Outer layer annular ring (OAR)

0.100 mm

Smallest final hole

0.25 mm

Hole density

< 1000/dm²

Technology class

8C

Order detail conflicts

The selected outer layer copper foil (70 µm (end 95 µm)) requires a minimum outer layer trackwidth of 0.200 mm. The current value for outer layer trackwidth is 0.100 mm. Press accept to adapt the outer layer trackwidth setting to the required value.

Accept


The selected outer layer copper foil (70 µm (end 95 µm)) requires a minimum outer layer isolation of 0.250 mm. The current value for outer layer isolation is 0.125 mm. Press accept to adapt the outer layer isolation setting to the required value.

Accept



# Technical validations!

### STANDARD pool



Delivery format: Single PCB

PCB quantity: 10

Delivery term: 7 working days

Number of layers: 6

PCB width (X) (mm): 100.00

PCB height (Y) (mm): 80.00

eC-registration compatible PCB: ☐

### Summary

Business customer? ☐ Select here.

No price could be calculated due to conflicts in the order details.

Click the 'Launch inquiry' button in case you are having troubles configuring your PCB. Our sales team will review your input and generate an offer.

[Launch inquiry](#)

### Useful documents

[PCB Calculator user guide](#) [Read more...](#)

[PCB design guidelines](#) [Read more...](#)

### Order detail conflicts

No valid buildup found, with the combination of selected material parameters.

Pooling conditions no longer met due to the following order details:

- Board buildup

[Select pre-defined buildup](#)

### Material definition

[Select pre-defined buildup](#)

Board thickness: 1.55 mm

Material Tg: 145-150 °C

Outer layer copper foil: 18 µm (end 35 µm)

Extra PTH runs: 0

Board buildup: Reversed - 0.360 mm core

Inner layer copper foil: 35 µm

### Board technology

Outer layer trackwidth (OL-TW): 0.150 mm

Outer layer annular ring (OAR): 0.125 mm

Inner layer isolation distance (IL-TT-TP-PP): 0.150 mm

Smallest final hole: 0.25 mm

Technology class: 6C

Board buildup: Reversed - 0.200 mm core(s)

Extra PTH runs: 0

### Board definition

Top soldermask: Green

Top legend: White

Surface finish: Any lead free finish

Bare Board Testing: ☒

Bottom : ☐

Bottom I: ☐

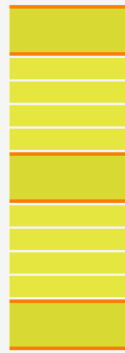
Milling: ☐

UL mark: ☐

### Advanced options

### Board buildup

Outer layer copper foil	Inner layer copper foil
12 µm (end 30 µm)	12 µm
18 µm (end 35 µm)	18 µm
35 µm (end 60 µm)	35 µm
70 µm (end 95 µm)	70 µm



- Top copper - 0.018mm
- Core - FR4-Improved - 0.2mm
- Inner copper 1 - 0.018mm
- Prepreg - PR2125 - 0.1mm
- Prepreg - PR2125 - 0.1mm
- Prepreg - PR2125 - 0.1mm
- Prepreg - PR2125 - 0.1mm
- Inner copper 2 - 0.018mm
- Core - FR4-Improved - 0.2mm
- Inner copper 3 - 0.018mm
- Prepreg - PR2125 - 0.1mm
- Prepreg - PR2125 - 0.1mm
- Prepreg - PR2125 - 0.1mm
- Prepreg - PR2125 - 0.1mm
- Inner copper 4 - 0.018mm
- Core - FR4-Improved - 0.2mm
- Bottom copper - 0.018mm

# Classification aide!

- Technical support
  - Classification wizard
    - Pattern
    - Holes
    - Copper weight

Classification wizard

### Pattern class

	Design values	Pattern class						
		3	4	5	6	7	8	9
Outer layer trackwidth (OL-TW)	0.150	≥ 0.250 mm	≥ 0.200 mm	≥ 0.175 mm	≥ 0.150 mm	≥ 0.125 mm	≥ 0.100 mm	≥ 0.090 mm
Outer layer isolation distance (OL-TT-TP-PP)	0.150	≥ 0.250 mm	≥ 0.200 mm	≥ 0.175 mm	≥ 0.150 mm	≥ 0.125 mm	≥ 0.125 mm ⚠	≥ 0.125 mm ⚠
Outer layer annular ring (OAR)	0.125	≥ 0.200 mm	≥ 0.150 mm	≥ 0.150 mm	≥ 0.125 mm	≥ 0.125 mm	≥ 0.100 mm	≥ 0.100 mm
Inner layer trackwidth (IL-TW)	0.150	≥ 0.250 mm	≥ 0.200 mm	≥ 0.175 mm	≥ 0.150 mm	≥ 0.125 mm	≥ 0.100 mm	≥ 0.090 mm
Inner layer isolation distance (IL-TT-TP-PP)	0.150	≥ 0.250 mm	≥ 0.200 mm	≥ 0.175 mm	≥ 0.150 mm	≥ 0.125 mm	≥ 0.100 mm	≥ 0.100 mm ⚠
Inner layer annular ring (IAR)	0.125	≥ 0.200 mm	≥ 0.150 mm	≥ 0.150 mm	≥ 0.125 mm	≥ 0.125 mm	≥ 0.125 mm	≥ 0.125 mm

⚠ The selected outer copper foil thickness (18 µm) requires a minimum outer layer isolation of 0.125 mm.

⚠ The selected inner copper foil thickness (18 µm) requires a minimum inner layer isolation of 0.100 mm.





### Drill class

	Design values	Drill class				
		A	B	C	D	E
Smallest final hole	0.25	≥ 0.50 mm	≥ 0.35 mm	≥ 0.25 mm	≥ 0.15 mm	≥ 0.10 mm

Cancel
Apply





# Price guidance!

- Poolable options
  - Extra cost expressed as single coin symbol

Board definition	
Top soldermask	Green 
Top legend	White 
Surface finish	Che Ni/Au selectif  
Bare Board Testing	<input checked="" type="checkbox"/>


*Note: Blue arrows point from the 'Surface finish' dropdown and the 'Bare Board Testing' checkbox to the 'Remarks' section in the bottom right.*

- Non-poolable options
  - Extra cost expressed as multiple coin symbol and remark

Material definition	
Board thickness	1.55 mm 
Material Tg	145-150 °C 
Outer layer copper foil	18 µm (end 35 µm) 
Extra PTH runs	1 

*Note: Blue arrows point from the 'Outer layer copper foil' dropdown and the 'Extra PTH runs' field to the 'Remarks' section in the bottom right.*

## Remarks

-  Pooling conditions no longer met due to the following order details:
- Extra PTH runs

# Price guidance!

## Alternatives

## Customized matrix

<p>10 PCBs 7 working days Net € 11.82</p> <p>€ 118.16</p> <p>Select</p>	<p>20 PCBs 7 working days Net € 8.07</p> <p>€ 161.44</p> <p>Select</p>	<p>30 PCBs 7 working days Net € 6.57</p> <p>€ 197.17</p> <p>Select</p>
<p>10 PCBs 6 working days Net € 14.83</p> <p>€ 148.31</p> <p>Select</p>	<p>20 PCBs 6 working days Net € 10.13</p> <p>€ 202.63</p> <p>Select</p>	<p>30 PCBs 6 working days Net € 8.25</p> <p>€ 247.47</p> <p>Select</p>
<p>10 PCBs 5 working days Net € 16.88</p> <p>€ 168.80</p> <p>Select</p>	<p>20 PCBs 5 working days Net € 11.53</p> <p>€ 230.63</p> <p>Select</p>	<p>30 PCBs 5 working days Net € 9.39</p> <p>€ 281.67</p> <p>Select</p>
<p>10 PCBs 4 working days Net € 22.91</p> <p>€ 229.09</p> <p>Select</p>	<p>20 PCBs 4 working days Net € 15.65</p> <p>€ 313.00</p> <p>Select</p>	<p>30 PCBs 4 working days Net € 12.74</p> <p>€ 382.27</p> <p>Select</p>

The transport costs and total price are calculated and shown in the summary according to the selection.

## Customer definable pricing wizard

	PCB quantity	PCB quantity	PCB quantity	PCB quantity	PCB quantity	PCB quantity
	10	20	30	50	100	200
Delivery term	Net	Net	Net	Net	Net	Net
4 <input checked="" type="checkbox"/>	€ 22.91	€ 15.65	€ 12.74	€ 10.57	€ 7.83	€ 5.97
working days	€ 229.09	€ 313.00	€ 382.27	€ 528.29	€ 782.99	€ 1194.59
Delivery term	Net	Net	Net	Net	Net	Net
5 <input checked="" type="checkbox"/>	€ 16.88	€ 11.53	€ 9.39	€ 7.86	€ 6.22	€ 5.07
working days	€ 168.80	€ 230.63	€ 281.67	€ 392.83	€ 622.37	€ 1013.59
Delivery term	Net	Net	Net	Net	Net	Net
6 <input checked="" type="checkbox"/>	€ 14.83	€ 10.13	€ 8.25	€ 6.66	€ 5.34	€ 4.31
working days	€ 148.31	€ 202.63	€ 247.47	€ 333.23	€ 534.04	€ 862.76
Delivery term	Net	Net	Net	Net	Net	Net
7 <input checked="" type="checkbox"/>	€ 11.82	€ 8.07	€ 6.57	€ 5.31	€ 4.54	€ 3.56
working days	€ 118.16	€ 161.44	€ 197.17	€ 265.50	€ 453.73	€ 711.93
Delivery term	Net	Net	Net	Net	Net	Net
10 <input checked="" type="checkbox"/>	€ 11.82	€ 8.07	€ 6.57	€ 5.31	€ 3.94	€ 2.96
working days	€ 118.16	€ 161.44	€ 197.17	€ 265.50	€ 393.50	€ 591.26
Delivery term	Net	Net	Net	Net	Net	Net
15 <input checked="" type="checkbox"/>	€ 11.82	€ 8.07	€ 6.57	€ 5.31	€ 3.94	€ 2.96
working days	€ 118.16	€ 161.44	€ 197.17	€ 265.50	€ 393.50	€ 591.26

The transport costs and total price are calculated and shown when your selection is added to the basket.

Recalculate



Add to basket



# Operator assistance!

- Launch inquiry
  - Any time during the process, when encountering an order detail conflict you may decide to call on operator assistance by “launching inquiry”.

Delivery format

Single PCB

PCB quantity

10

Delivery term

5 working days

Number of layers

4

PCB width (X) (mm)

100.00

PCB height (Y) (mm)

80.00

eC-registration compatible PCB

☐

Buildup

Material Tg

145-150 °C

Inner layer copper foil

35 µm

Special buildup

☐

Blind/Buried via runs

0

Summary

Business customer? Select here. ☒

No price could be calculated due to conflicts in the order details.

Click the 'Launch inquiry' button in case you are having troubles configuring your PCB. Our sales team will review your input and generate an offer.

Launch inquiry

Useful documents

→ PCB Calculator user guide

Read more...

→ PCB design guidelines

Read more...

Order detail conflicts

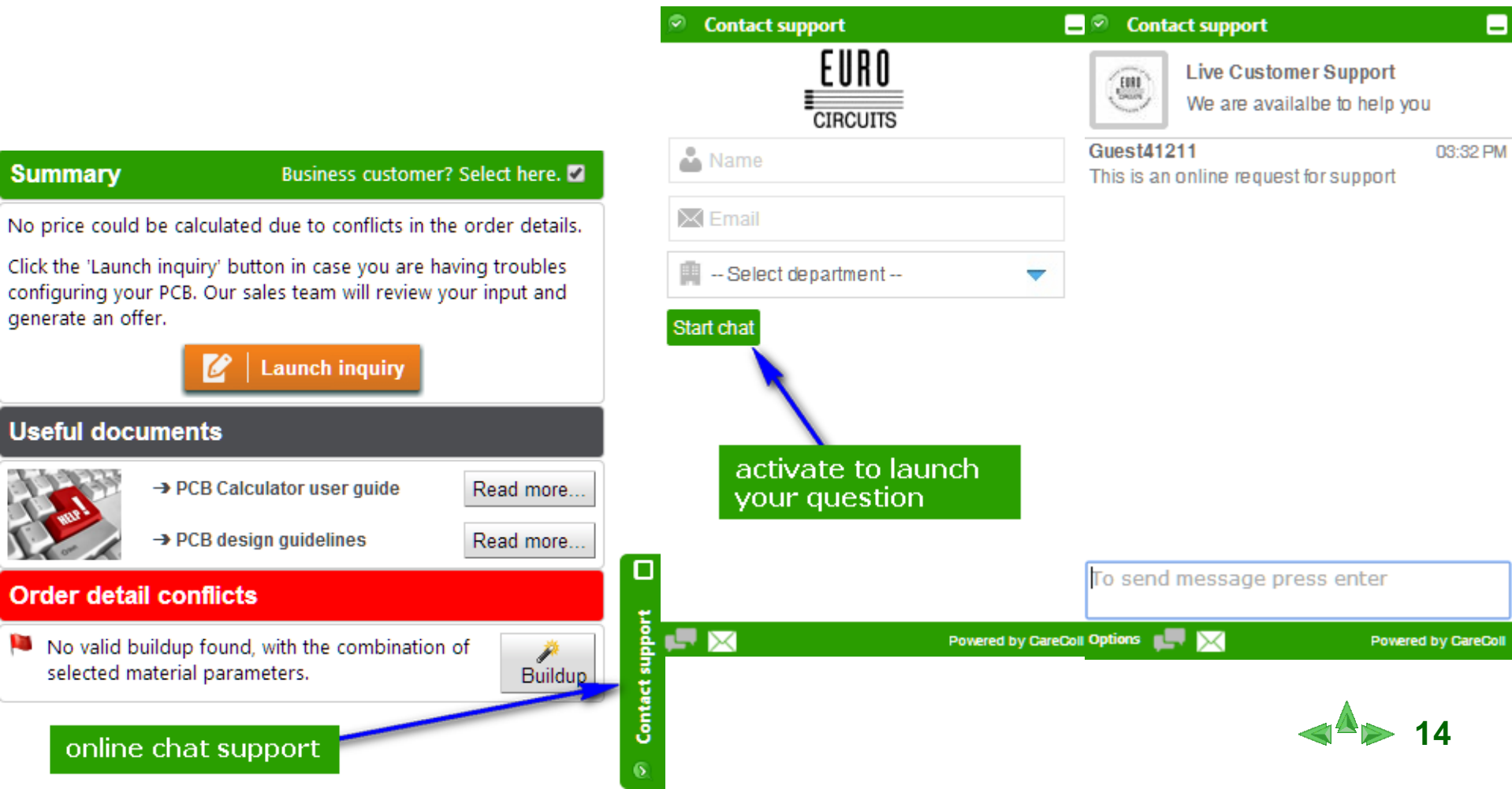
No valid buildup found, with the combination of selected material parameters.

Buildup

4-layer reversed build up with outer copper foil 18µm and inner copper foil 35µm is not available

# Instant operator assistance!


- Online chat support
  - Any time during the process and on any web page, you can call on operator assistance by “activating the chat window”.




**Summary** Business customer? Select here. ☒

No price could be calculated due to conflicts in the order details.

Click the 'Launch inquiry' button in case you are having troubles configuring your PCB. Our sales team will review your input and generate an offer.


 Launch inquiry


**Useful documents**

 → PCB Calculator user guide [Read more...](#)


→ PCB design guidelines [Read more...](#)

**Order detail conflicts**

 No valid buildup found, with the combination of selected material parameters.

 Buildup


**Contact support**

 **Live Customer Support**  
We are available to help you

Guest41211 03:32 PM  
This is an online request for support

Name


Email

-- Select department -- 

**Start chat**

activate to launch your question

To send message press enter

Powered by CareColl Options  Powered by CareColl

online chat support

# Make your CAD layout and output your PCB data!

- Extended Gerber = RS274X
  - Embedded apertures, any shaped pad or copper area (“polygon”)
  - Universal, clear, unambiguous, man-readable
  - **DON'T** use old Standard Gerber = RS274D
    - Separate aperture table; drawn pads
- Excellon ASCII (man-readable) drill files
  - Preferably with embedded tool diameter files
  - **DON'T** use old binary EIA files
  - **DON'T** provide only Gerber drill maps
    - Manual conversion > unacceptable error risk
    - Use only for cross-checking



# Make your CAD layout and output your PCB data!

- CAD formats
  - Fabricator needs a range of software from different vendors and versions
  - Difficult to cross-check
  - ONLY use them where fabricator and CAM vendor work very closely together
    - E.g. Eurocircuits and CadSoft/Farnell EAGLE
- IPC 356 netlist data – if available
  - If your CAD system generates it
  - Cross-check the Gerber and drill data

# Load your PCB data in the shopping basket!

- Three options available
  - Price calculator: fill in the order details and attach PCB data
  - Analyse your data: just attach your data and launch
  - Launch Inquiry: launch your PCB data to front end and wait for an offer



## STANDARD pool

- ▶ FR-4 lead-free soldering compatible material up to 16 layers
- ▶ Layout technology down to 90µm
- ▶ Deliveries from 2 working days
- ▶ Probably the widest range of pooling

[Price calculator](#)
[Analyse your data](#)
[Launch inquiry](#)

# Your PCB is ready for viewing.

Customer R...

**CALCULATE AND ORDER**

Calculate a...

Order Stencils

**Shopping basket** 4

View runnin...

Order repe...

Pre-production a...

Exception o...

View shipm...

TEST-OK

OFF THE SHELF

FINANCIAL

MANAGE PROFILE

Demouser pwr\_user1 | Democompany

(4 Total item(s)) | English | Home | Logout

Price calculator **Shopping basket** Checkout items

Shopping basket – To start the manufacturing process, select an item(s) and "Proceed to checkout" !

Factory closures: (1 day) in November - View

[Proceed to checkout](#)
[Modify](#)
[View details](#)
[Files](#)
[Delete](#)
[History](#)
[Download PDF offer](#)
[Edit administrative details](#)
[Ask a question](#)

Number	Item name	Service	Status	Created c	Search						
<b>Items ready for checkout</b>											
<input type="checkbox"/>	PCB Visualizer®	Offer	Number	Type	Status	Item name	Service	Quantity	Delivery days	Unit price	Net price
<input checked="" type="checkbox"/>	PCB Visualizer®		B0248448	PCB	Ready to checkout	LSA-TST-1ltopcu	IMS pool	5	7 Working days		
<input type="checkbox"/>	PCB Visualizer®		B0247891	PCB	Ready to checkout	WDG perf	STANDARD pool	10	7 Working days		
<input checked="" type="checkbox"/>	PCB Visualizer®		B0244135	PCB	Ready to checkout	Isa-TST	STANDARD pool	10	7 Working days		
<p>You can order all jobs with status 'Ready for Checkout' immediately, even when the PCB Visualizer process is still running or failed.</p>											
<b>Items in analysis</b>											
<input type="checkbox"/>	PCB Visualizer®	Number	Type	Status	Item name	Service	Quantity	Delivery days	Unit price	Net price	Stenc
<input checked="" type="checkbox"/>	PCB Visualizer®	B0247255	Inquiry	Awaiting quotation	Isa-TST	STANDARD pool	10	7 Working days	-	-	-
<p>Visualizer link in [Visualizer] column lets you view PCB layers visually, during processing you will not be able to modify your data files.</p>											

Support is always just a click away.

These 3 items can be viewed by clicking the link.

When inquiries are launched, they will appear here while in process.

# PCB Configurator

PCB Configurator PCB Checker

Board name: isa-tst (B0161432) Data set: Customer Data

Order and board details

**Customer data** [Buildup](#)

Imported 9 layers

**STANDARD pool**

Delivery format: Single PCB

PCB quantity: 10

Delivery term: 7 working days

Number of layers: 4

PCB width (X) (mm): 109.14  
Measured: 109.14 mm

PCB height (Y) (mm): 69.34  
Measured: 69.34 mm

eC-registration compatible PCB: ☐

Board name: isa-tst

**Stencils**

**Material** [Buildup](#)

Board thickness: 1.55 mm

Material Tg: 145-150 °C

Outer layer copper foil: 18 µm (end +/-35 µm)

Inner layer copper foil: 35 µm

Reversed buildup: ☐

Special buildup: ☐

Inner layer core thickness: Standard

Blind/Buried via runs: 0  
Measured: 0

Extra press cycles: 0

**Technology** [Classification](#)

**PCB definition**

**Buildup**

**Top view**

- Top soldermask
- Top copper
- Inner copper 1
- Inner copper 2
- Bottom copper
- Bottom soldermask
- Plated drill
- Non Plated Through Hole
- Rout
- Bottom view

**Detailed View - Top**

DA050100A

**Price**

**Summary**

Service	STANDARD pool
Delivery term	7 working days
Estimated shipment date	19-05-2014
Quantity	10 PCBs
Board surface / Order surface	0.76 dm² / 7.57 dm²
Prices	Net
Single PCB	€ 25.81
Total boards	€ 258.14
Express transport	€ 13.68
Economy transport	€ 7.28
VAT 21.00%	€ 57.08
Total gross	€ 328.91

[Save changes](#)

Click the 'Launch inquiry' button in case you are having troubles configuring your PCB. Our sales team will review your input and generate an offer.

[Launch inquiry](#)

**Alternatives** [Customized matrix](#)

10 PCBs 7 working days Net € 25.81 € 258.14 <a href="#">Select</a>	20 PCBs 7 working days Net € 16.33 € 326.64 <a href="#">Select</a>	30 PCBs 7 working days Net € 12.99 € 389.78 <a href="#">Select</a>
10 PCBs 6 working days Net € 32.14 € 321.36 <a href="#">Select</a>	20 PCBs 6 working days Net € 20.50 € 409.97 <a href="#">Select</a>	30 PCBs 6 working days Net € 16.31 € 489.22 <a href="#">Select</a>

The transport costs and total price are calculated and shown in the summary according to the selection.

# Buildup wizard - "layer editor"

Buildup wizard

Material

Number of layers: 4

Board thickness: 1.55 mm

Reversed buildup: ☐

Blind/Buried via runs: 0

Extra press cycles: 0

Special buildup: ☐

Top soldermask: Green

Bottom soldermask: Green

Top legend: None

Bottom legend: None

Peelable mask: No

Carbon contacts: No

Viafill: No

Top heatsink paste: No

Bottom heatsink paste: No

Buildup

Top view

Top soldermask (DA050100A\_GTS)

Top copper (DA050100A\_GTL)

Inner copper 1 (DA050100A\_GP1)

Inner copper 2 (DA050100A\_GP2)

Bottom copper (DA050100A\_GBL)

Bottom soldermask (DA050100A\_GBS)

Plated drill (DA050100A-RoundHoles\_TXT\_plated)

Non Plated Through Hole (NPTH) (DA050100A-RoundHoles\_TXT\_unplated)

Rout (DA050100A-SlotHoles\_TXT)

Bottom view

Imported Layers

File name	Function
DA050100A-RoundHoles_TXT_plated	Plated drill
DA050100A-RoundHoles_TXT_unplated	Non Plated Through Hole (NPTH)
DA050100A-SlotHoles_TXT	Rout
DA050100A_GBL	Bottom copper
DA050100A_GBS	Bottom soldermask
DA050100A_GM4	Non-assigned
DA050100A_GP1	Inner copper 1
DA050100A_GP2	Inner copper 2
DA050100A_GTL	Top copper
DA050100A_GTS	Top soldermask

Layer image

Core thickness

Outer layer copper foil

Inner layer copper foil

0.710 mm	12 µm (end 30 µm)	12 µm
0.710 mm	12 µm (end 30 µm)	18 µm
0.710 mm	18 µm (end 35 µm)	18 µm
0.710 mm	18 µm (end 35 µm)	35 µm
0.710 mm	35 µm (end 60 µm)	35 µm
0.710 mm	35 µm (end 60 µm)	70 µm
0.710 mm	70 µm (end 95 µm)	70 µm
0.360 mm	12 µm (end 30 µm)	12 µm
0.360 mm	12 µm (end 30 µm)	18 µm
0.360 mm	18 µm (end 35 µm)	18 µm
0.360 mm	18 µm (end 35 µm)	35 µm

"Layer editor" allows you to assign any loaded data file to any functional layer of the board. The result of the link is shown in the buildup.

On the right side of the screen the layer image of the selected data file is shown.

Cancel Apply

# "Marking editor"

Marking editor - Isa-tst (B0161432)

Bird's Eye View - Top

Bird's Eye View - Bottom

Legend

	top	bottom
Order number	0	1
UL logo	0	1
QR code	0	1
Text	0	1
Production date	0	1

Detailed View - Bottom

Tools

- Select marking to edit
- Switch view to top side
- Delete the selected object
- Undo the last operation
- Redo the last operation
- Add an extra order number

☒ **PCB is UL certified**

- Add UL logo

☒ **PCB has custom markings**

- Add QR code
- Add text
- Add production date

Text properties

Value:

Height (mm):

Rotation:

Change the text properties to change the value, rotation or size. Click on one of the objects to select it. Drag an object to move it.

All items that are placed (partly) outside the board will not be placed on the board except the order number which will in this case be placed at a default location. All items will be automatically clipped by drills.

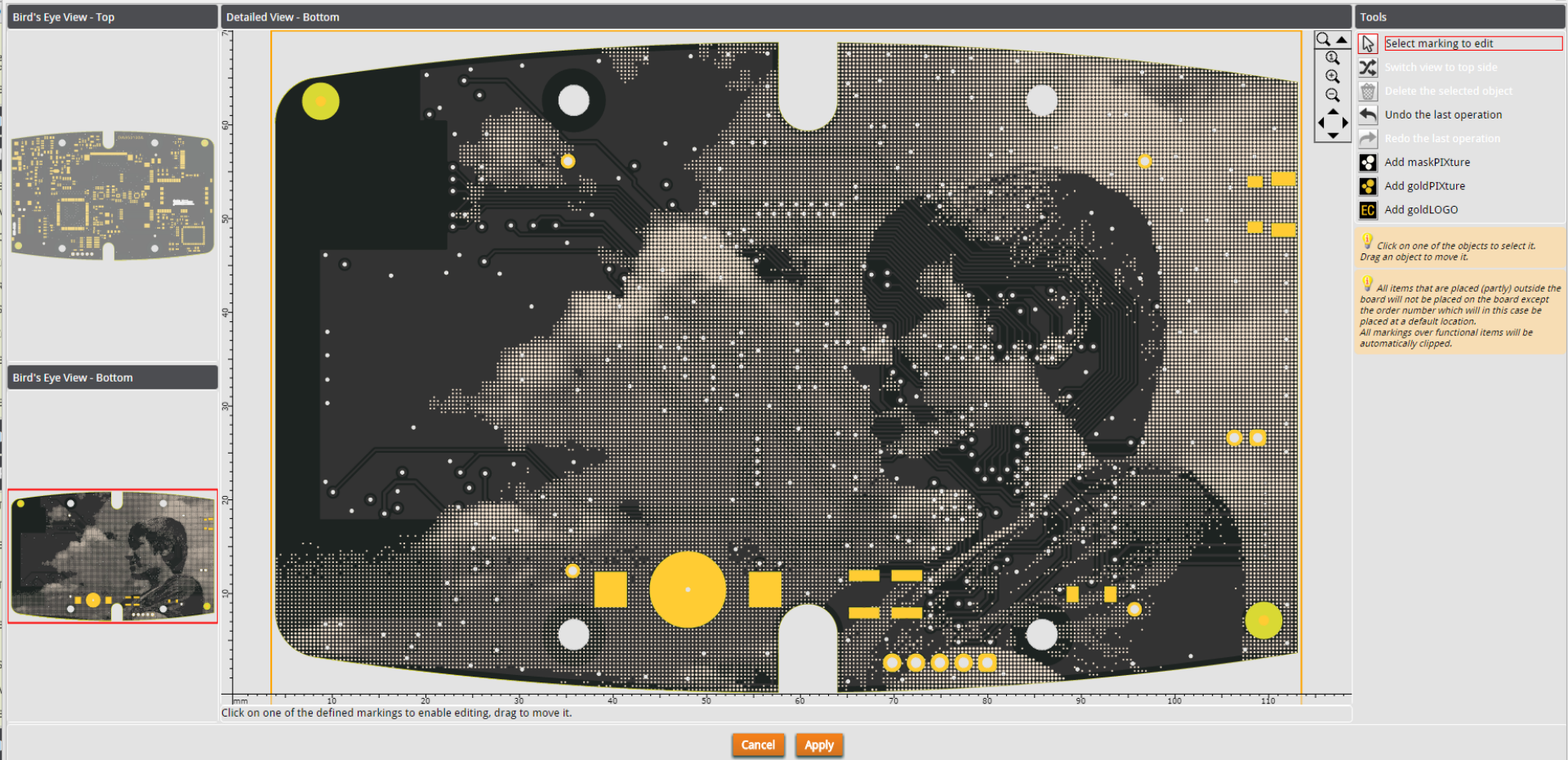
Cancel

Apply



# "PCB PIXture editor"

PCB PIXture editor - DA050100D (B0251888)





# PCB Checker - DRC

PCB Configurator PCB Checker Board name: isa-1st (B0161432) Data set: Customer Data

DRC information

Layer	Required	Measured		
<b>Outer layer trackwidth (OL-TW)</b>				
Top copper	0.200 mm	0.200 mm		
Bottom copper	0.200 mm	0.200 mm		
<b>Outer layer isolation distance (OL-TT-TP-PP)</b>				
Top copper	0.150 mm	0.125 mm	4	
Bottom copper	0.150 mm	0.200 mm		
<b>Outer layer annular ring (OAR)</b>				
Top copper	0.200 mm	0.200 mm		
Bottom copper	0.200 mm	0.200 mm		
<b>Inner layer trackwidth (IL-TW)</b>				
Inner copper 1	0.250 mm	0.250 mm		
Inner copper 2	0.250 mm	0.250 mm		
<b>Inner layer isolation distance (IL-TT-TP-PP)</b>				
Inner copper 1	0.250 mm	+		
Inner copper 2	0.250 mm	0.600 mm		
<b>Inner layer annular ring (IAR)</b>				
Inner copper 1	0.200 mm	0.250 mm		
Inner copper 2	0.200 mm	0.299 mm		
<b>Smallest final hole</b>				
Plated drill	0.25 mm	0.30 mm		
Non Plated Through Hole (NPTH)	0.25 mm	3.20 mm		

Buildup

Top view  
Top soldermask  
**Top copper**  
Inner copper 1  
Inner copper 2  
Bottom copper  
Bottom soldermask  
Plated drill  
Non Plated Through Hole  
Rout  
Bottom view

Detailed View - Top copper

Price

**Summary**

Service	STANDARD pool
Delivery term	7 working days
Estimated shipment date	19.05.2014
Quantity	10 PCBs
Board surface / Order surface	0.76 dm² / 7.57 dm²
<b>Prices</b>	
	Net
Single PCB	€ 23.55
Total boards	€ 235.54
Express transport	€ 13.68
Economy transport	€ 7.28
VAT 21.00%	€ 52.34
Total gross	€ 301.56

Save changes

Click the 'Launch inquiry' button in case you are having troubles configuring your PCB. Our sales team will review your input and generate an offer.

Launch inquiry

**Remarks**

Some of the measured values do not match the required values. Select the required value to ignore the measured value or select the measured value to accept the measured value. Then press Apply to save the selections.

Outer layer isolation distance (OL-TT-TP-PP)

Required	Measured
0.150 mm	0.125 mm

Apply

**Alternatives**

10 PCBs	20 PCBs	30 PCBs
7 working days	7 working days	7 working days
Net	Net	Net
€ 23.55	€ 15.38	€ 12.28
€ 235.54	€ 307.53	€ 368.50
Select	Select	Select

Outer layer isolation distance (OL-TT-TP-PP) - Top copper

Current issue

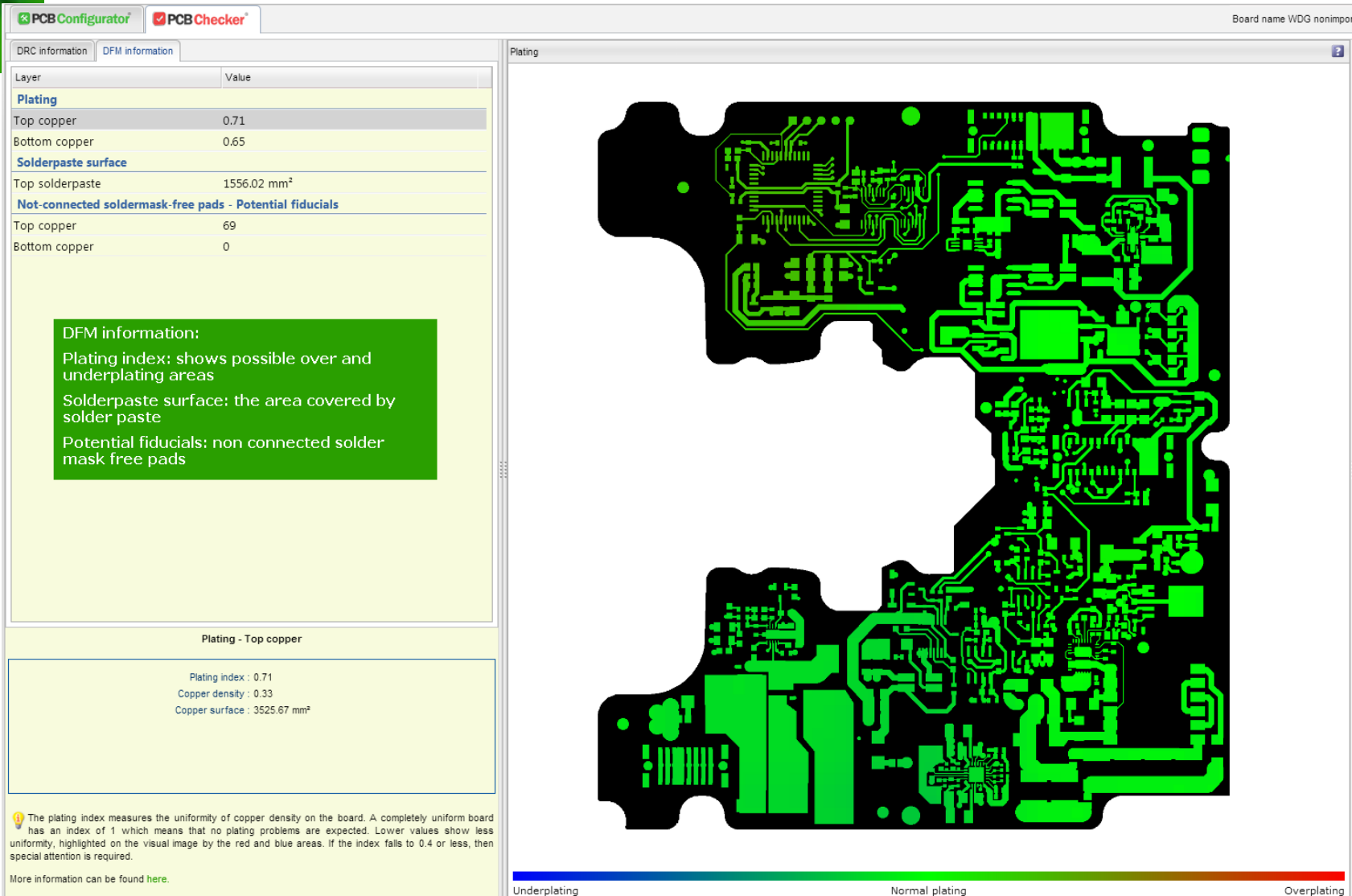
Measured isolation : 0.125 mm  
Required isolation : 0.150 mm

Bird's Eye View

DRC violations can be viewed in detail one by one.

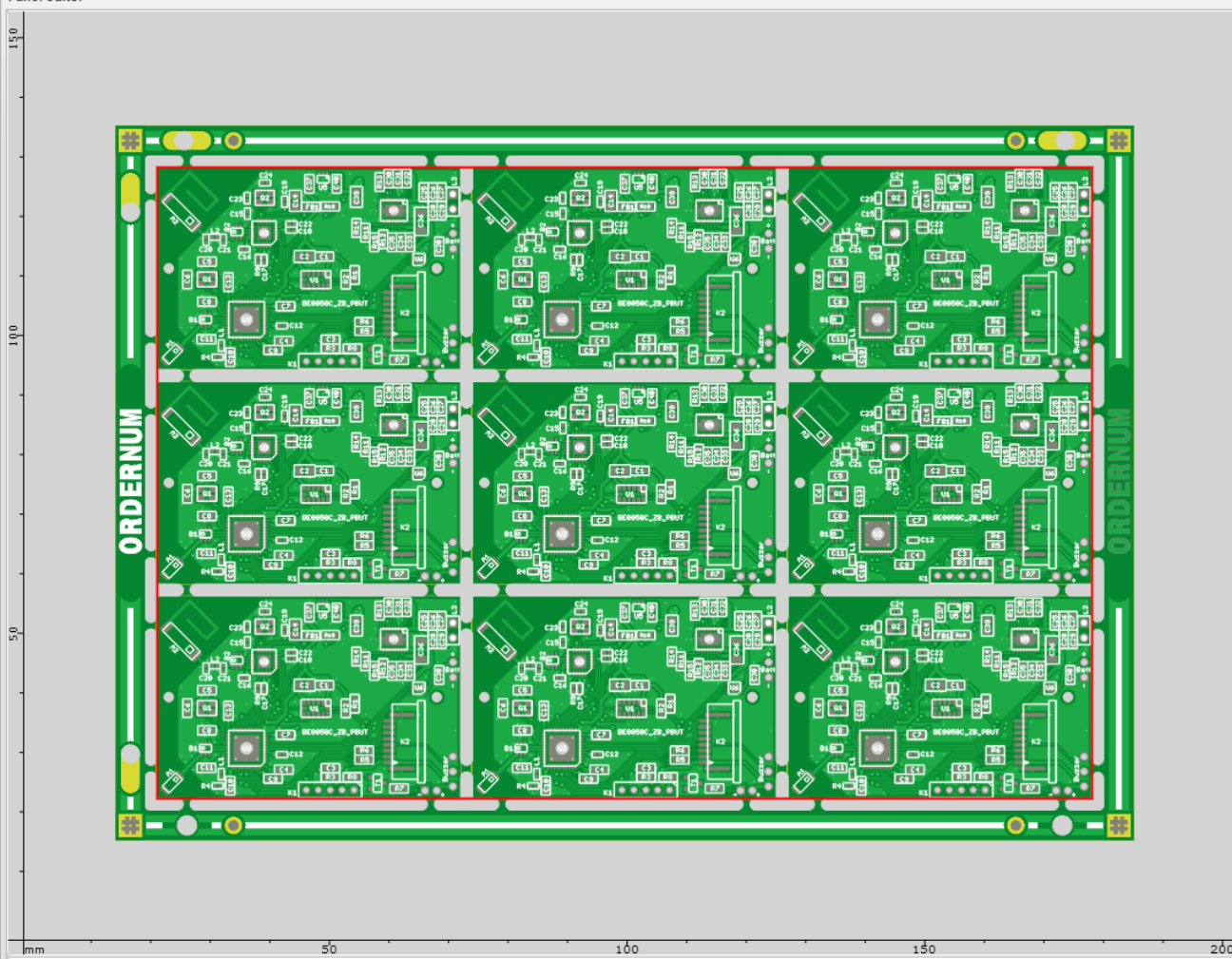
In case there is a simple solution, like changing an order detail, this will be suggested in the remark box.

# PCB Checker - DFM



# "Panel editor"

Panel editor



## Panel and board properties

**Panel size** (161 x 110 mm)

X size (mm) ☒ Automatic

Y size (mm) ☒ Automatic

### Panel border

Left border (mm)  Right border (mm)

Top border (mm)  Bottom border (mm)

**Board size** Measured: 51.0 x 34.0 mm

X size (mm)  Y size (mm)

### Board separation method

Board spacing in X  Board spacing in Y

X board separation  Y board separation

## Tools

- Select the object to edit
- Delete the selected object
- Undo the last operation
- Redo the last operation
- Add a step/repeat block
- Add a spacer
- Add a drill hole border element
- Add a copper clearance border element

## Block properties

☒ Simple block ☐ Nested block

Repeat in X  Repeat in Y

Board rotation

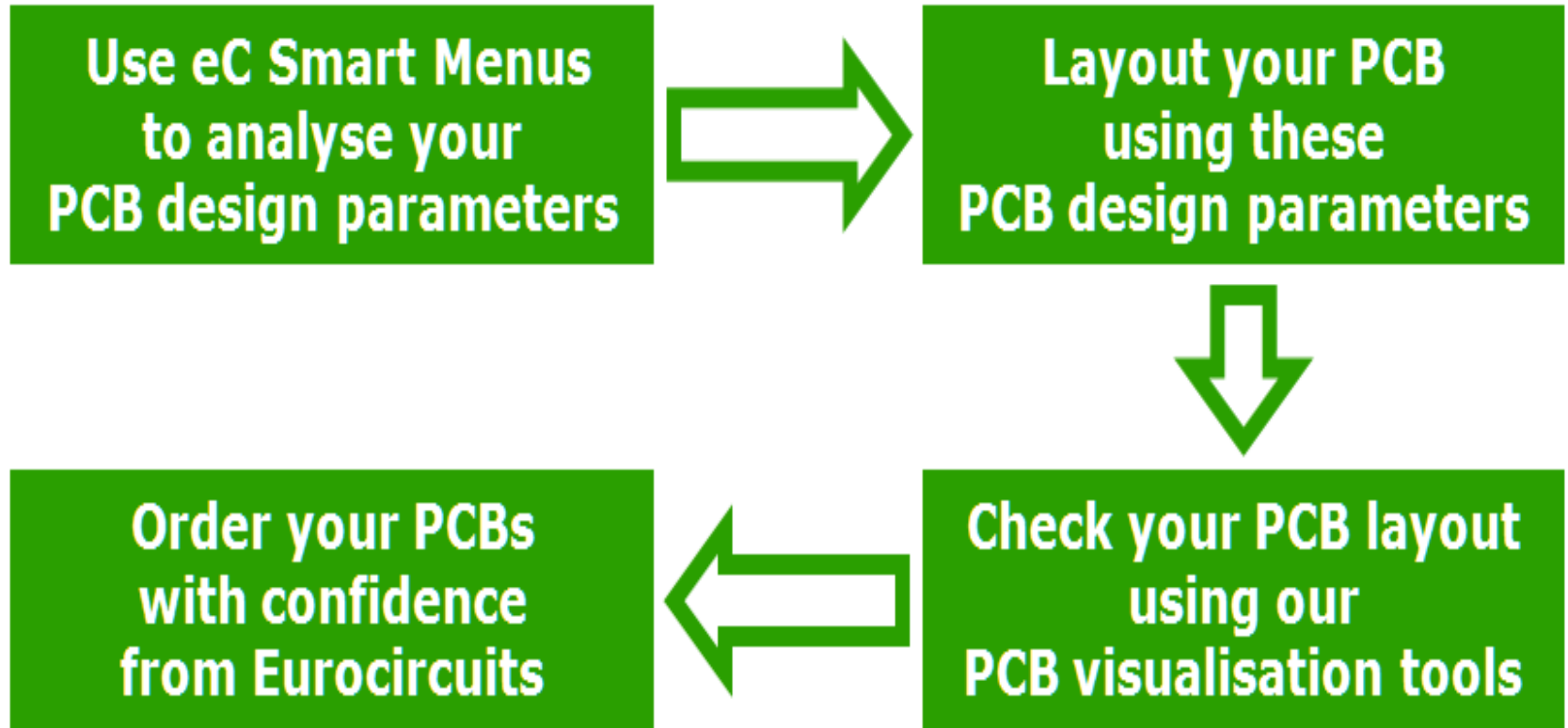
Edit the properties of the selected object or click another object to edit it.

Cancel Apply

# Your optimum PCB design flow !

- Use the Eurocircuits smart menus
  - What is possible at what cost and how fast
  - Your set of design parameters is now defined
- Layout your board and generate your Gerber data
  - Make the layout according to the design parameters
  - Export extended Gerber or use your EAGLE V6 design file
- Visualize your data and check the DRC
  - Load your data in the Eurocircuits shopping basket using
    - Calculate and upload
    - Analyse your data
  - Check PCB Visualizer to view your board
  - PCB Checker will show any DRC violation
- Don't waste time on graphics in your CAD
  - Use Marking editor and PCB PIXture
- Final check your order details and place the order
  - PCB Configurator let's you adapt any order detail
  - Check out your PCB from the basket to put the order in process
- At any time in the process
  - Launch a quote for a full operator driven DFM
  - Chat, call or e-mail Eurocircuits for assistance

# Your optimum PCB design flow !



# Share our knowledge!

- Eurocircuits.com – 24/24 & 7/7
  - Vast amount of technical content
  - Technical glossary
  - PCB design guide lines
  - The making of a PCB – educational section
  - White papers
  - eC-BLOG containing in depth stories on technical issues
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- PCB Visualisation – 24/24 & 7/7 a snap shot of your PCB
  - PCB Checker: no more DRC-DFM mistakes
  - PCB Configurator: the order details of your choice
  - Graphics on your PCB, made easy: Marking editor & PCB PIXture
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  - Online instant chat support
  - Call or e-mail at any time during office hours
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