

External 3V3
CN13

+3V3

GND

VDD_USB_LRA

VDD_MCU_LRA

VDD_RF_LRA

IDD jumpers

SB19 Fitted

JP2 Not Fitted

SB14 Fitted

JP3 Not Fitted

SB17 Fitted

JP1 Not Fitted

L5

BLM15HG102SN1D

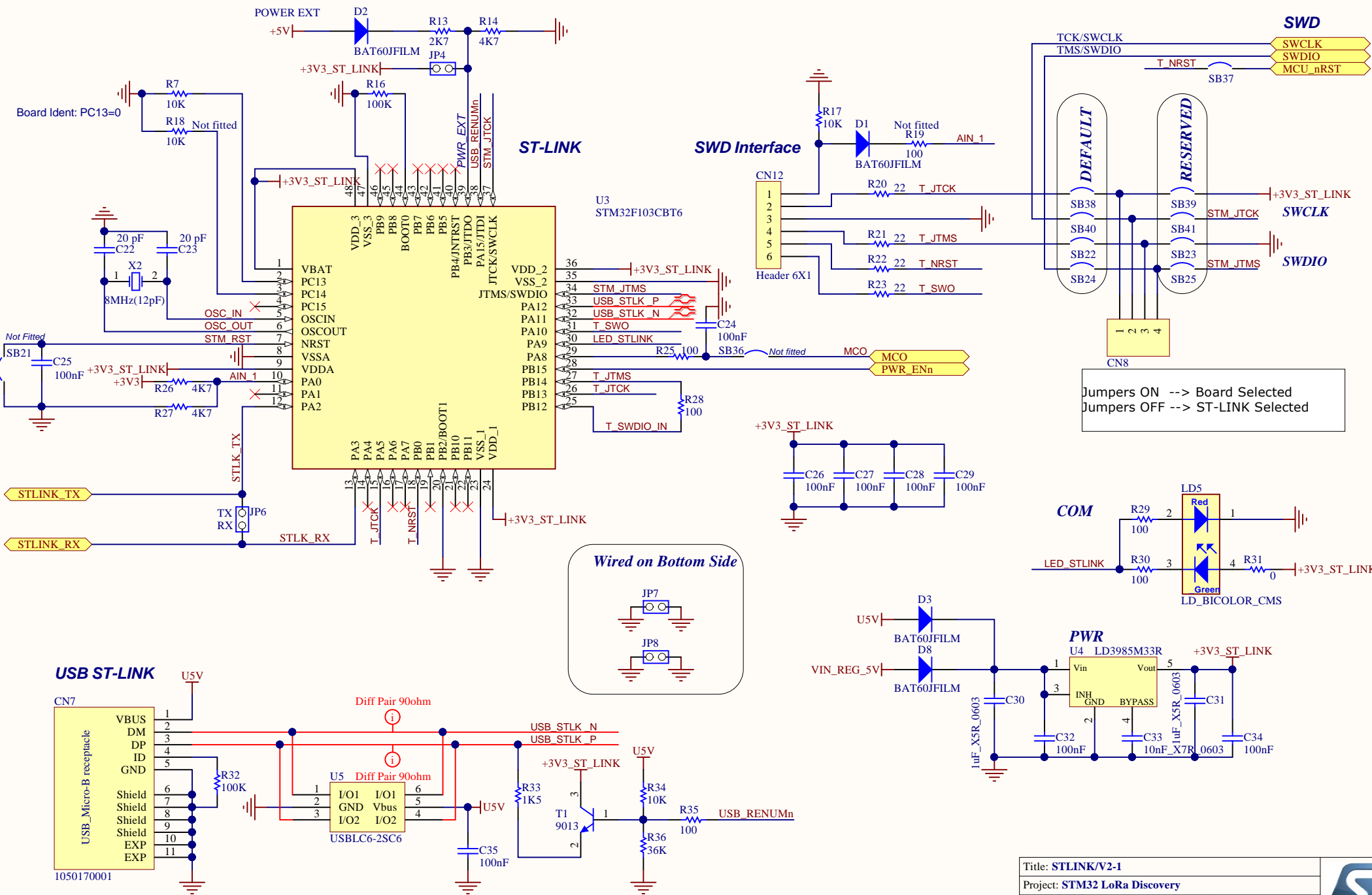
Power Section

The circuit diagram illustrates the power regulation and switching section of the STLINK USB. It includes the following components and connections:

- Inputs:** USB_LRA_5V, VIN, and PWR_ENn.
- USB Charger (U8):** ST890CDR, configured with IN, OUT, FAULT, SET, and GND pins. It is connected to a 10K resistor (R38) and a 1K resistor (R39) for the FAULT pin, and a 2K2 resistor (R24) for the SET pin.
- Voltage Regulator (U2):** LD1117S50TR, configured with Vin, Vout, and GND pins. It is connected to a 10uF(25V) capacitor (C36) on the Vin pin and a 10uF(25V) capacitor (C37) on the Vout pin.
- Battery Holder (BT1):** 3 x AAA Battery Holder, connected to a 3V3 supply.
- Voltage Regulator (U7):** LD39050PU33R, configured with VI, EN, GND, VO, and NC pins. It is connected to a 1K(5%_0603) resistor (R37) on the EN pin and a 1uF_X5R_0603 capacitor (C40) on the VO pin.
- Diodes:** STPS2L30A (D4, D6, D7) and LD7 (Red LED).
- Capacitors:** 10uF(25V) (C36, C37), 4.7uF(25V) (C21), 100nF (C20, C39), and 1uF_X5R_0603 (C40).
- Resistors:** 10K (R38), 1K (R39), 2K2 (R24), and 1K(5%_0603) (R37).
- Other Components:** SB20, SB4, SB5, SB6, SB18, and LD6 (Red LED).

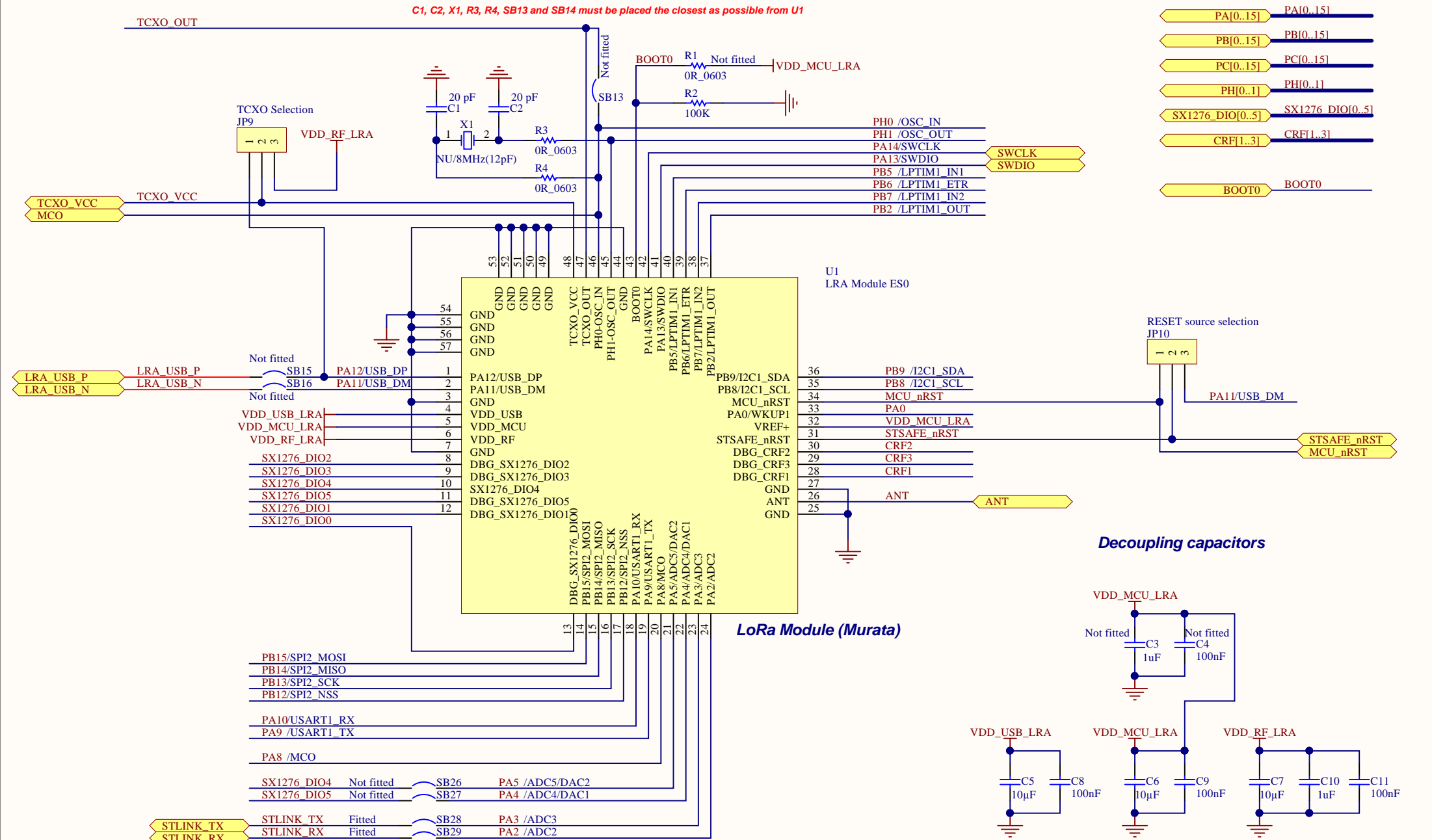
The circuit is designed to provide a +3V3 supply to the STLINK USB. The power switch (U8) is controlled by the PWR_ENn input. The voltage regulator (U2) provides a +5V supply to the USB charger. The battery holder (BT1) provides a 3V3 supply to the voltage regulator (U7). The output of the voltage regulator (U7) is a +3V3 supply.



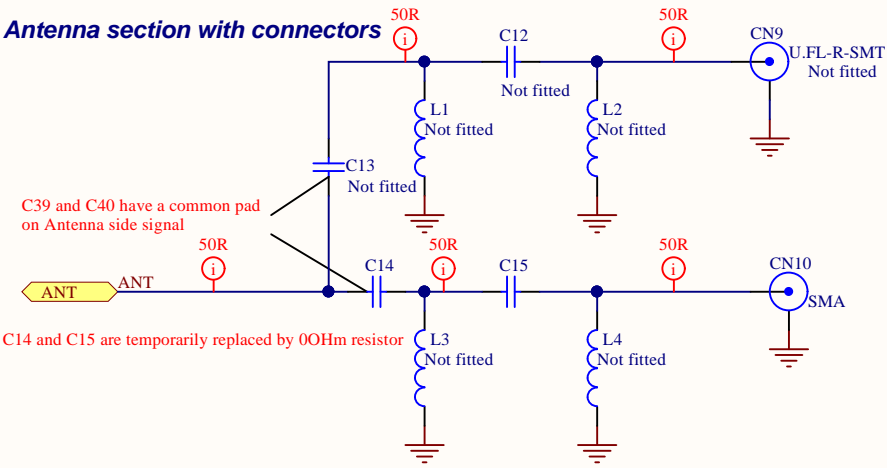


Title: STLINK/V2-1		
Project: STM32 LoRa Discovery		
Size: A4	Reference: MB1296	Revision: D-01
Date: 25/01/2017	Sheet: 3 of 6	

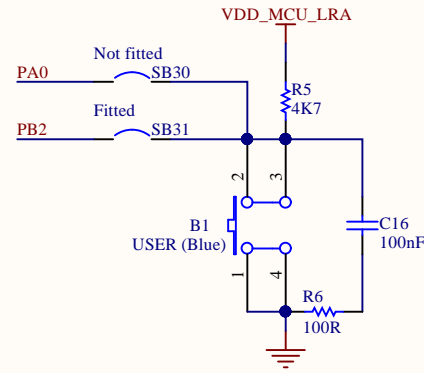
C1, C2, X1, R3, R4, SB13 and SB14 must be placed the closest as possible from U1



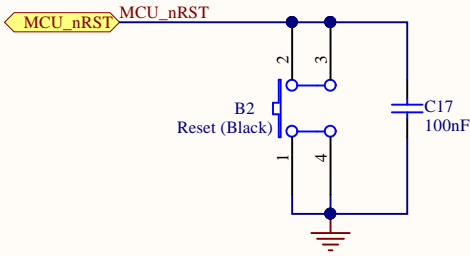
Antenna section with connectors



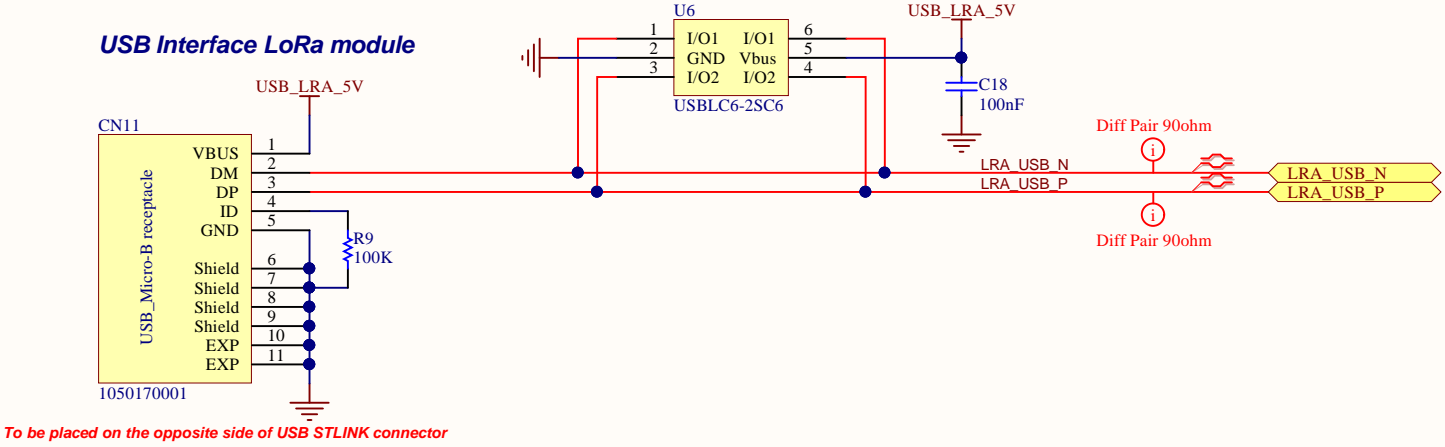
General purpose User Button (or LoRa Wake Up)



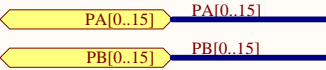
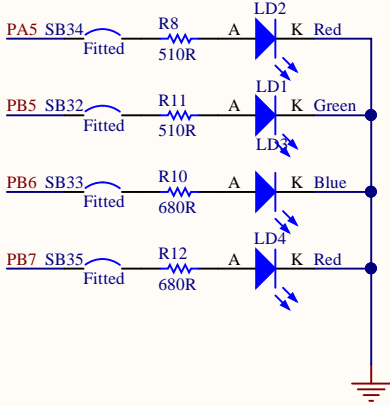
RESET button

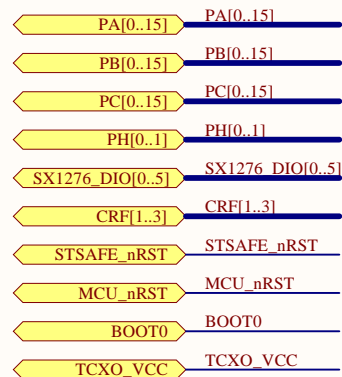


USB Interface LoRa module

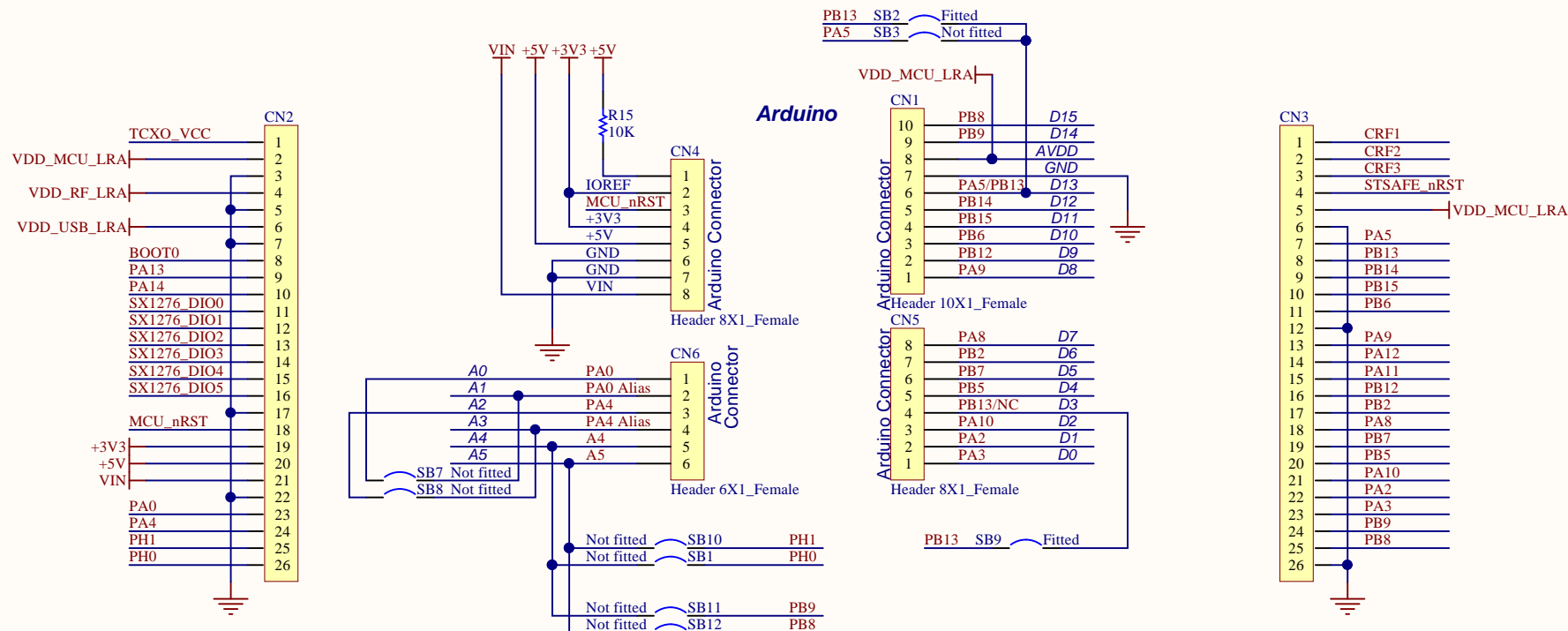


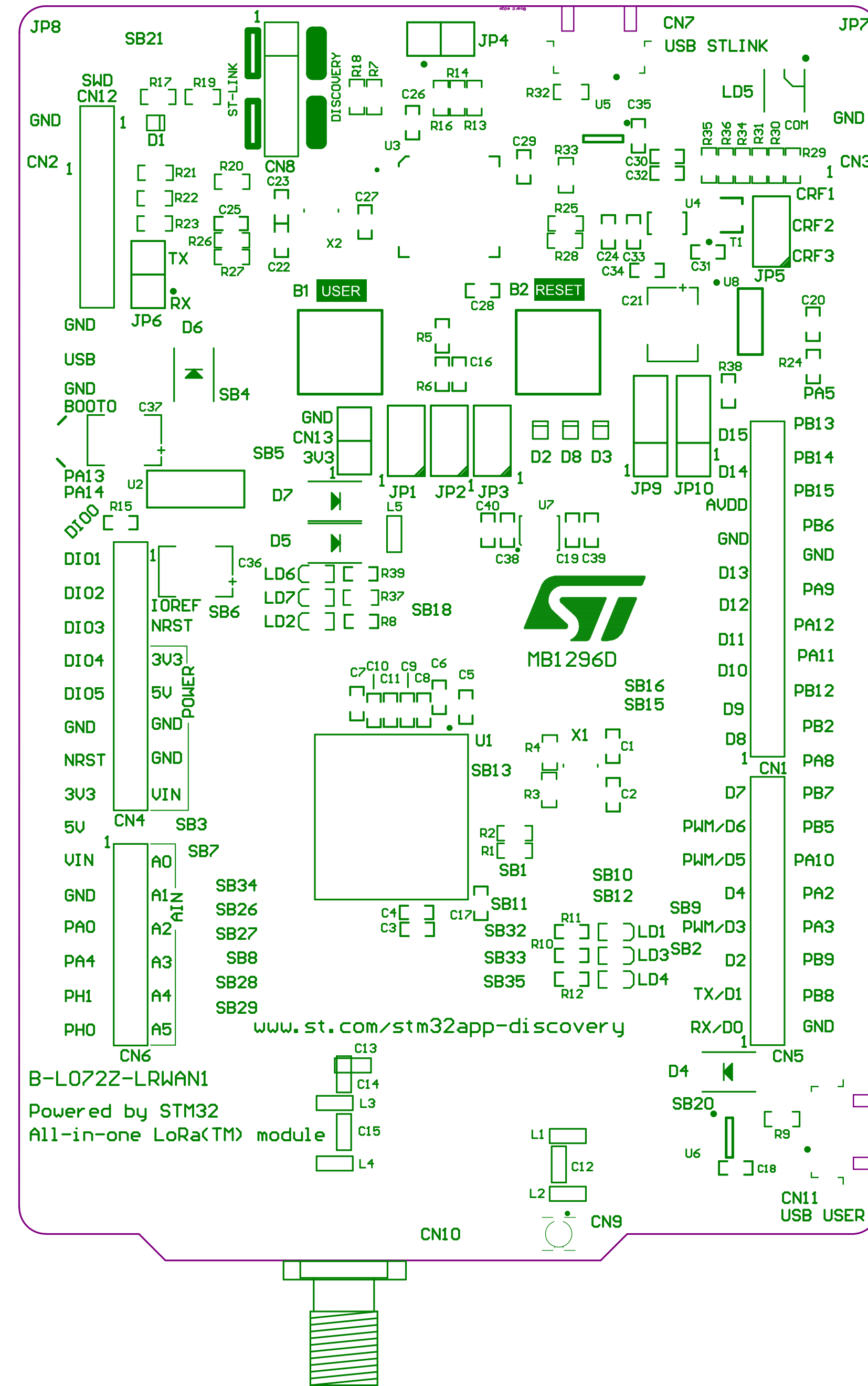
General purpose LEDs





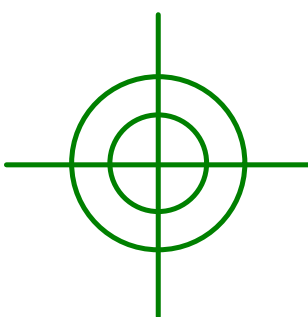
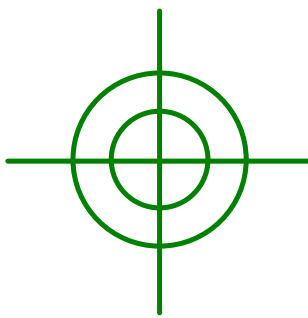
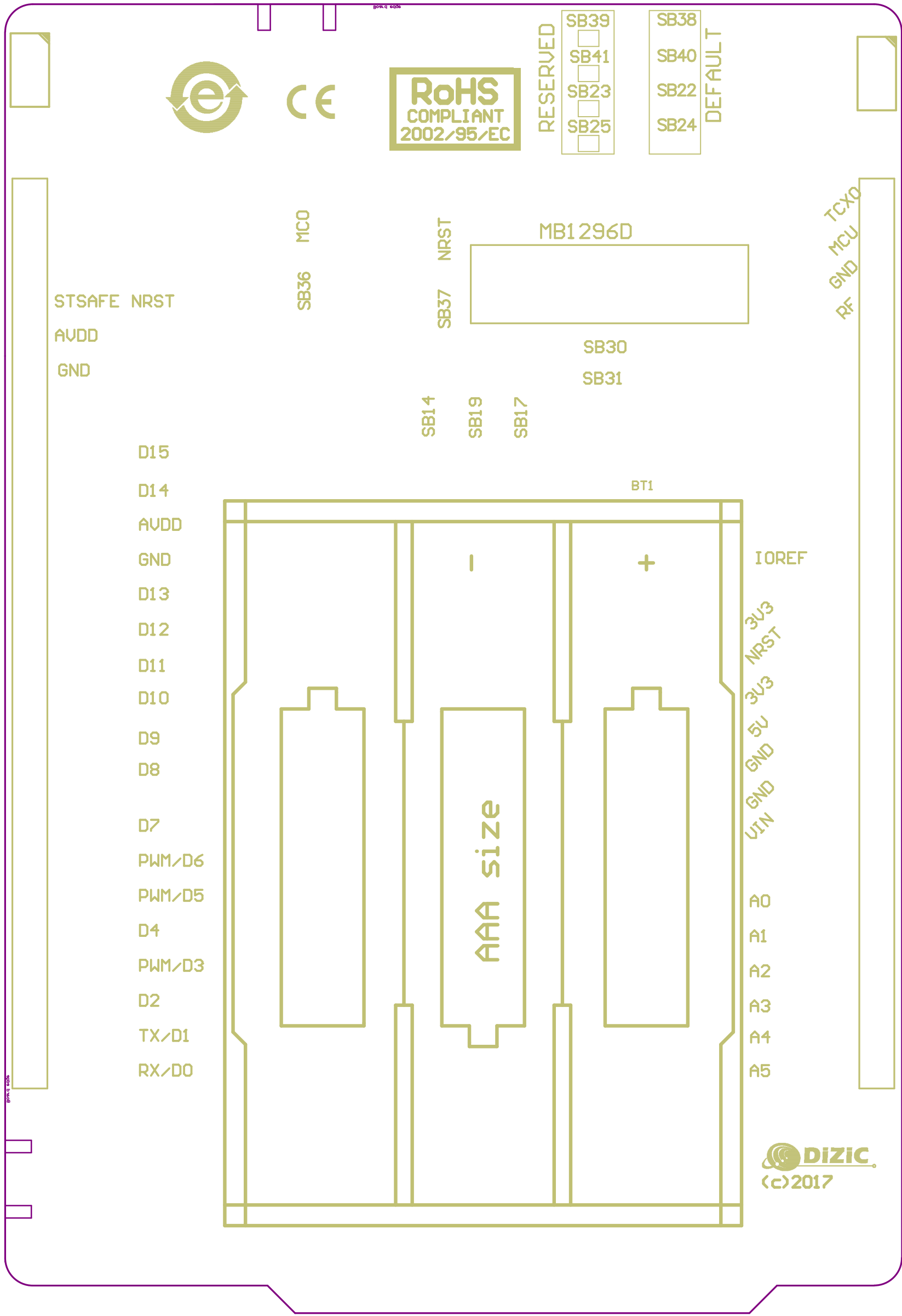
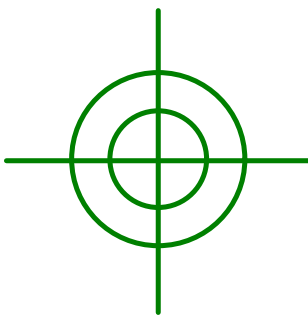
Extension connectors





Project: STM32 LRA Disco			
Layer: TOP SILKSCREEN		Ref: MB1296	
Gerber: .GTO	Date: 18-AUG-2016	Size: A4	Rev: D
















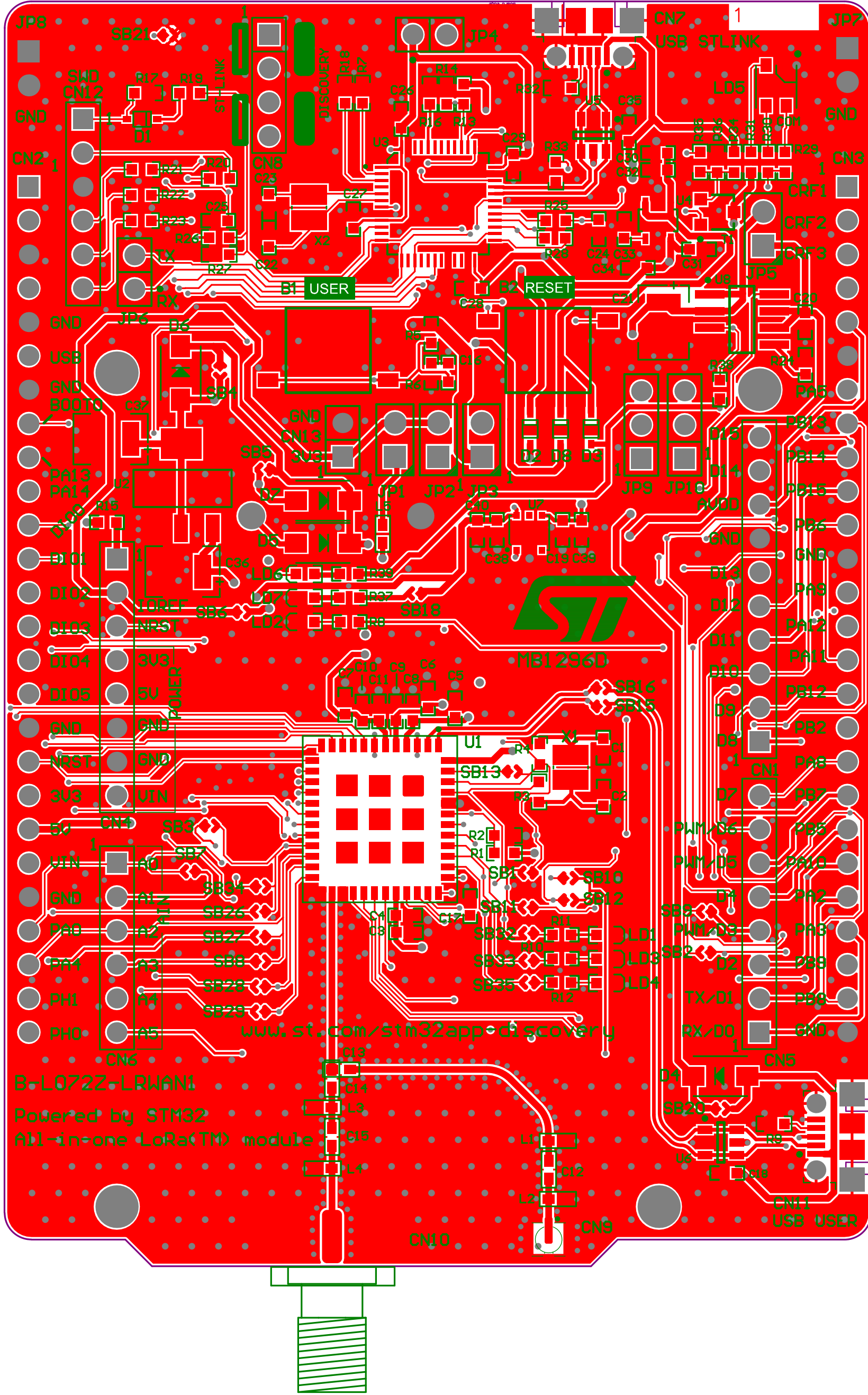
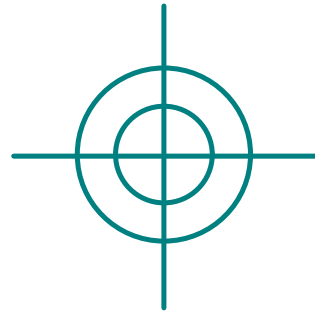
Project: STM32 LRA Disco			
Layer: BOTTOM SILKSCREEN		Ref: MB1296	
Gerber: .GBO	Date: 18-AUG-2016	Size: A4	Rev: D



Board Stack Report

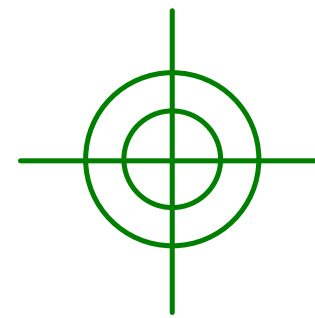
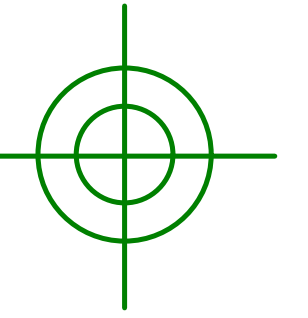
Stack Up		Layer Stack			
Layer	Board Layer Stack	Name	Material	Thickness	Constant
1		Top Paste			
2		Top Overlay			
3		Top Solder	Solder Resist	0,018mm	3,5
4		Top Layer	Copper	0,041mm	
5		Dielectric1	FR-4	0,508mm	4,2
6		GND	Copper	0,030mm	
7		Dielectric2	FR-4	0,381mm	4,8
8		VCC	Copper	0,030mm	
9		Dielectric3	FR-4	0,508mm	4,8
10		Bottom Layer	Copper	0,041mm	
11		Bottom Solder	Solder Resist	0,018mm	3,5
12		Bottom Overlay			
13		Bottom Paste			
	Height : 1,575mm				

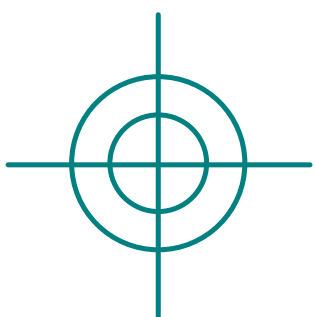
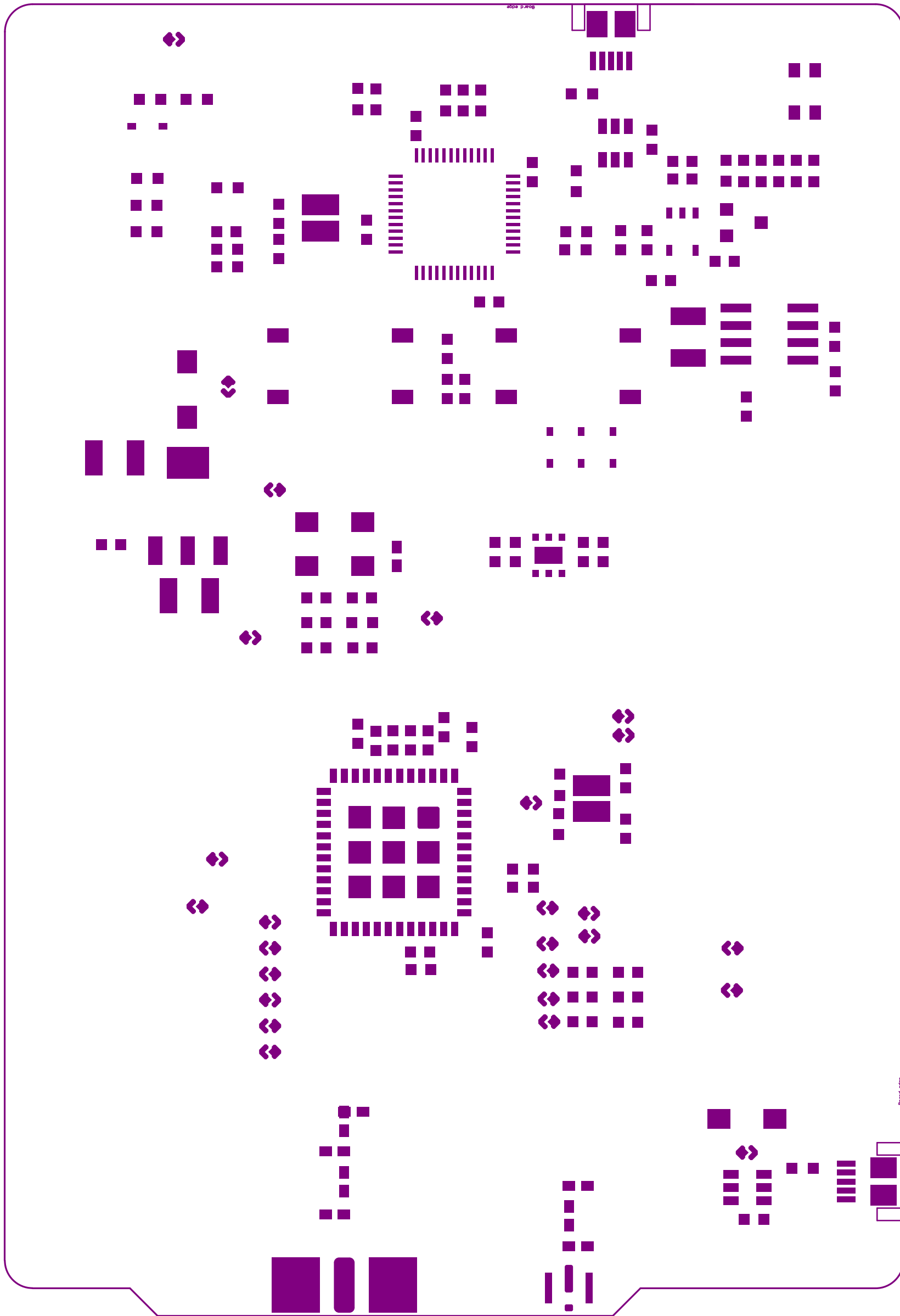
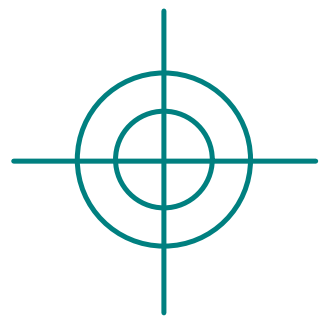




Project: STM32 LRA Disco			
Layer: TOP SCREEN		Ref: MB1296	
Gerber: .GTO	Date: 18-AUG-2016	Size: A4	Rev: D

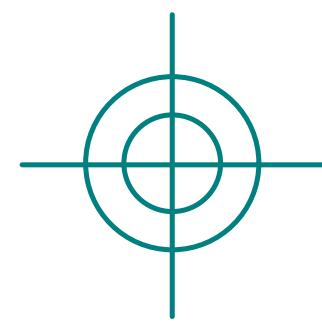
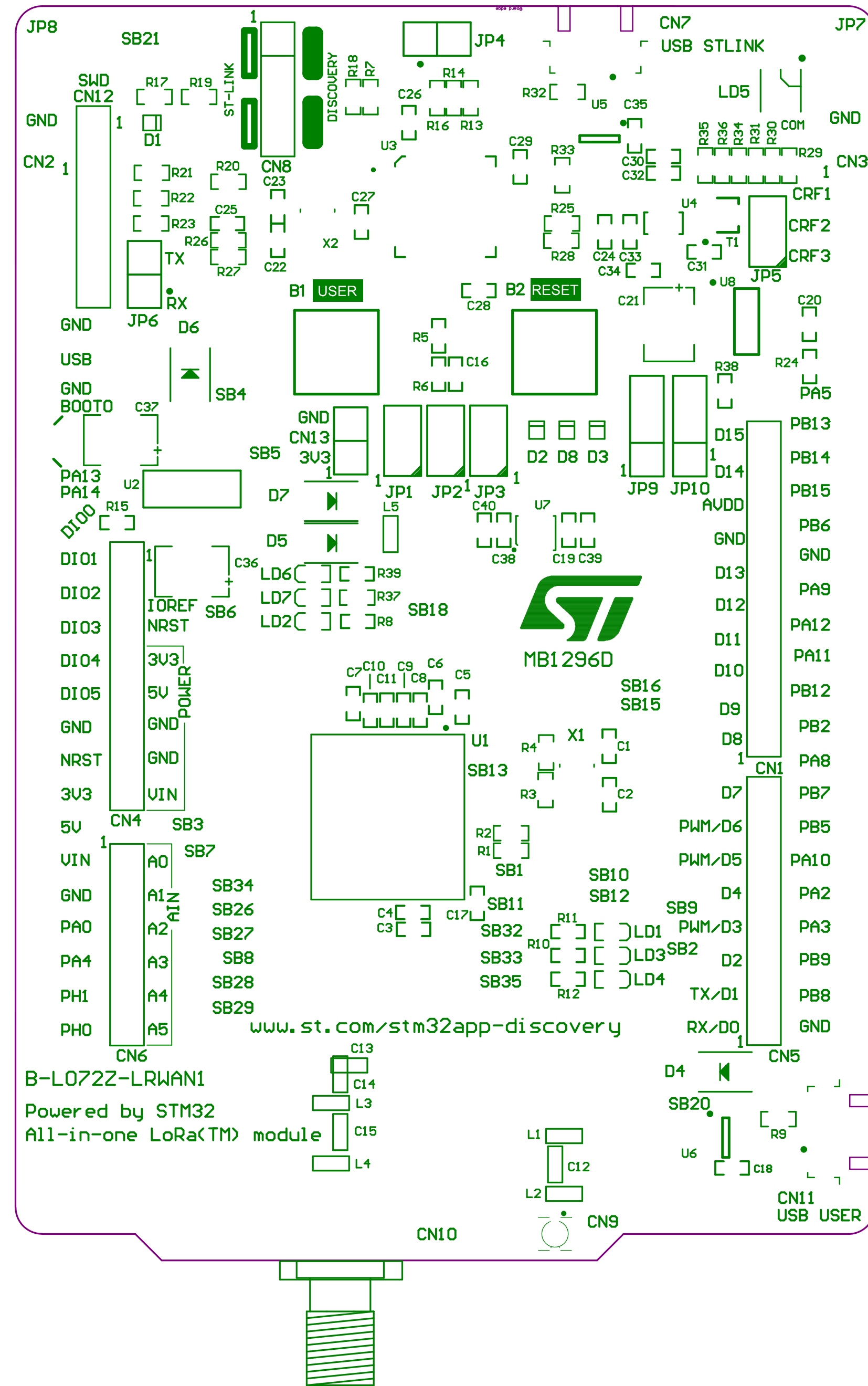
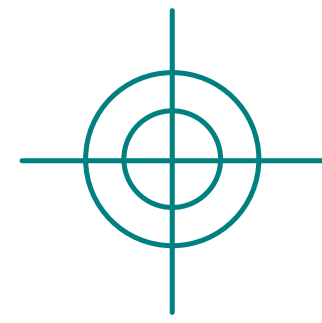






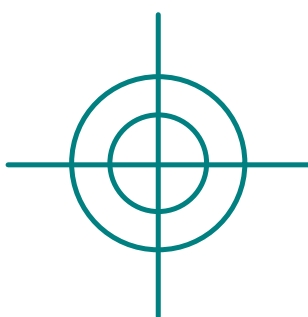
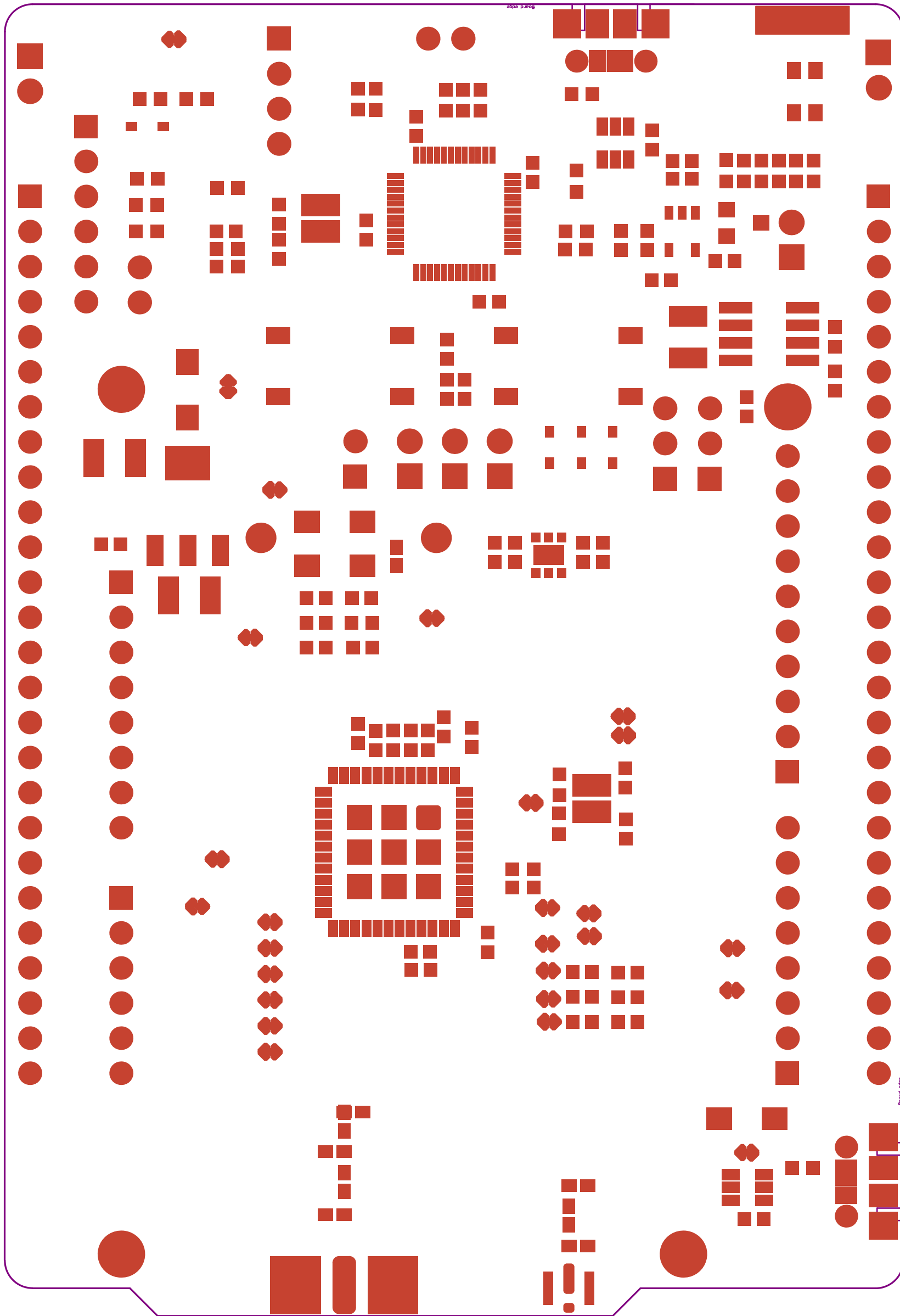
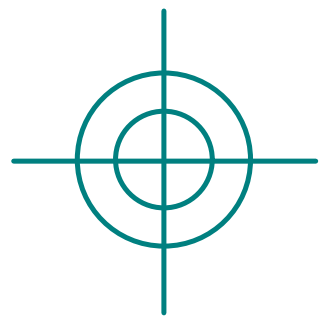
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Layer: TOP PASTE		Ref: MB1296	
Gerber: .GTP	Date: 18-AUG-2016	Size: A4	Rev: D





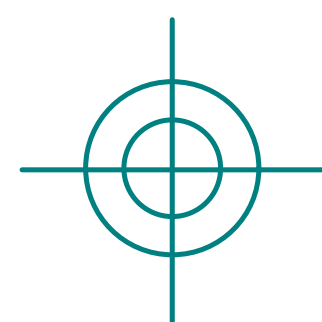
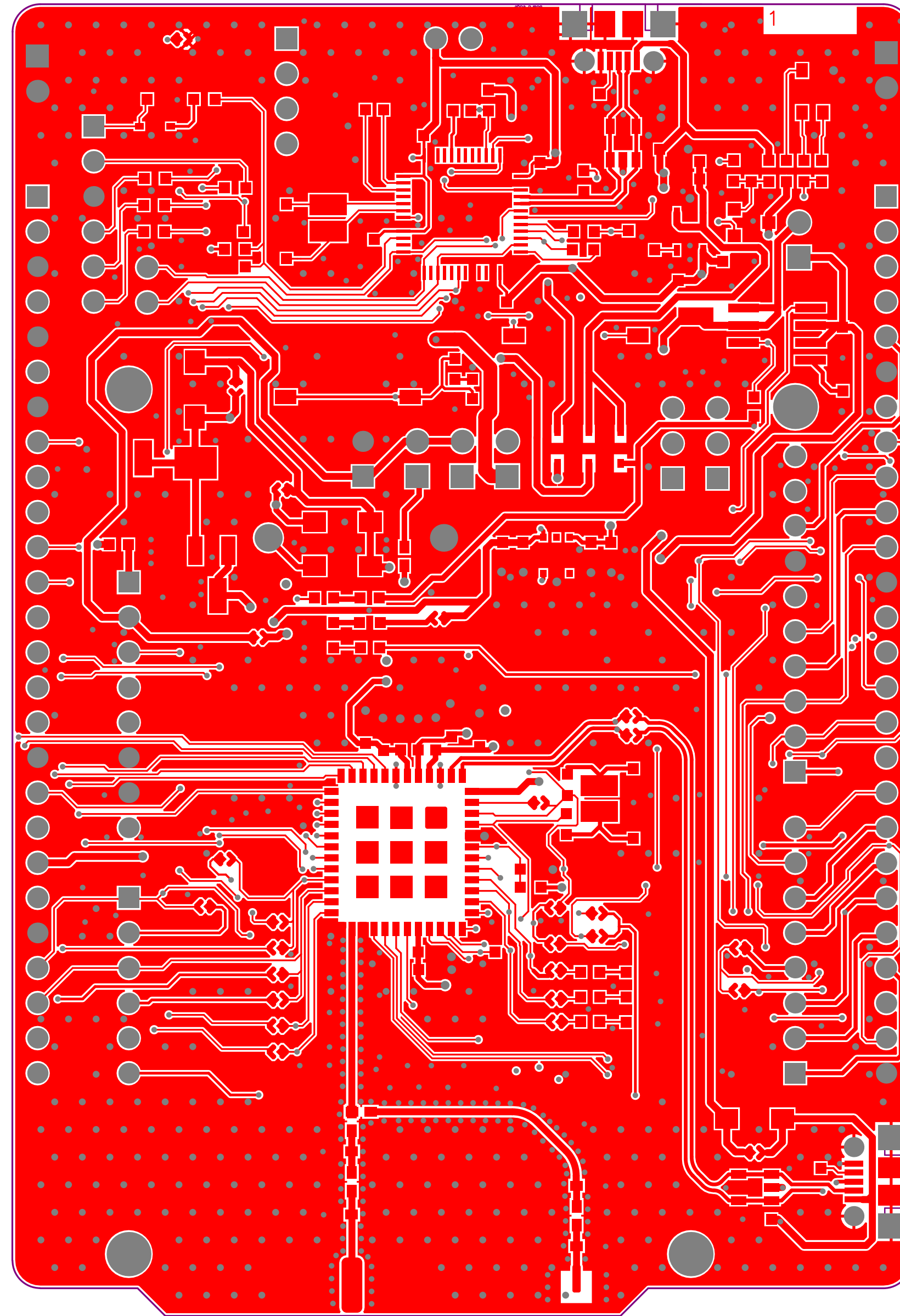
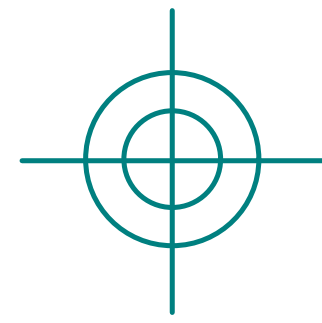
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Layer: TOP SILKSCREEN		Ref: MB1296	
Gerber: .GTO	Date: 18-AUG-2016	Size: A4	Rev: D





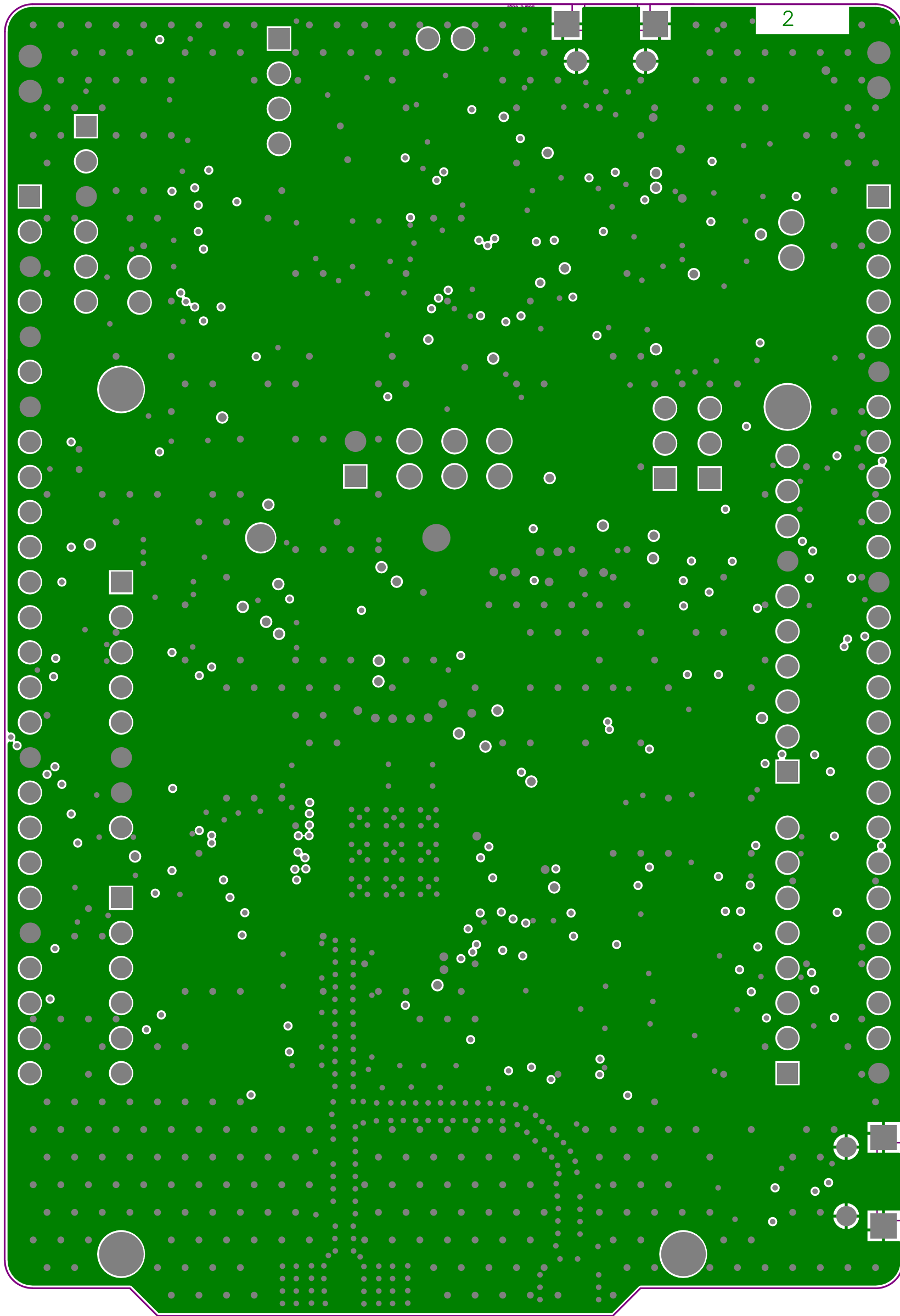
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Layer: TOP SOLDER		Ref: MB1296	
Gerber: .GTS	Date: 18-AUG-2016	Size: A4	Rev: D





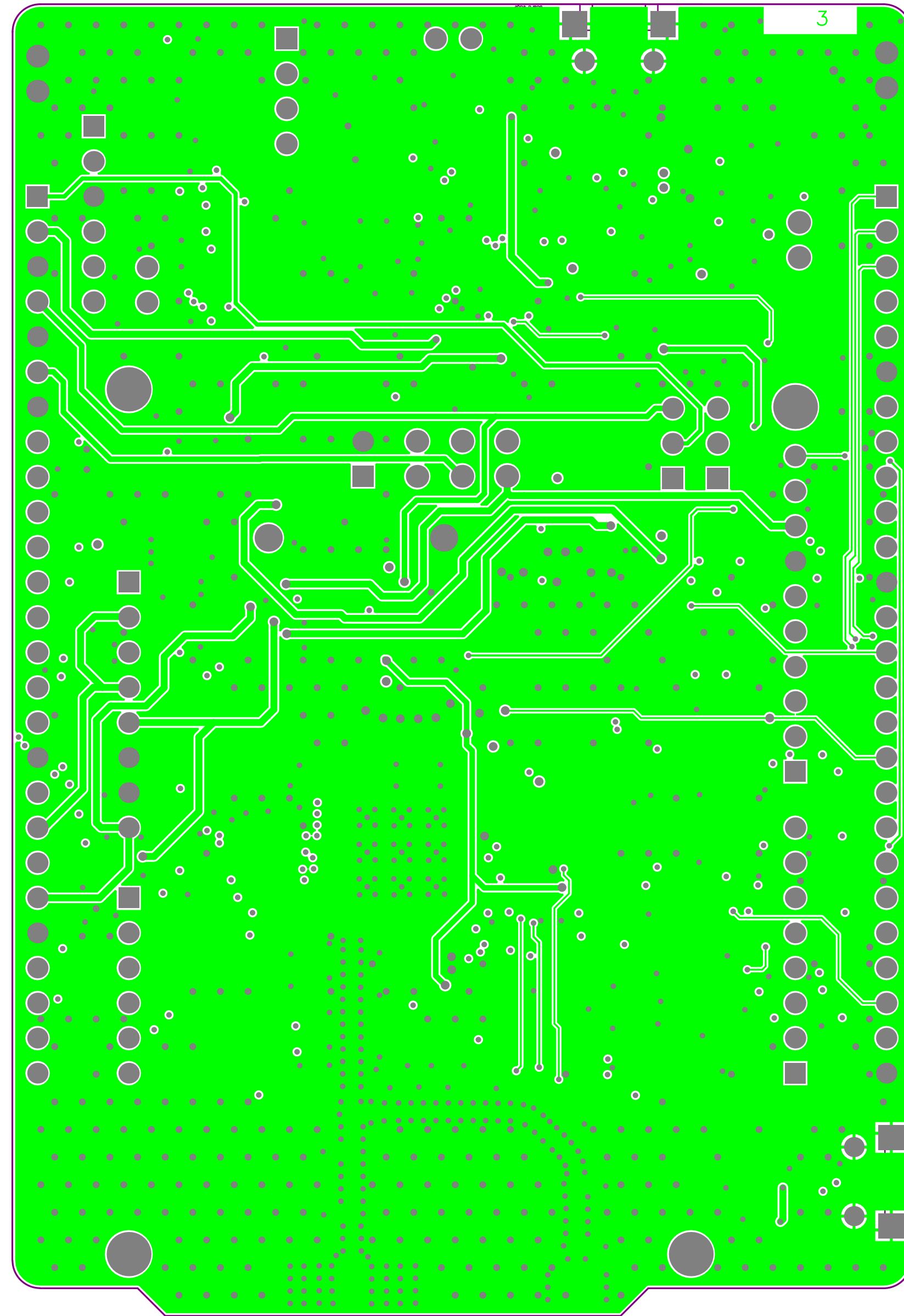
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Gerber: .GTL	Date: 18-AUG-2016	Size: A4	Rev: D





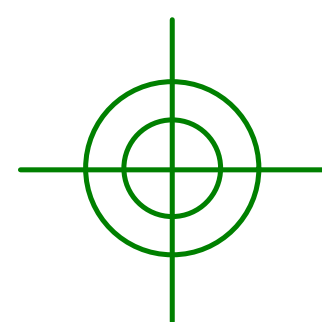
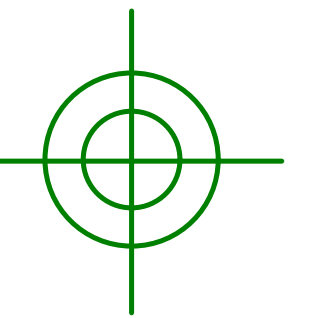
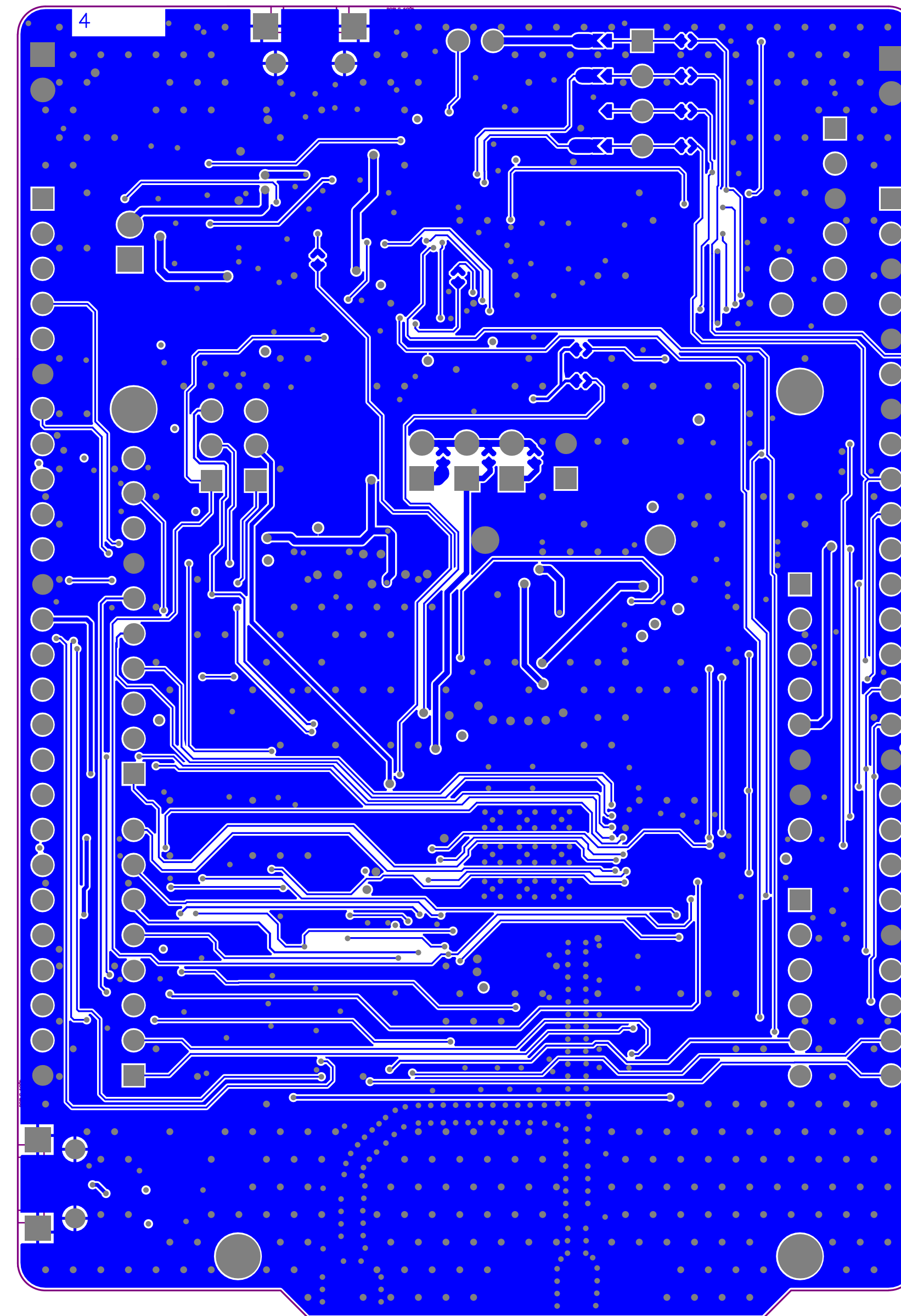
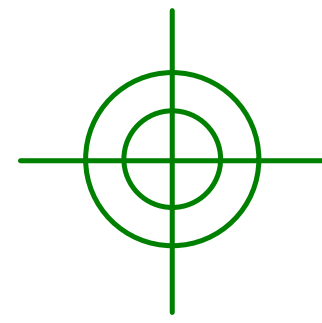
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Layer: GND LAYER		Ref: MB1296	
Gerber: .G1	Date: 18-AUG-2016	Size: A4	Rev: D





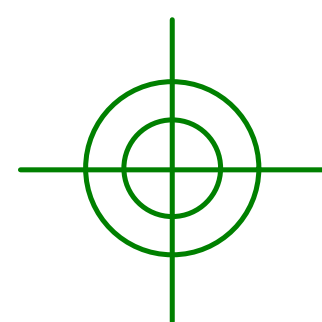
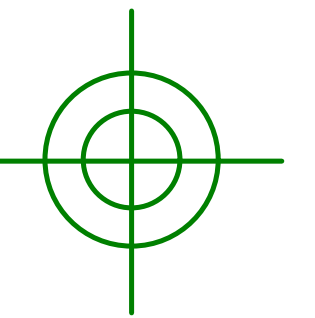
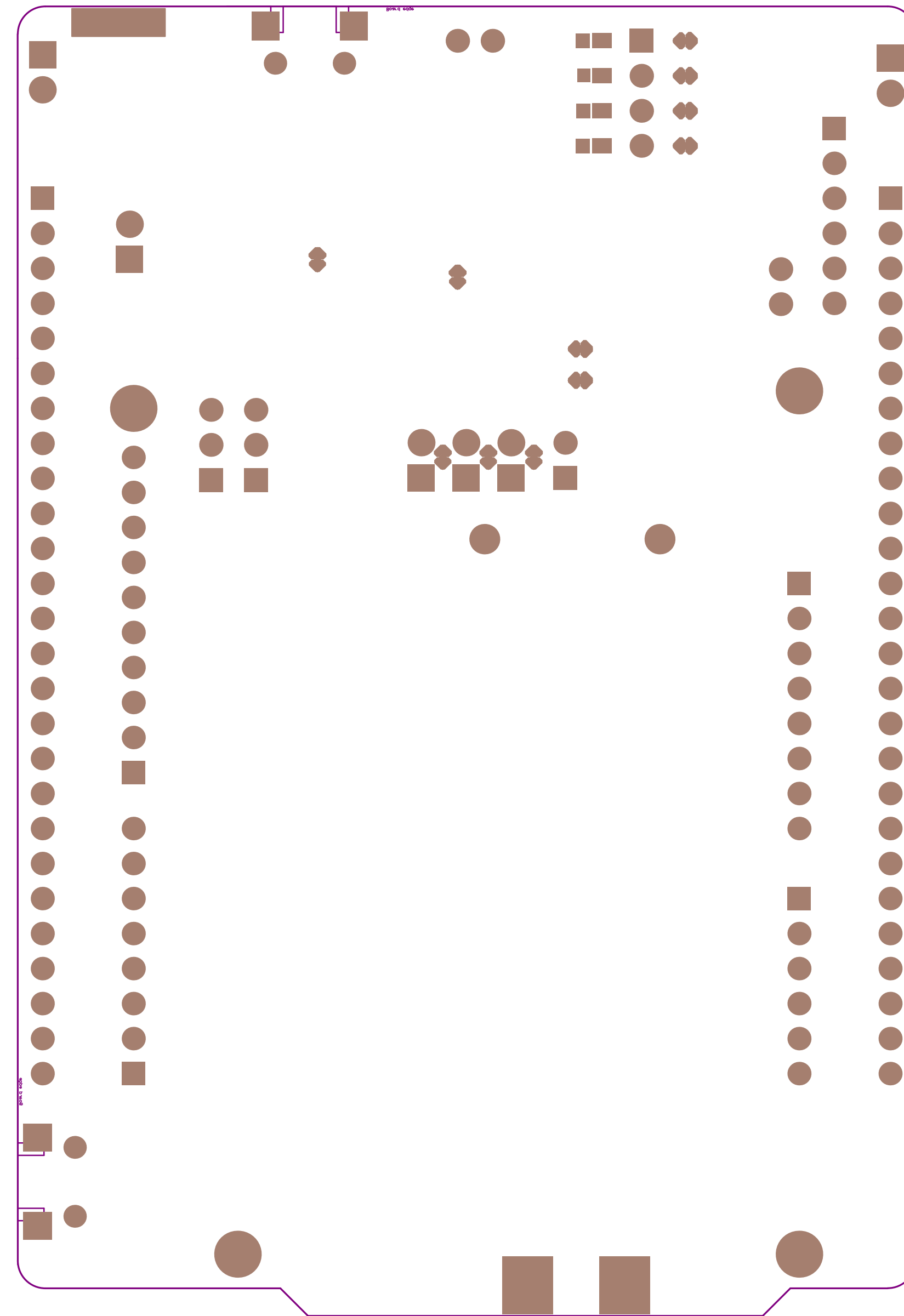
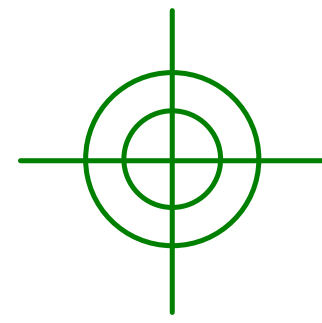
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Layer: UCC LAYER		Ref: MB1296	
Gerber: .G2	Date: 18-AUG-2016	Size: A4	Rev: D





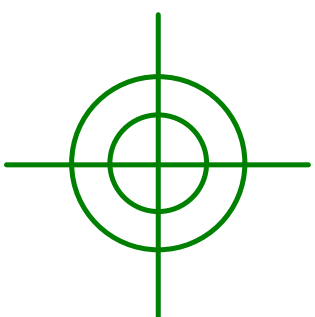
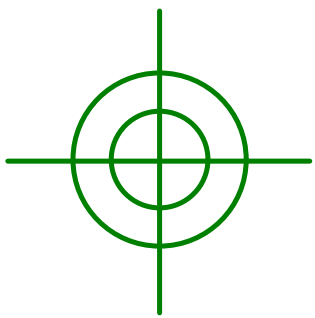
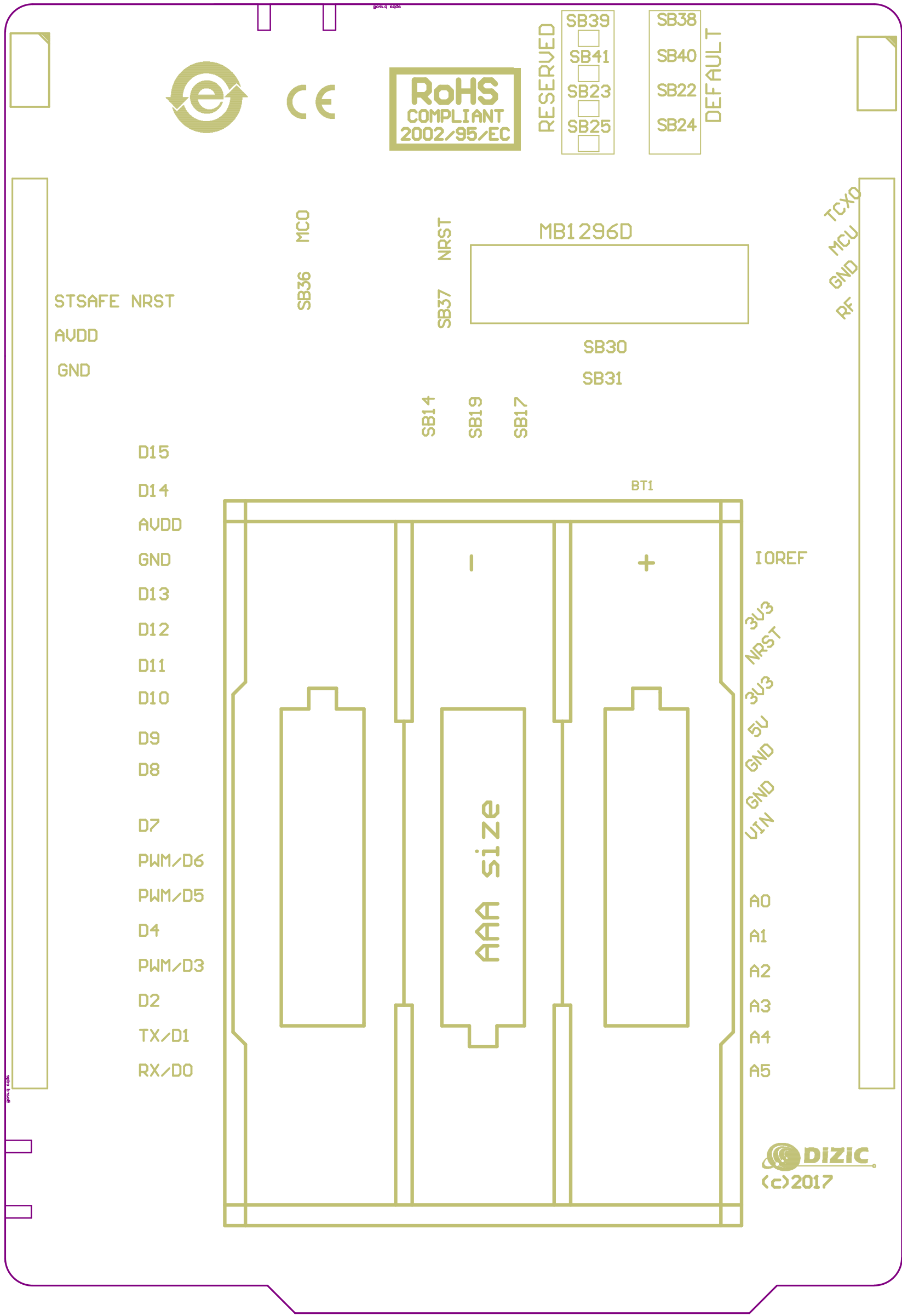
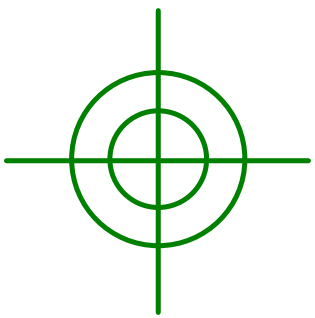
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Layer: BOTTOM LAYER		Ref: MB1296	
Gerber: .GBL	Date: 18-AUG-2016	Size: A4	Rev: D





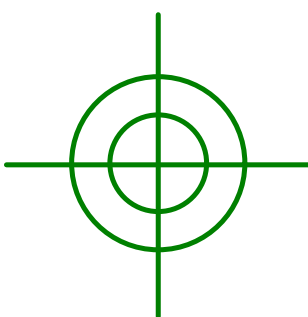
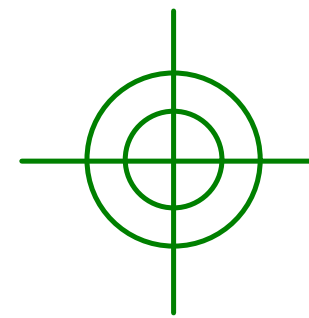
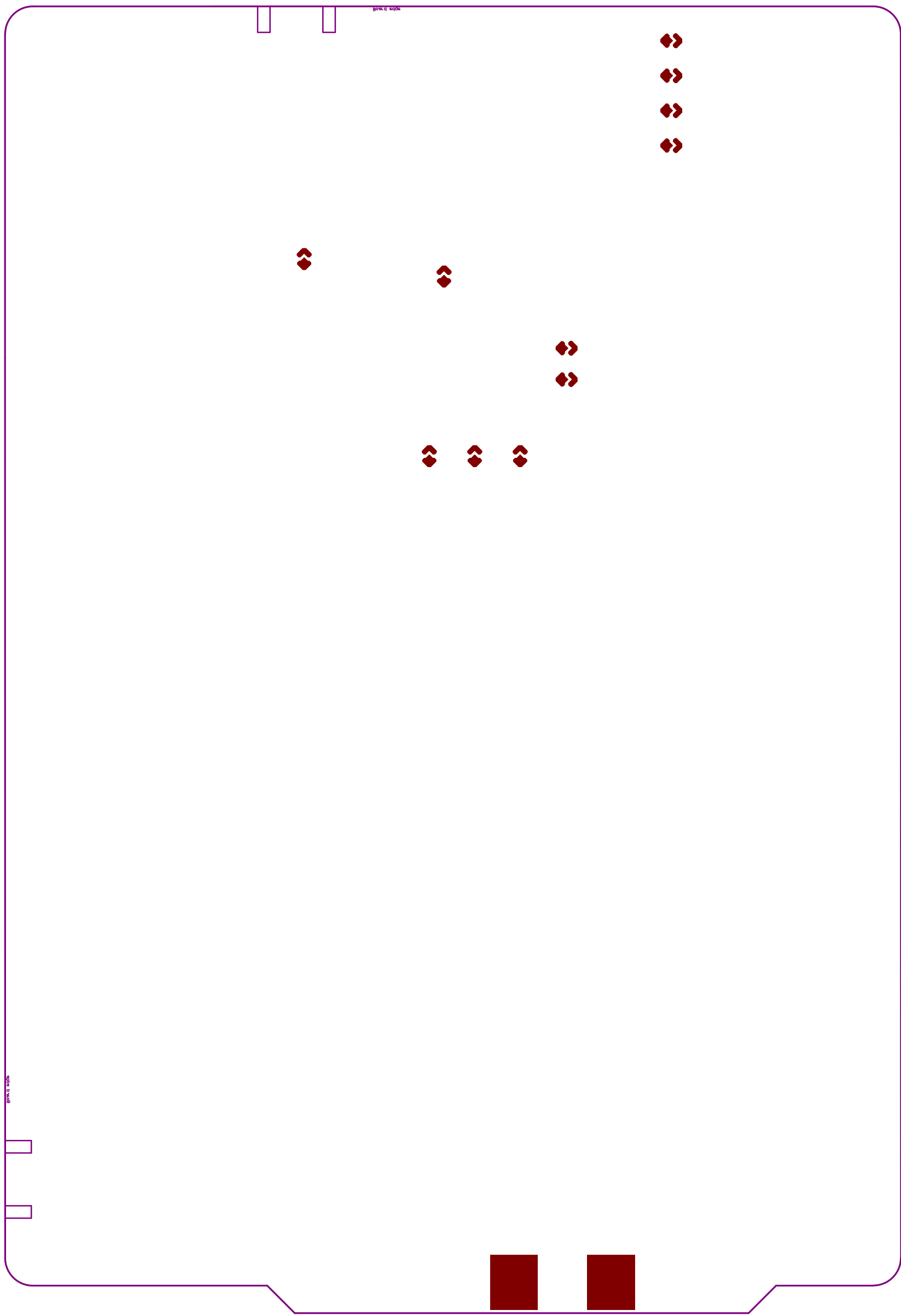
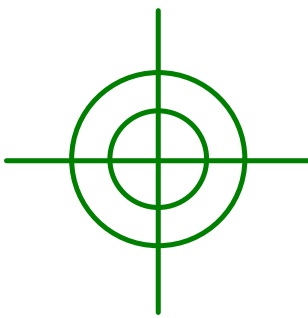
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Layer: BOTTOM SOLDER		Ref: MB1296	
Gerber: .GBS	Date: 18-AUG-2016	Size: A4	Rev: D





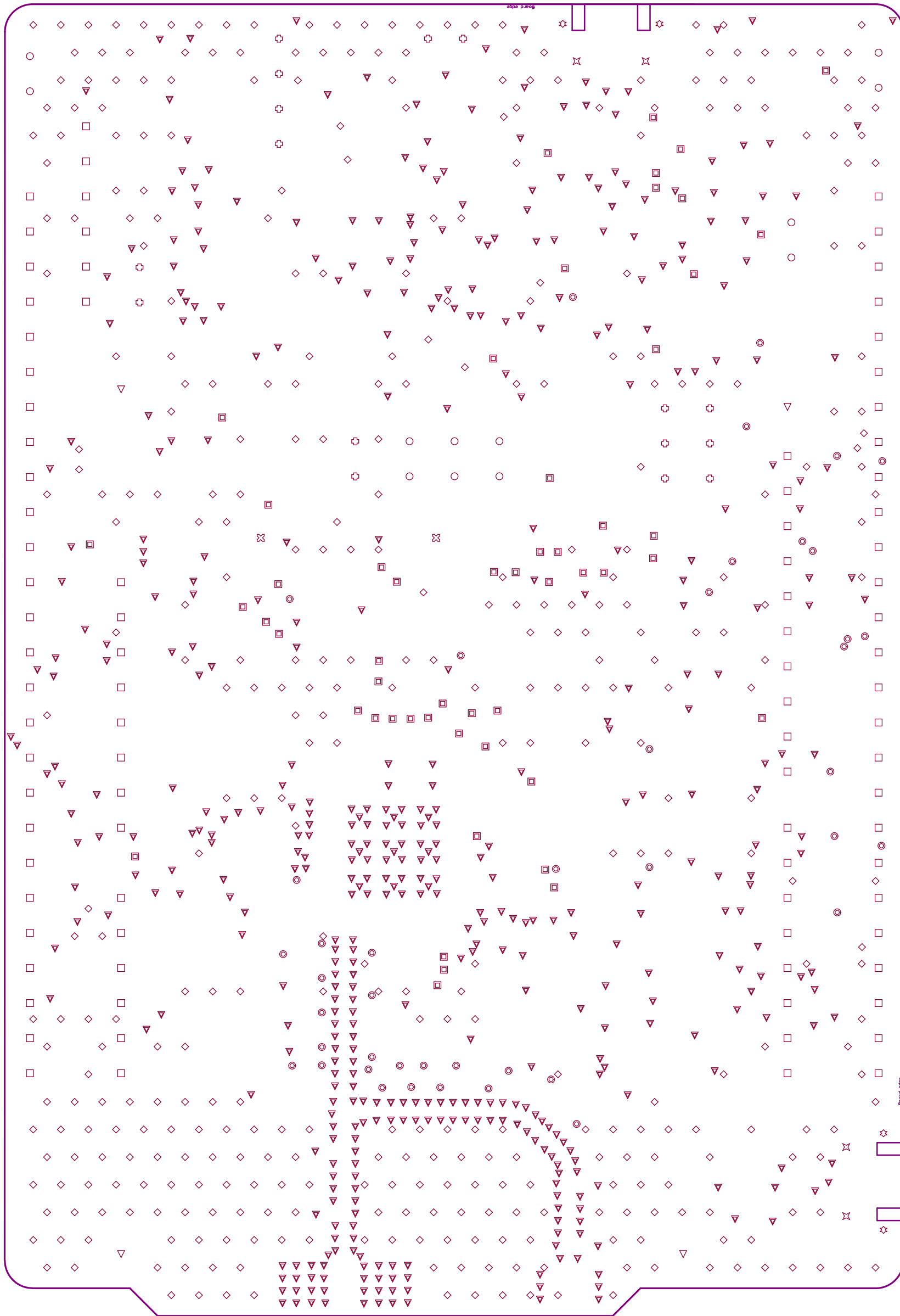
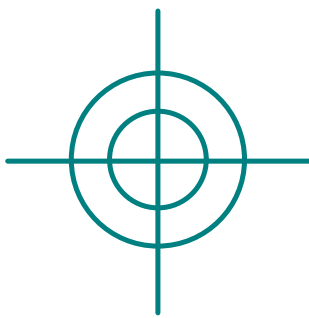
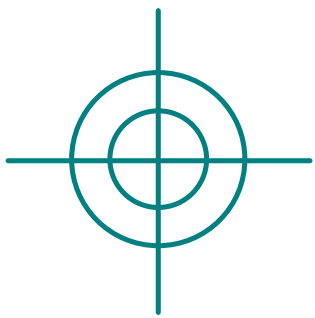
Project: STM32 LRA Disco			
Layer: BOTTOM SILKSCREEN		Ref: MB1296	
Gerber: .GBO	Date: 18-AUG-2016	Size: A4	Rev: D





Project: STM32 LRA Disco			
Layer: BOTTOM PASTE		Ref: MB1296	
Gerber: .GBP	Date: 18-AUG-2016	Size: A4	Rev: D





Symbol	Count	Hole Size	Hole Length	Routed Path Length	Plated	Hole Type
⊗	2	1,20mm (47,24mil)	-	-	PTH	Round
☆	4	0,60mm (23,62mil)	1,30mm (51,18mil)	0,70mm (27,56mil)	PTH	Slot
⊗	4	0,85mm (33,47mil)	-	-	PTH	Round
▽	4	3,20mm (125,98mil)	-	-	NPTH	Round
○	12	1,04mm (41,00mil)	-	-	PTH	Round
⊗	16	1,02mm (40,00mil)	-	-	PTH	Round
⊗	43	0,20mm (7,99mil)	-	-	PTH	Round
⊗	53	0,33mm (13,00mil)	-	-	PTH	Round
□	90	0,90mm (35,43mil)	-	-	PTH	Round
◇	413	0,25mm (9,84mil)	-	-	PTH	Round
▽	496	0,20mm (8,00mil)	-	-	PTH	Round

Symbol definitions:
Routed Path Length = Calculated from tool start centre position to tool end centre position.
Hole Length = Routed Path Length + Tool Size = Slot length as defined in the PCB layout



Project: STM32 LRA Disco			
Layer: DRILL DRAWING		Ref: MB1296	
Gerber: .DRL	Date: 18-AUG-2016	Size: A4	Rev: D

