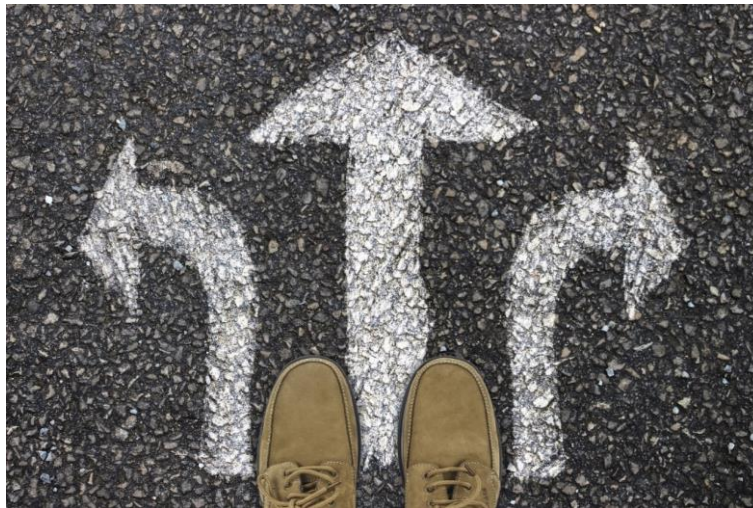


The right choices at the right time

Steven Van Hout





The way to a high quality product



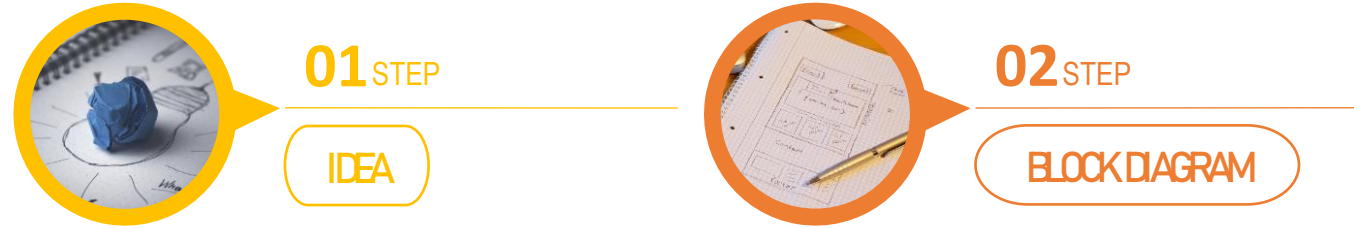
The way to a high quality product



01 STEP

IDEA

The way to a high quality product



The way to a high quality product



The way to a high **BOM KEY COMPONENTS**

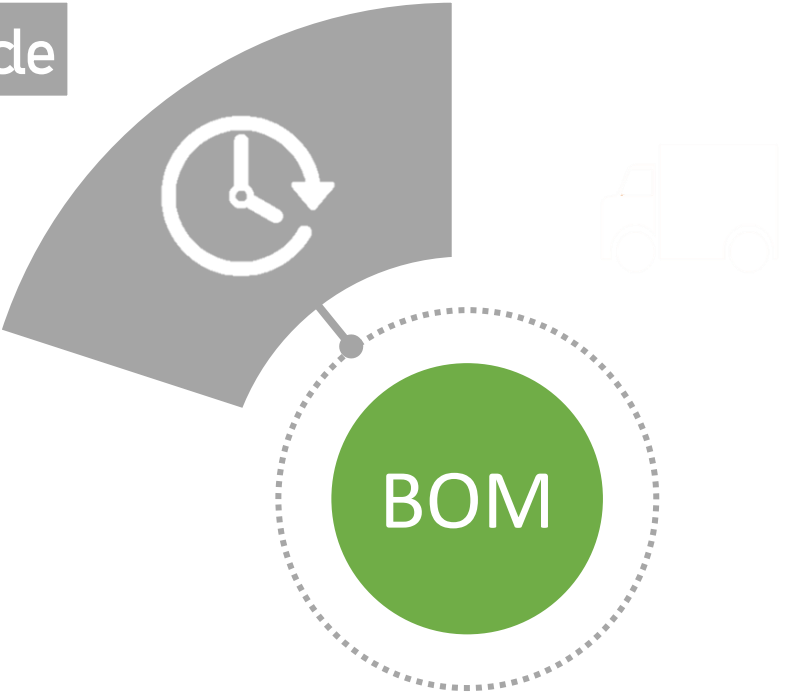




03 STEP

BOM KEY COMPONENTS

lifecycle





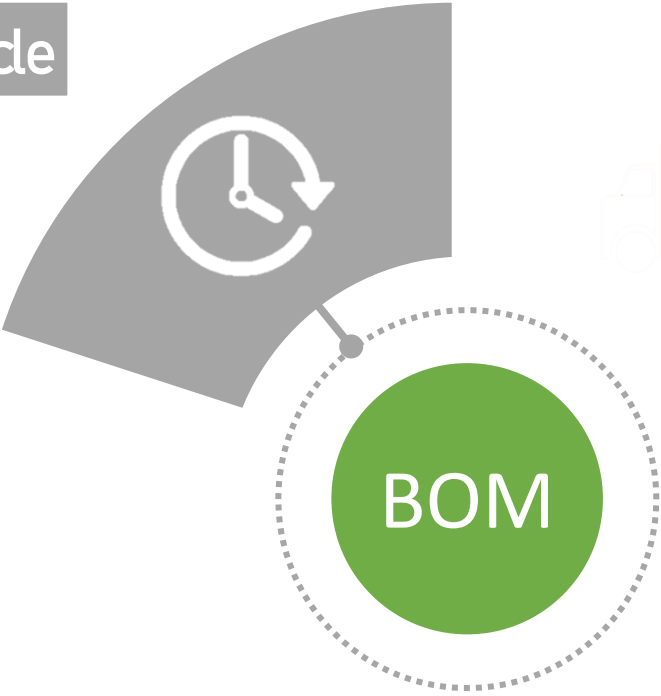
03 STEP

BOM KEY COMPONENTS

lifecycle



lifecycle

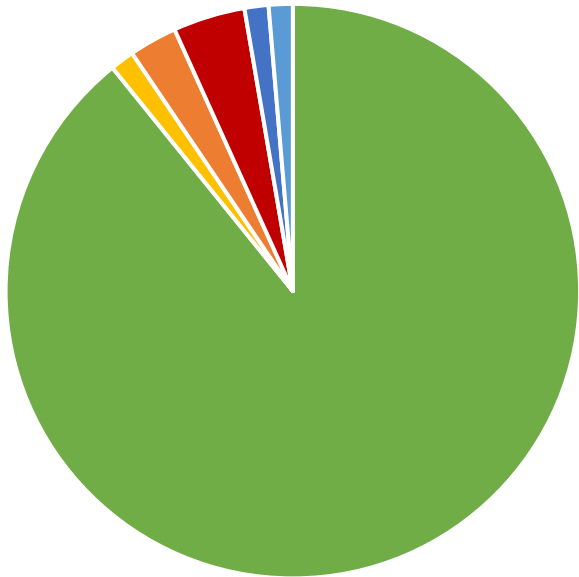




03 STEP

BOM KEY COMPONENTS

lifecycle



Lifecycle status

- Active (66) Active Part
Not Recommended for New Designs. Try to avoid these parts.
- NRND (1) Not Recommended for New Designs. Try to avoid these parts.
- LTB (2) Last Time Buy: Part will be obsolete in a few months.
- Obsolete (3) Part is no longer available
- Unconfirmed (1) Part is active, but his lifecycle status is not clear
- Unknown (1) Status of part is unknown. This can have several causes, namely
 - Incorrect Manufacturing Part Number (MPN) in BOM
 - MPN is unknown in database
 - No information is found from this MPN

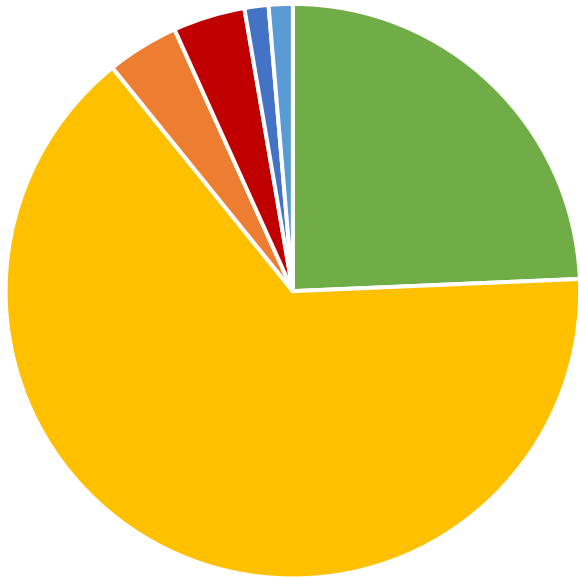




03 STEP

BOM KEY COMPONENTS

lifecycle



Lifecycle risk

Prediction of risk on End Of Life (EOL)

- Low Risk (18) Low risk to EOL
- Medium Risk (48) Medium risk to EOL. Part could be EOL in the future.
- High Risk (3) High risk to EOL. Part could be EOL in the near future.
- Obsolete (3) Part is no longer available.
- Unconfirmed (1) Part is active, but his lifecycle risk is not clear
- Unknown (1) Risk of part is unknown. This can have several causes, namely

 - Incorrect Manufacturing Part Number (MPN) in BOM
 - MPN is unknown in database
 - No information is found from this MPN

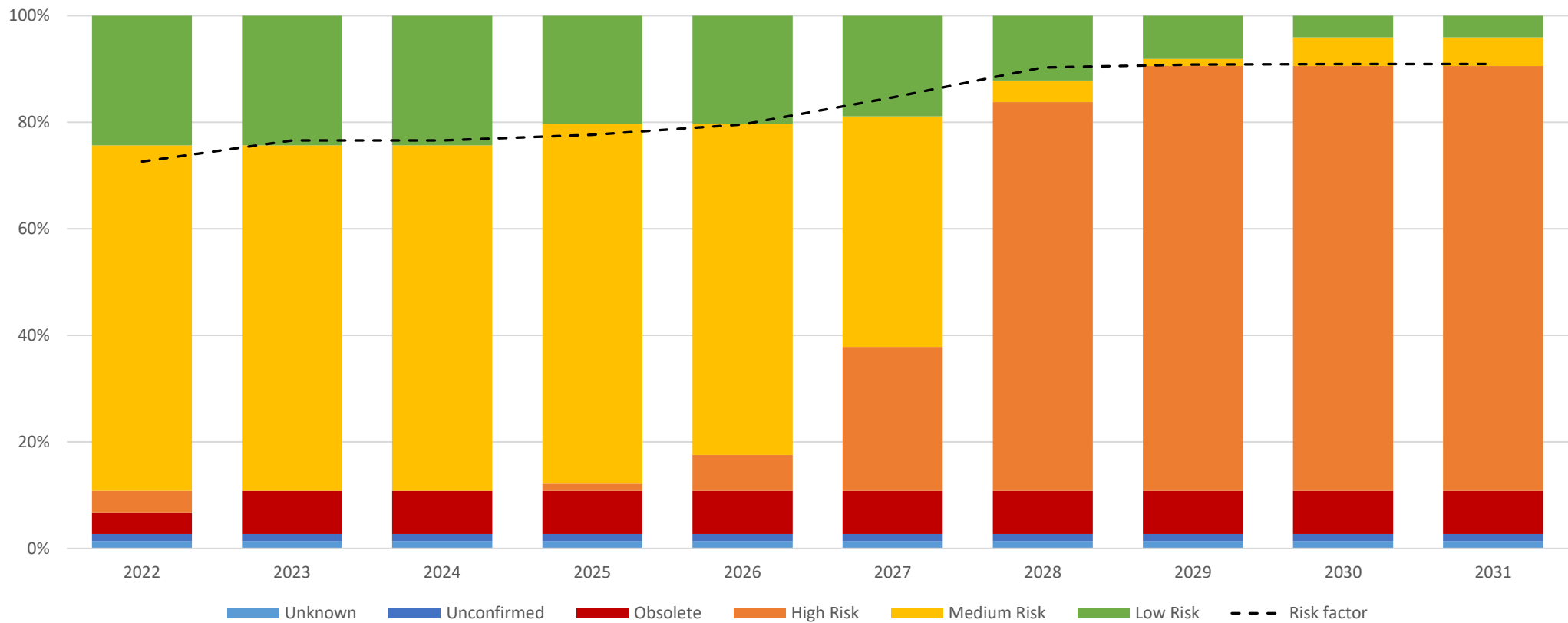




03 STEP

BOM KEY COMPONENTS

lifecycle





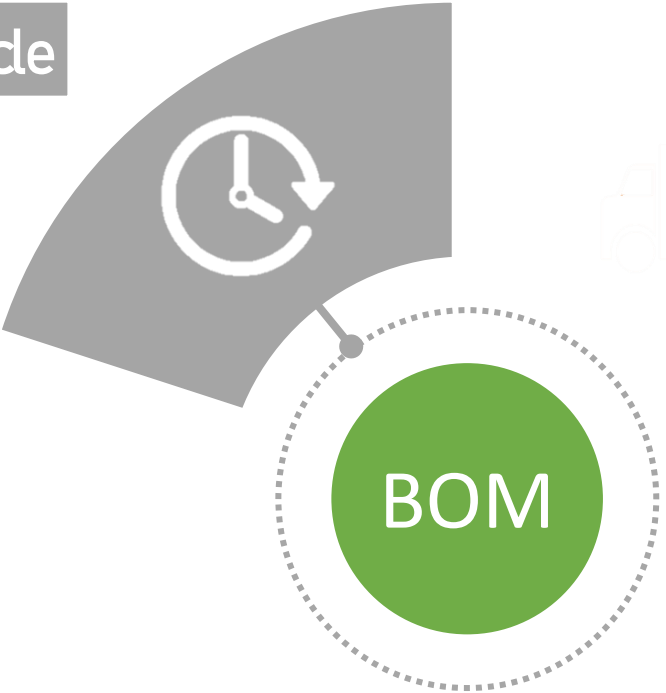
03 STEP

BOM KEY COMPONENTS

lifecycle



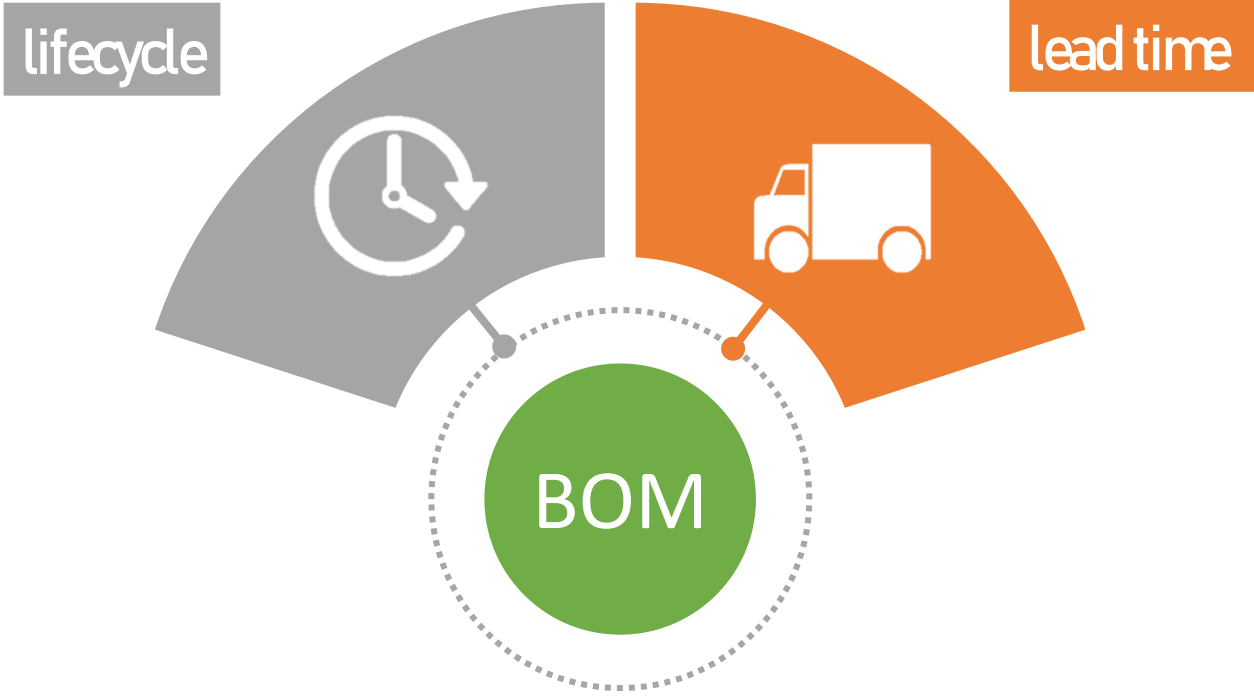
lifecycle





03 STEP

BOM KEY COMPONENTS





03 STEP

BOM KEY COMPONENTS

lead time

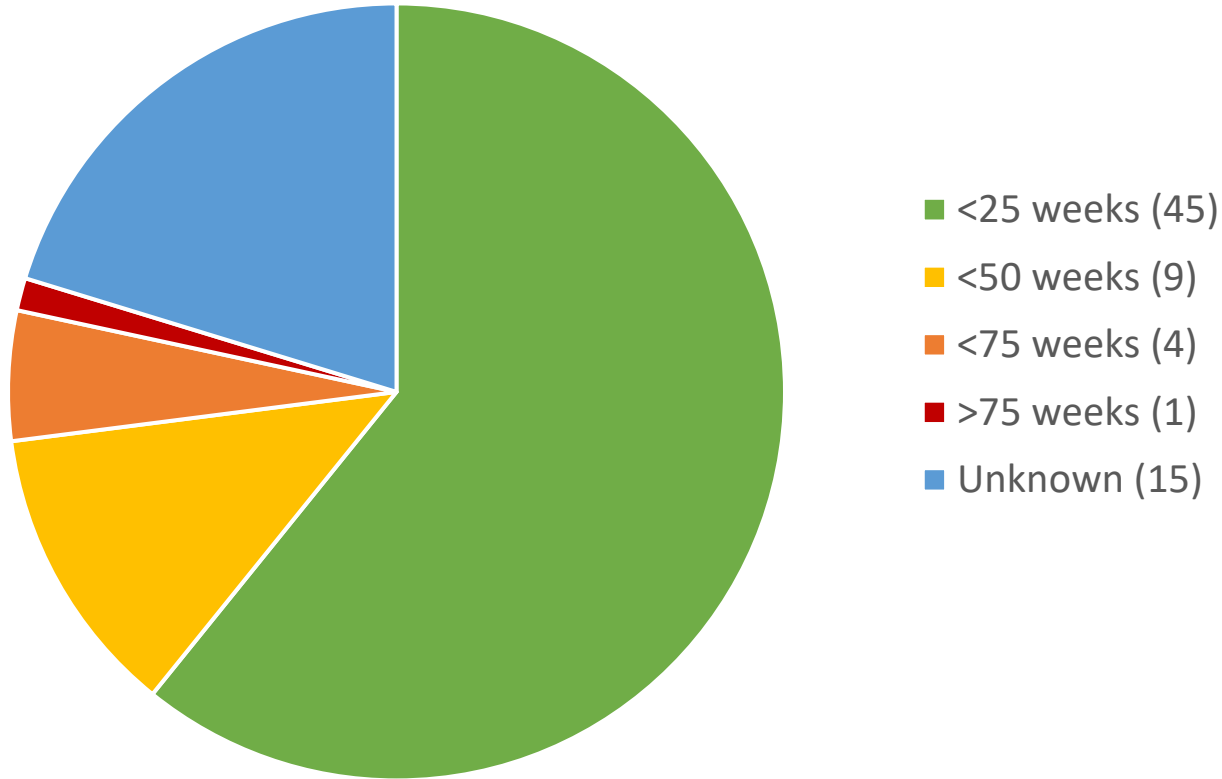




03 STEP

BOM KEY COMPONENTS

lead time

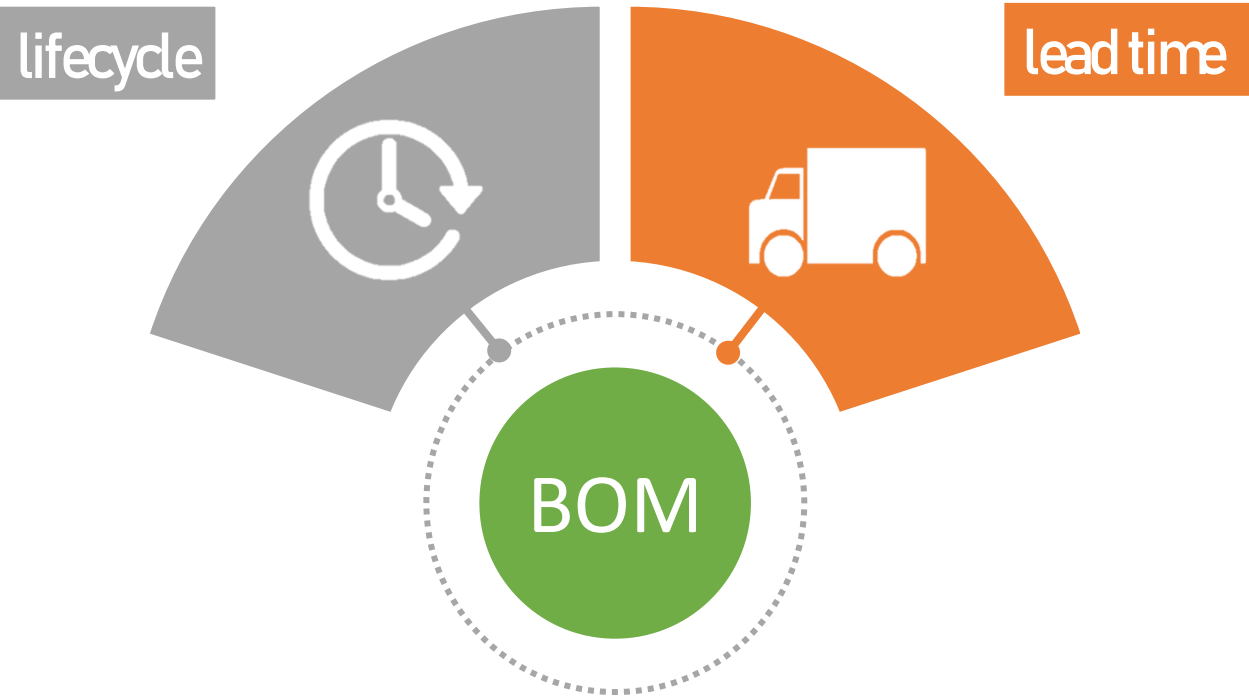




03 STEP

BOM KEY COMPONENTS

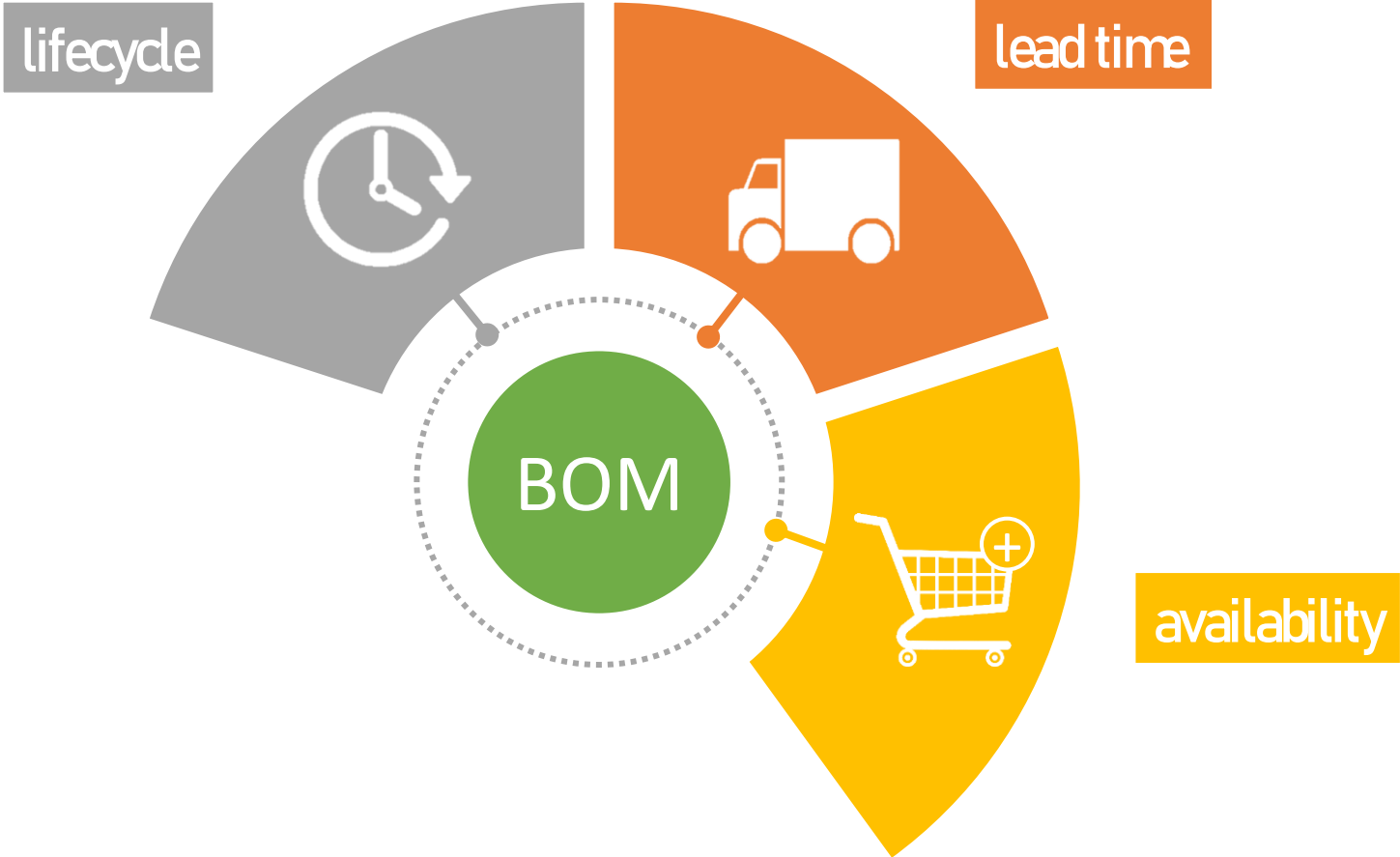
lead time





03 STEP

BOM KEY COMPONENTS





03 STEP

BOM KEY COMPONENTS

availability



lifecycle



lead time



availability

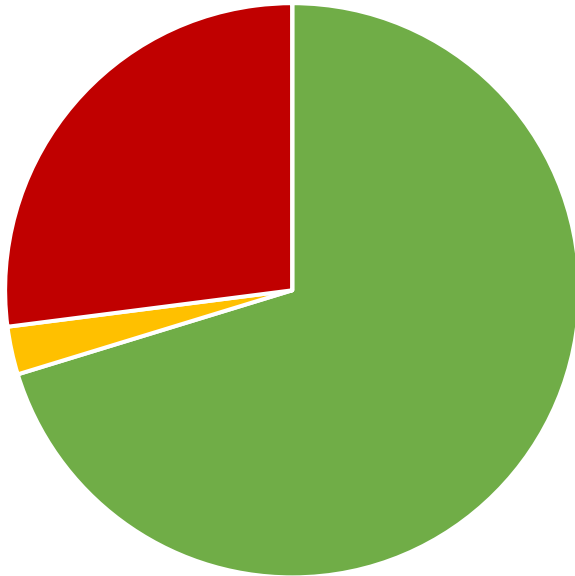




03 STEP

BOM KEY COMPONENTS

availability



Availability risk

- Low Risk (52)
- Medium Risk (2)
- High Risk (20)
- Unknown (0)

These components have sufficient stock

These components have a risk of insufficient stock

These components have a risk of stock shortages.

Risk of part is unknown. This can have several causes, namely

- Incorrect Manufacturing Part Number (MPN) in BOM
- MPN is unknown in database
- No information is found from this MPN





03 STEP

BOM KEY COMPONENTS

availability



PART CODE	DESCRIPTION	STATUS	LIFE CYCLE RISK		LEAD TIMES (in weeks)					Availability Risk
			2022	2028	Min	Max	No Info			
B82462A2102M000	Inductor Power Wirewound 1uH 20% 100KHz Ferrite 3A 0.024Ohm DCR Autom	Obsolete	Obsolete	Obsolete	No Info					High
IRFL024NPBF	Trans MOSFET N-CH Si 55V 4A 4-Pin(3+Tab) SOT-223 Tube	Obsolete	Obsolete	Obsolete	No Info					High
N25Q064A13ESE40E	NOR Flash Serial (SPI, Dual SPI, Quad SPI) 3V/3.3V 64M-bit 64M/32M/16M x	Obsolete	Obsolete	Obsolete	No Info					High
BL02RN2R1M2B	Ferrite Beads Radial 7A 0.020Ohm DCR Bulk	LTB	High Risk	Obsolete	Min: 20					High
9C-8.000MAAJ-T	Crystal 8MHz ±30ppm (Tol) ±30ppm (Stability) 18pF FUND 800hm 2-Pin HC-4	LTB	High Risk	Obsolete	Min: 40					High
APDS-9301	Light to Digital Ambient Light Sensor Digital 3V Automotive 6-Pin Chip LED	NRND	High Risk	Obsolete	No Info					High
KM-23ID	LED Uni-Color Hi-Eff. Red 627nm 3-Pin SOT-23 T/R	Unconfirmed	Unconfirmed	Unconfirmed	Min: 20					Medium
XQERDO-H0-CORG-B00000801		Unknown	Unknown	Unknown	No Info					High
7803SR-C	Module DC-DC 1-OUT 3.3V 0.5A 1.65W 3-Pin SIP	Active	Medium Risk	High Risk	Min: 20, Max: 40					High
T83-A90X	Surge Arrestor 3-Electrode Surge Arrestor 90VDC 15KA Thru-Hole	Active	Medium Risk	High Risk	No Info					High
STM32F427ZIT6	MCU 32-bit ARM Cortex M4 RISC 2MB Flash 2.5V/3.3V 144-Pin LQFP Tray	Active	Low Risk	Medium Risk	Min: 80					High
C0805X225K4RAC	Cap Ceramic 2.2uF 16V X7R 10% Pad SMD 0805 Flexible Termination 125°C M	Active	Low Risk	Low Risk	Min: 20					High



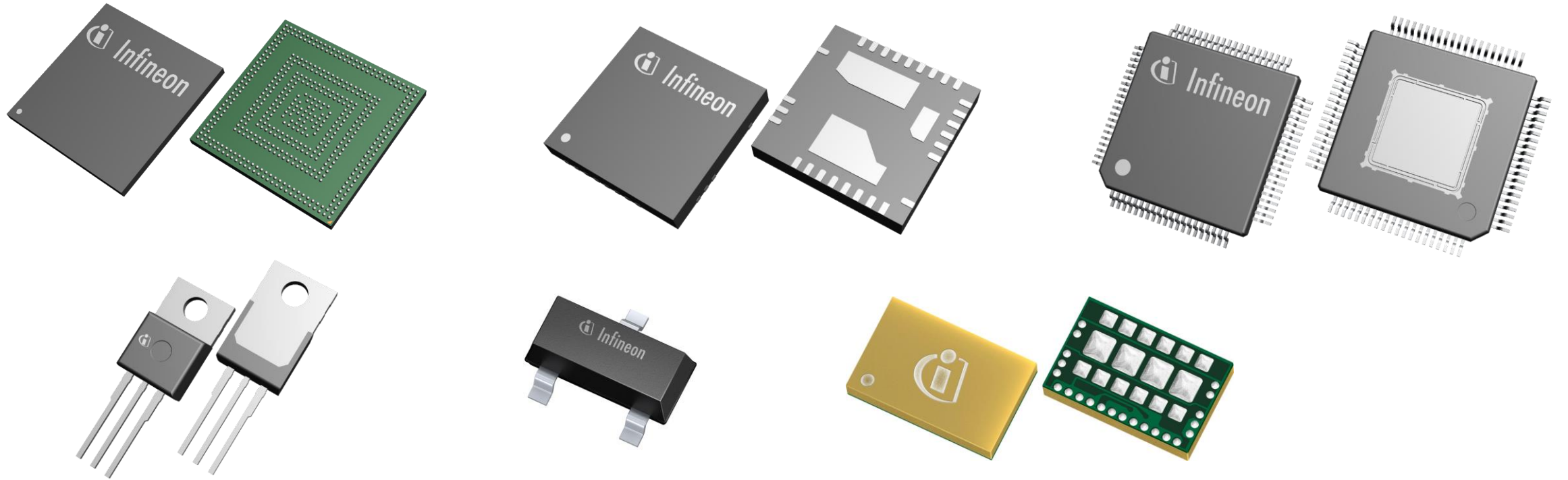
03 STEP

BOM KEY COMPONENTS

availability



The choice of package depends on its availability, the size of the board, soldering reliability, etc.





03 STEP

BOM KEY COMPONENTS

availability



lifecycle



lead time

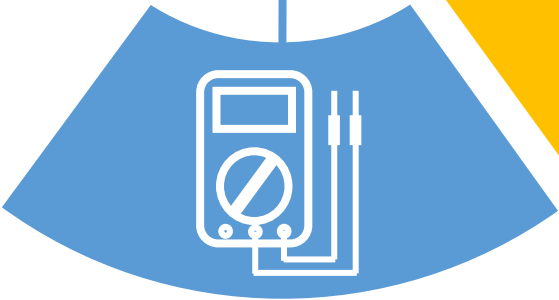


availability



BOM

testability

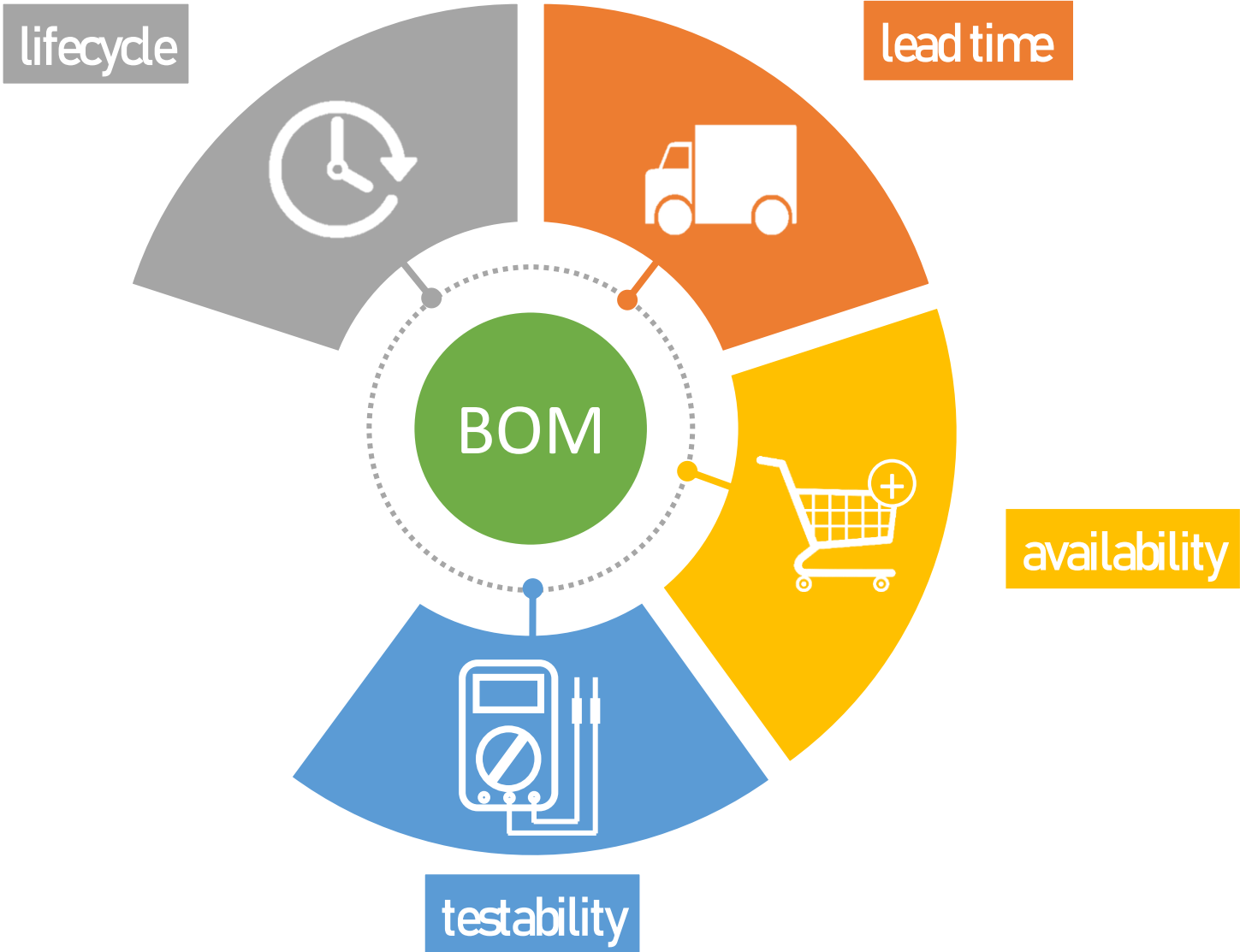




03 STEP

BOM KEY COMPONENTS

testability

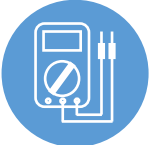




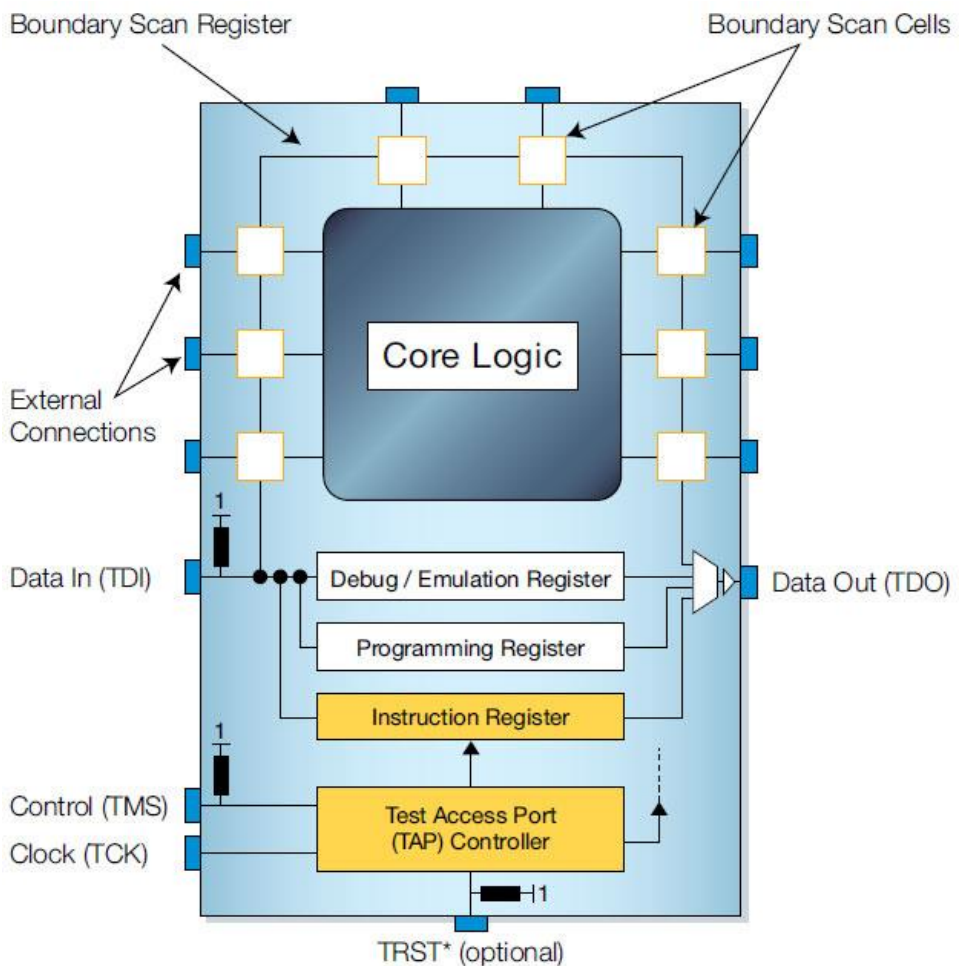
03 STEP

BOM KEY COMPONENTS

testability



Choose key components which are IEEE1149.1 compatible (boundary scan)

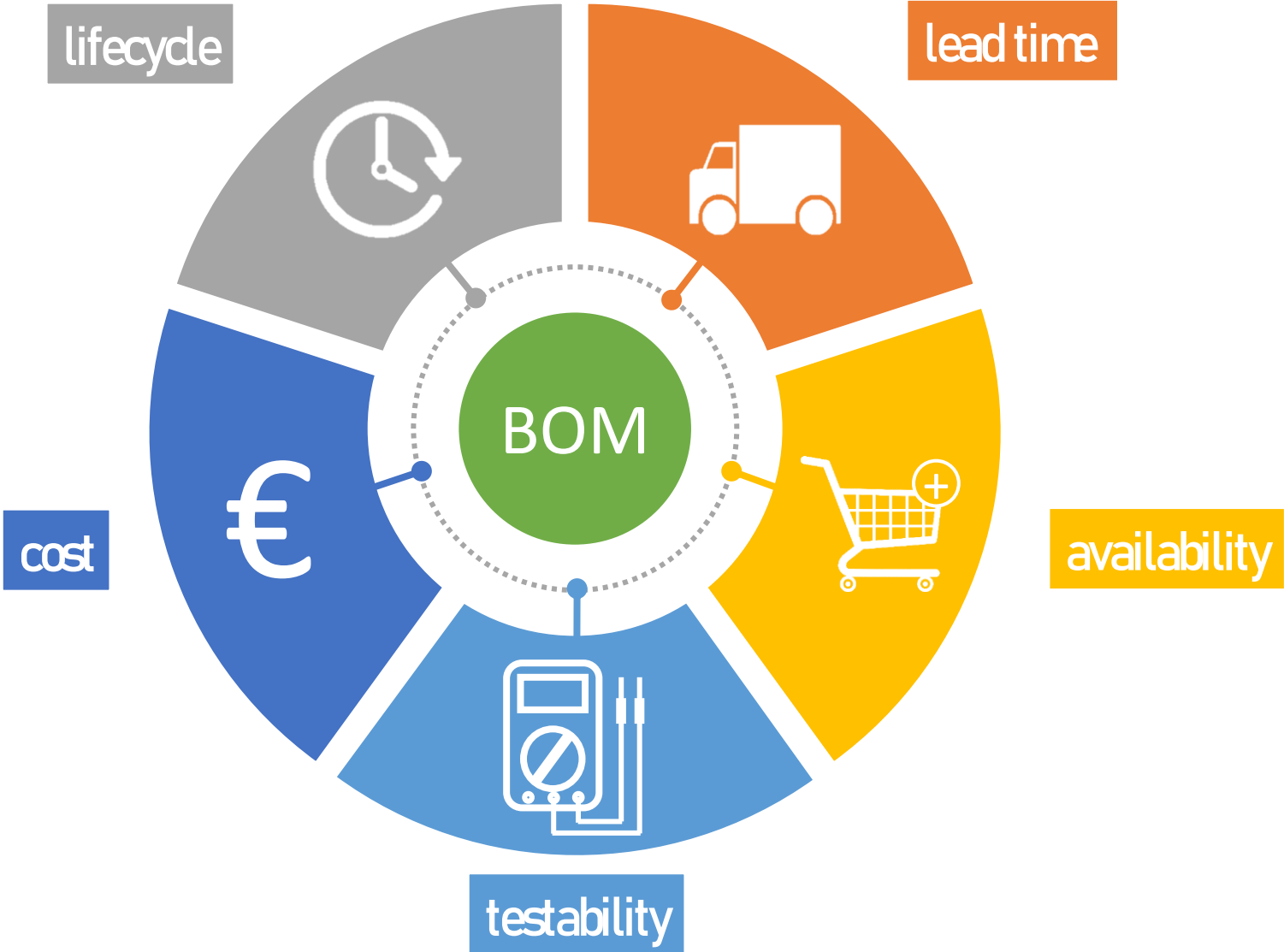




03 STEP

BOM KEY COMPONENTS

testability

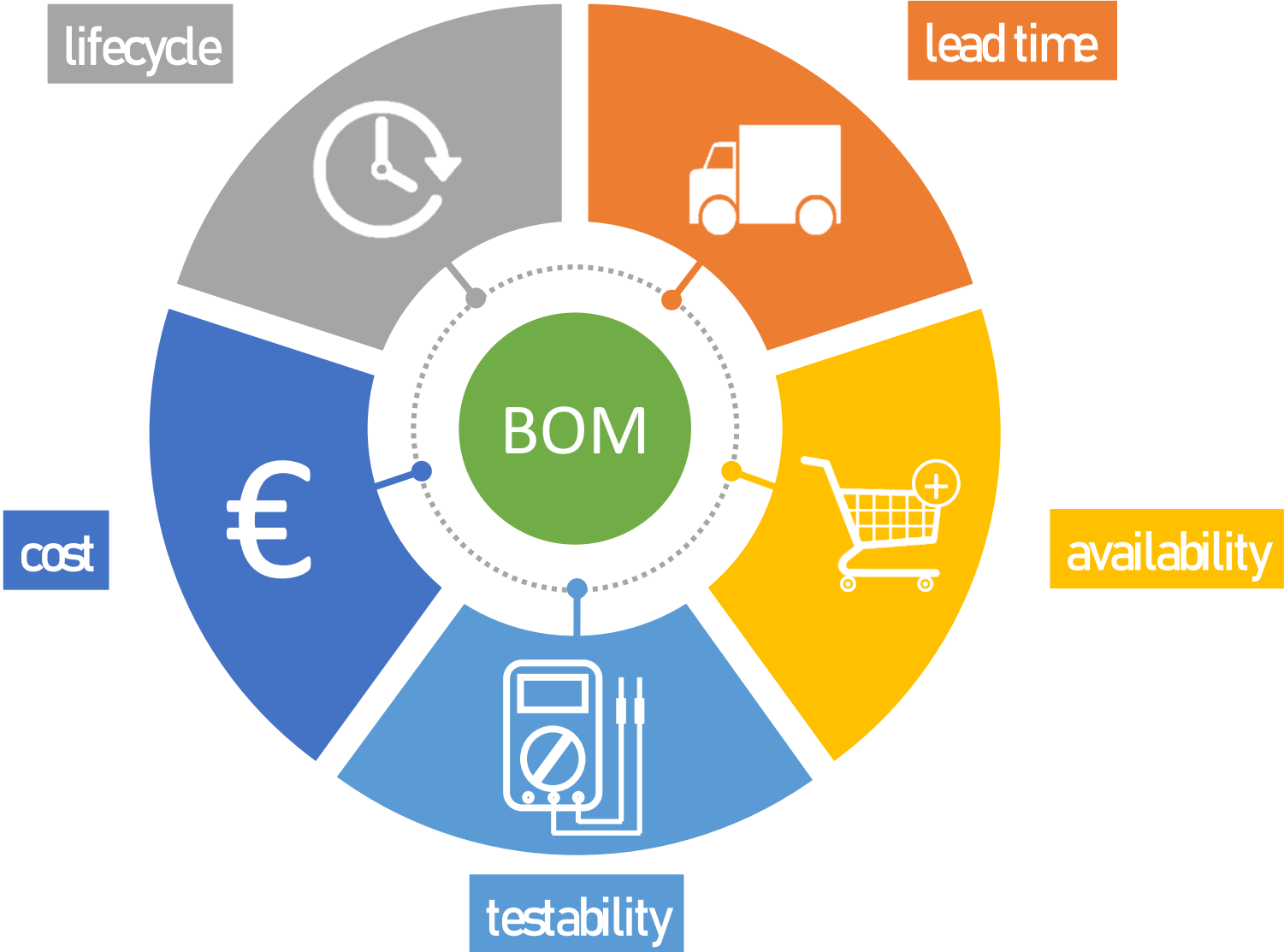




03 STEP

BOM KEY COMPONENTS

cost





03 STEP

BOM KEY COMPONENTS

cost



Cost depends on:

- Lifecycle
- Availability and lead time
- Testability
- Package choice

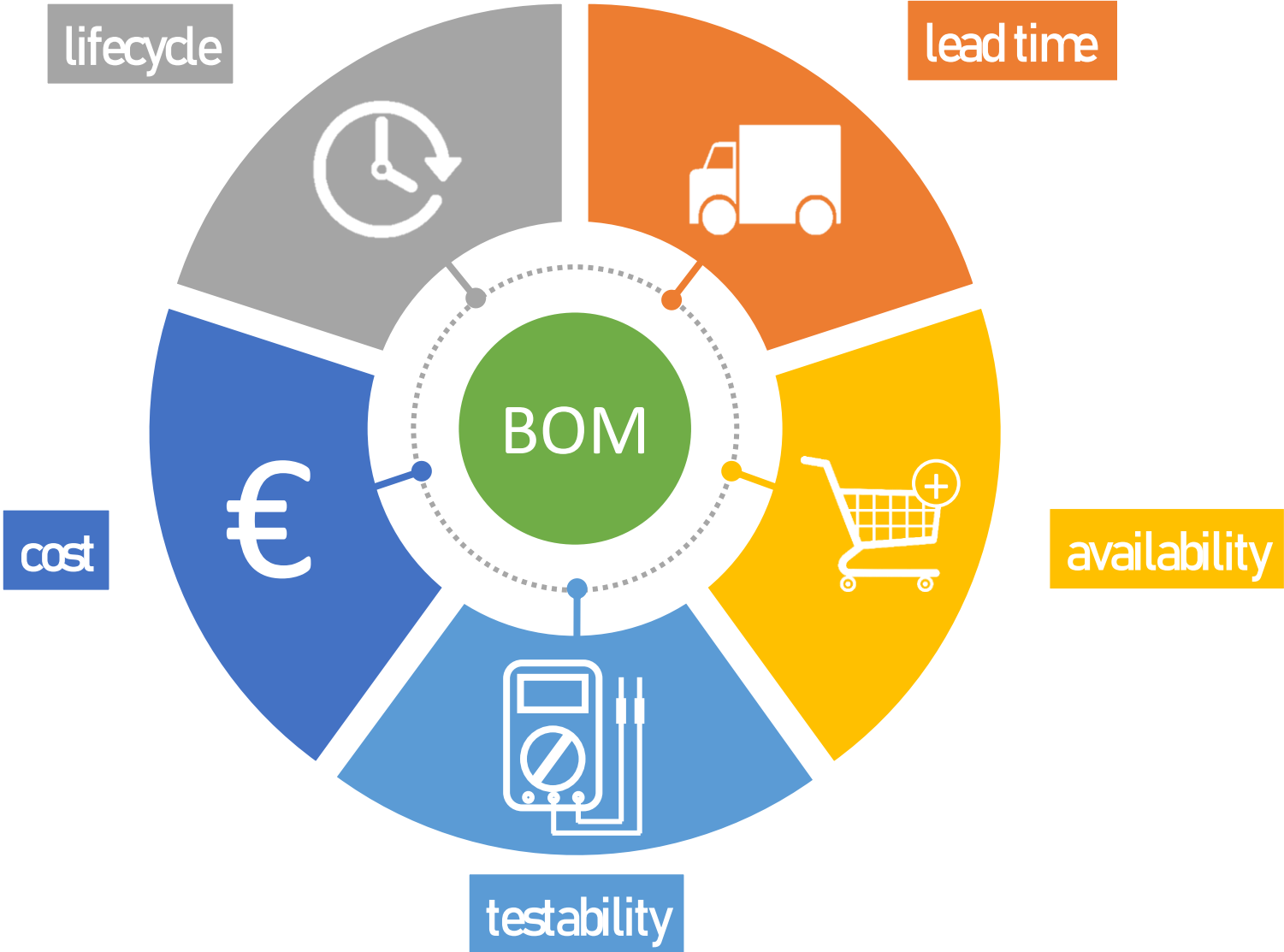




03 STEP

BOM KEY COMPONENTS

cost





The way to a high quality product

BOM KEY COMPONENTS



01 STEP

IDEA



02 STEP

BLOCK DIAGRAM

03 STEP

BOM KEY COMPONENTS



The way to a high quality product





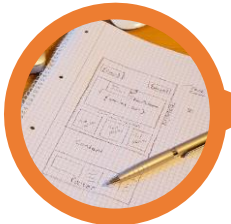
04 STEP
The way to a high

SCHEMATICS + BOM



01 STEP

IDEA



02 STEP

BLOCK DIAGRAM



03 STEP

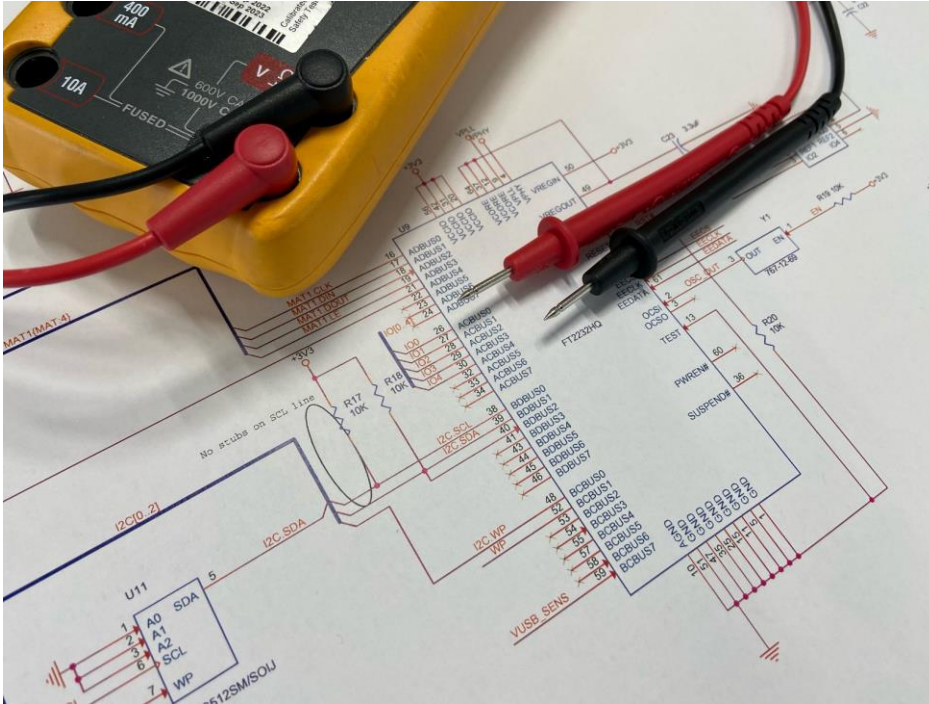
BOM KEY COMPONENTS



04 STEP

SCHEMATICS + BOM





Design for Testing (DfT):

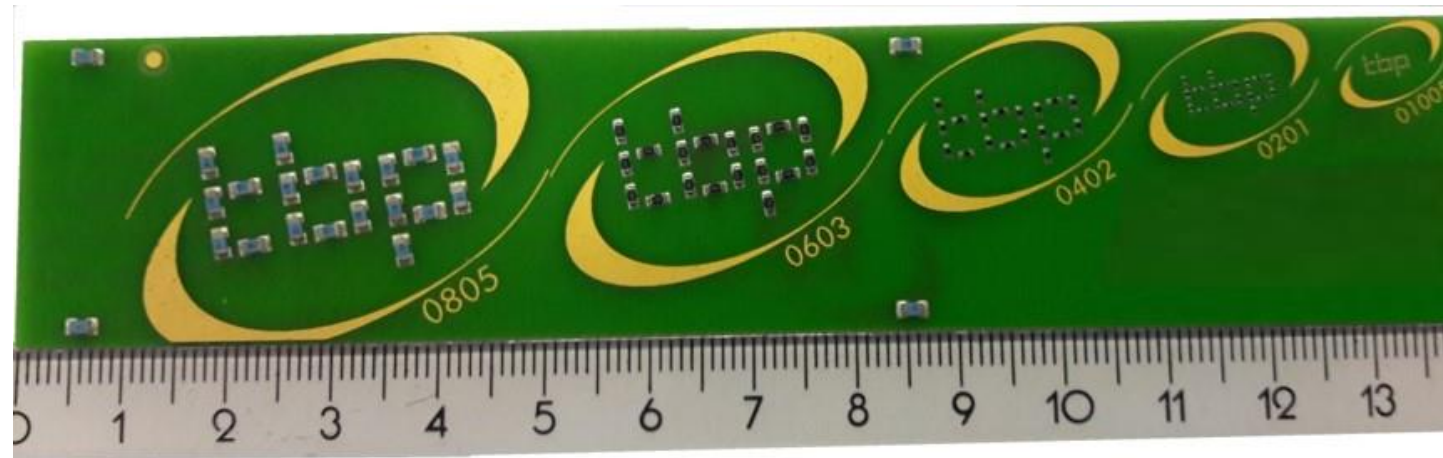
- List with required test points
- Test access recommendations
- Preliminary testcoverage
- Preliminary teststrategy
- Preliminary delivery quality



04^{STEP}

SCHEMATICS + BOM

Choose package of components wisely





The way to a high quality product

SCHEMATICS + BOM



01 STEP

IDEA



02 STEP

BLOCK DIAGRAM



03 STEP

BOM KEY COMPONENTS



04 STEP

SCHEMATICS + BOM

The way to a high quality product





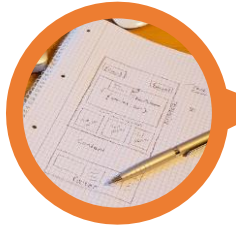
05 STEP
The way to a high

LAYOUT FOOTPRINTS ONLY



01 STEP

IDEA



02 STEP

BLOCK DIAGRAM



03 STEP

BOM KEY COMPONENTS



05 STEP

LAYOUT FOOTPRINTS ONLY



04 STEP

SCHEMATICS + BOM

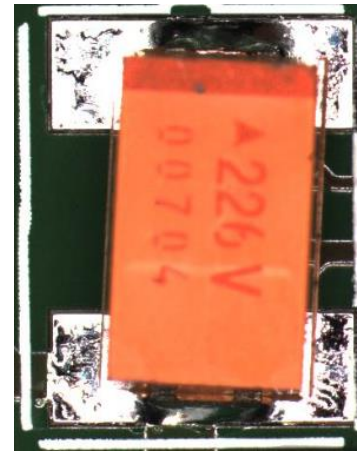
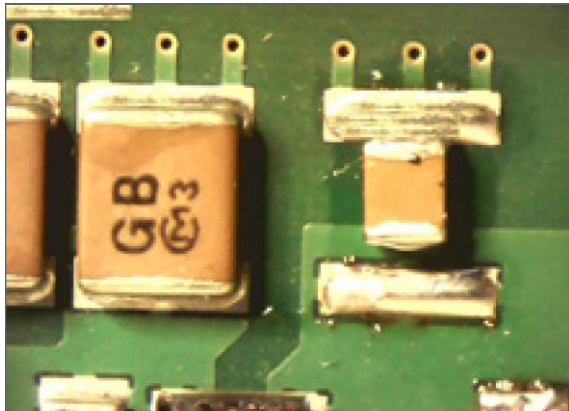




05 STEP

LAYOUT FOOTPRINTS ONLY

Wrong footprints lead to bad soldering reliability

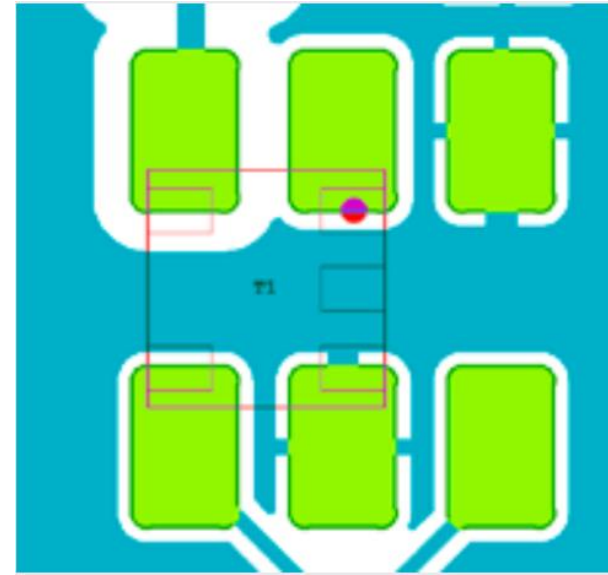
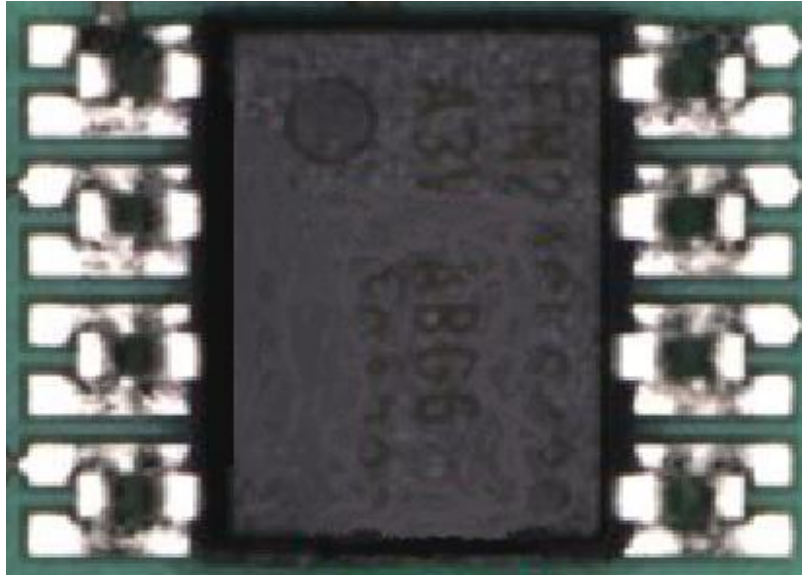




05 STEP

LAYOUT FOOTPRINTS ONLY

Wrong footprints lead to bad soldering reliability and not placeable components → delivery delay





05 STEP

LAYOUT FOOTPRINTS ONLY

Small distance between high components lead to hardly repairable components

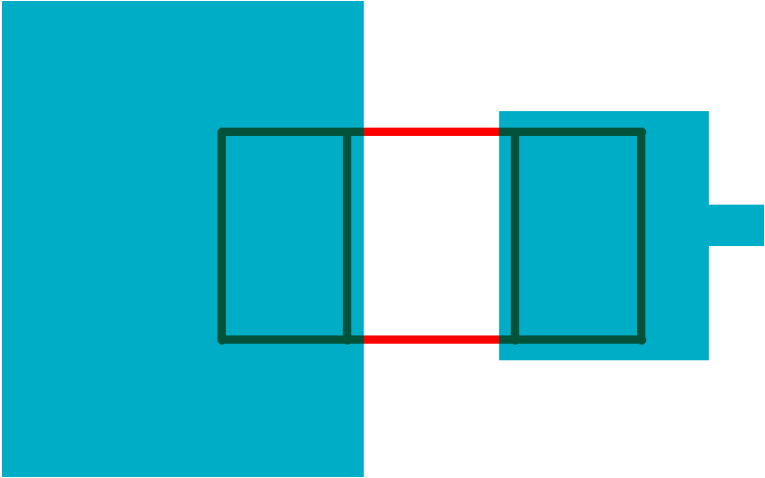




05 STEP

LAYOUT FOOTPRINTS ONLY

Bad thermal relief leads to tombstoning





the way to a high

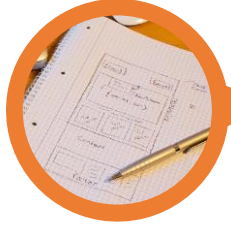
05 STEP

LAYOUT FOOTPRINTS ONLY



01 STEP

IDEA



02 STEP

BLOCK DIAGRAM



03 STEP

BOM KEY COMPONENTS



05 STEP

LAYOUT FOOTPRINTS ONLY



04 STEP

SCHEMATICS + BOM

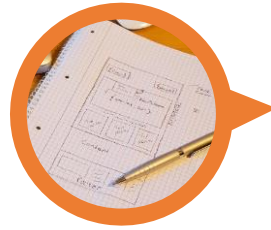


The way to a high quality product



01 STEP

IDEA



02 STEP

BLOCK DIAGRAM

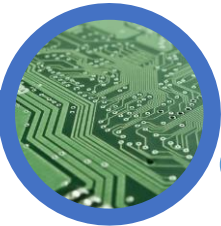


03 STEP

BOM KEY COMPONENTS

06 STEP

LAYOUT



05 STEP

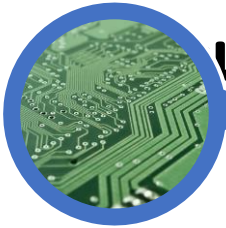
LAYOUT FOOTPRINTS ONLY



04 STEP

SCHEMATICS + BOM





the way to a high

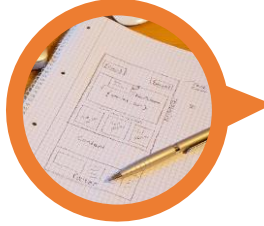
06 STEP

LAYOUT



01 STEP

IDEA



02 STEP

BLOCK DIAGRAM

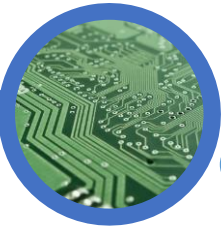


03 STEP

BOM KEY COMPONENTS

06 STEP

LAYOUT



05 STEP

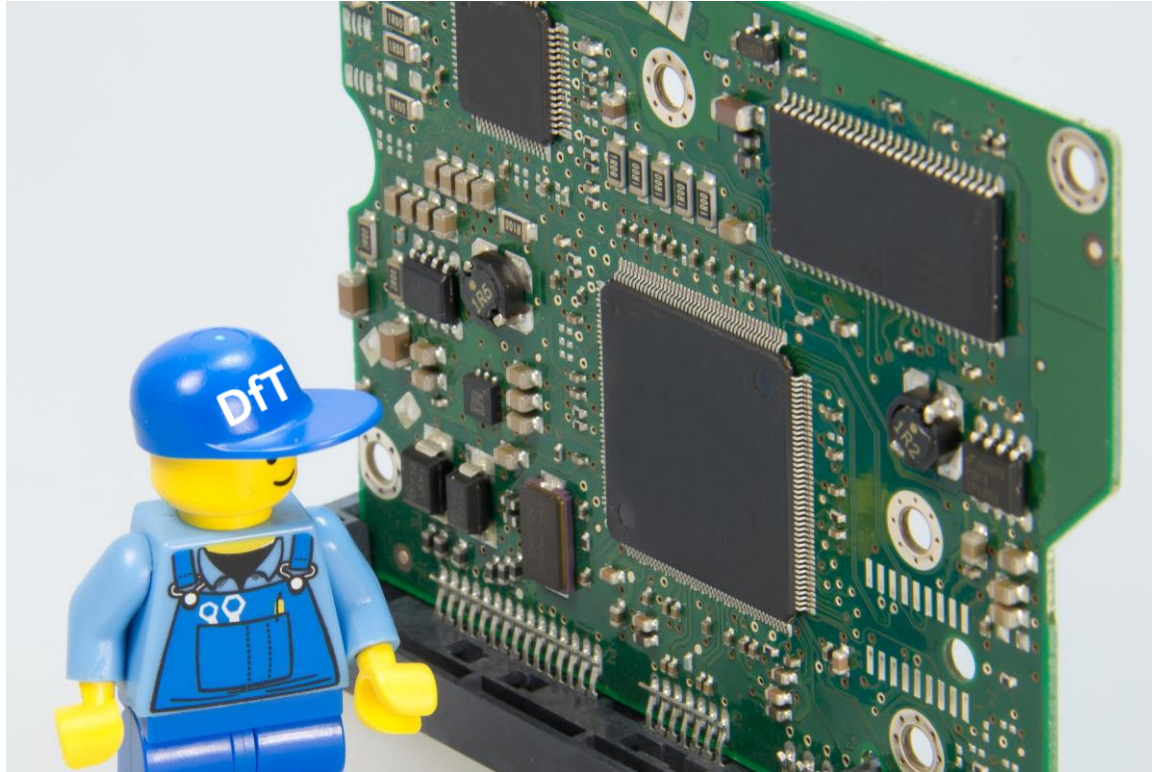
LAYOUT FOOTPRINTS ONLY



04 STEP

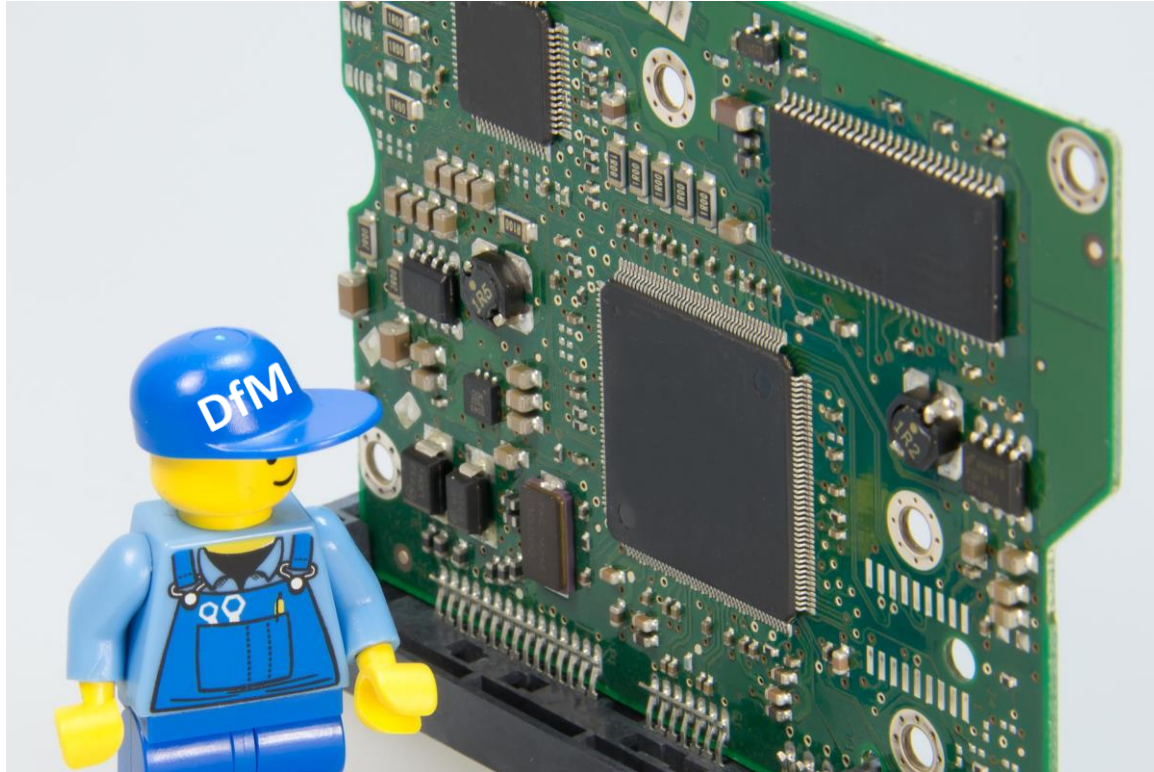
SCHEMATICS + BOM





Design for Testing (DfT):

- Test access recommendations
- Final teststrategy
- Final testcoverage
- Final delivery quality



Design for Manufacturing (DfM):

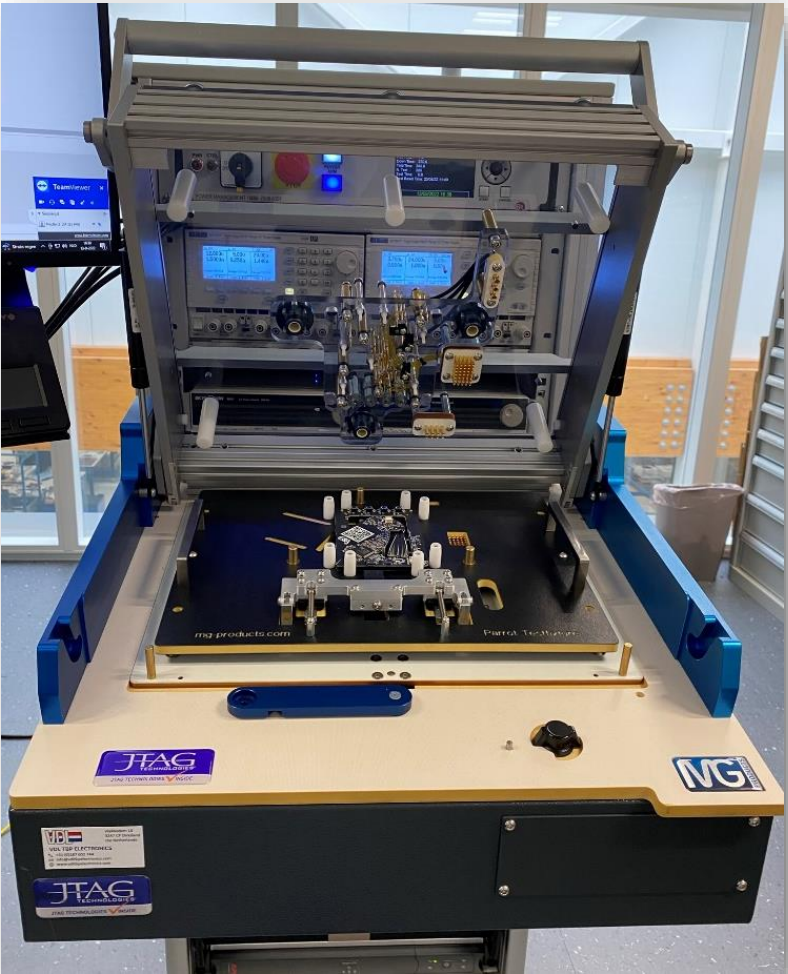
- Manufacturability recommendations
- Footprint issues
- Component placement issues
- Netlist verification
- Final production yield

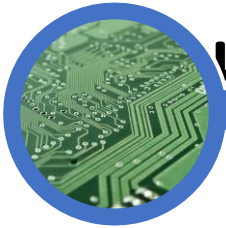


06 STEP

LAYOUT

WOTS parrot





the way to a high

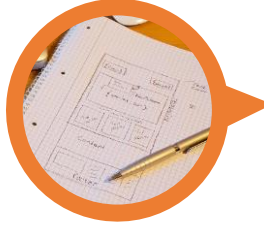
06 STEP

LAYOUT



01 STEP

IDEA



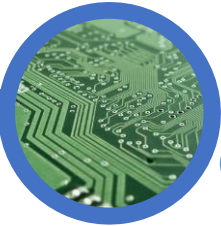
02 STEP

BLOCK DIAGRAM



03 STEP

BOM KEY COMPONENTS



06 STEP

LAYOUT



05 STEP

LAYOUT FOOTPRINTS ONLY



04 STEP

SCHEMATICS + BOM

The way to a high quality product



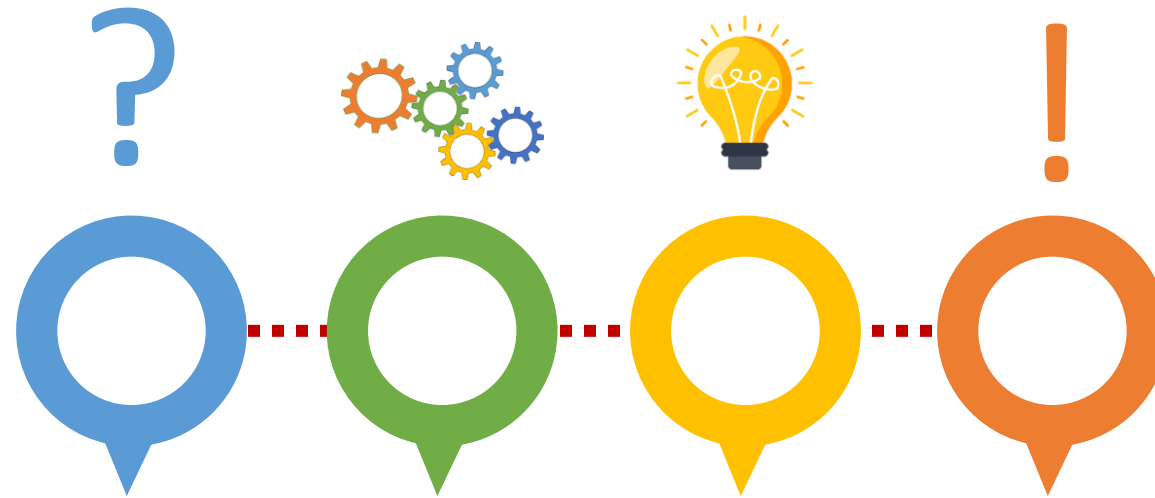
The way to a high quality product



*focus on cost
drives out quality*

*focus on quality
drives out cost*

QUESTIONS?



Contact information hall 9, booth C084



VDL TBP ELECTRONICS

Steven Van Hout

Manager Test Engineering
Electronics Test Development

+31 (0)6 57 88 39 33 | +31 (0)187 602 744

s.van.hout@vdltbpelectronics.com

www.vdltbpelectronics.com

