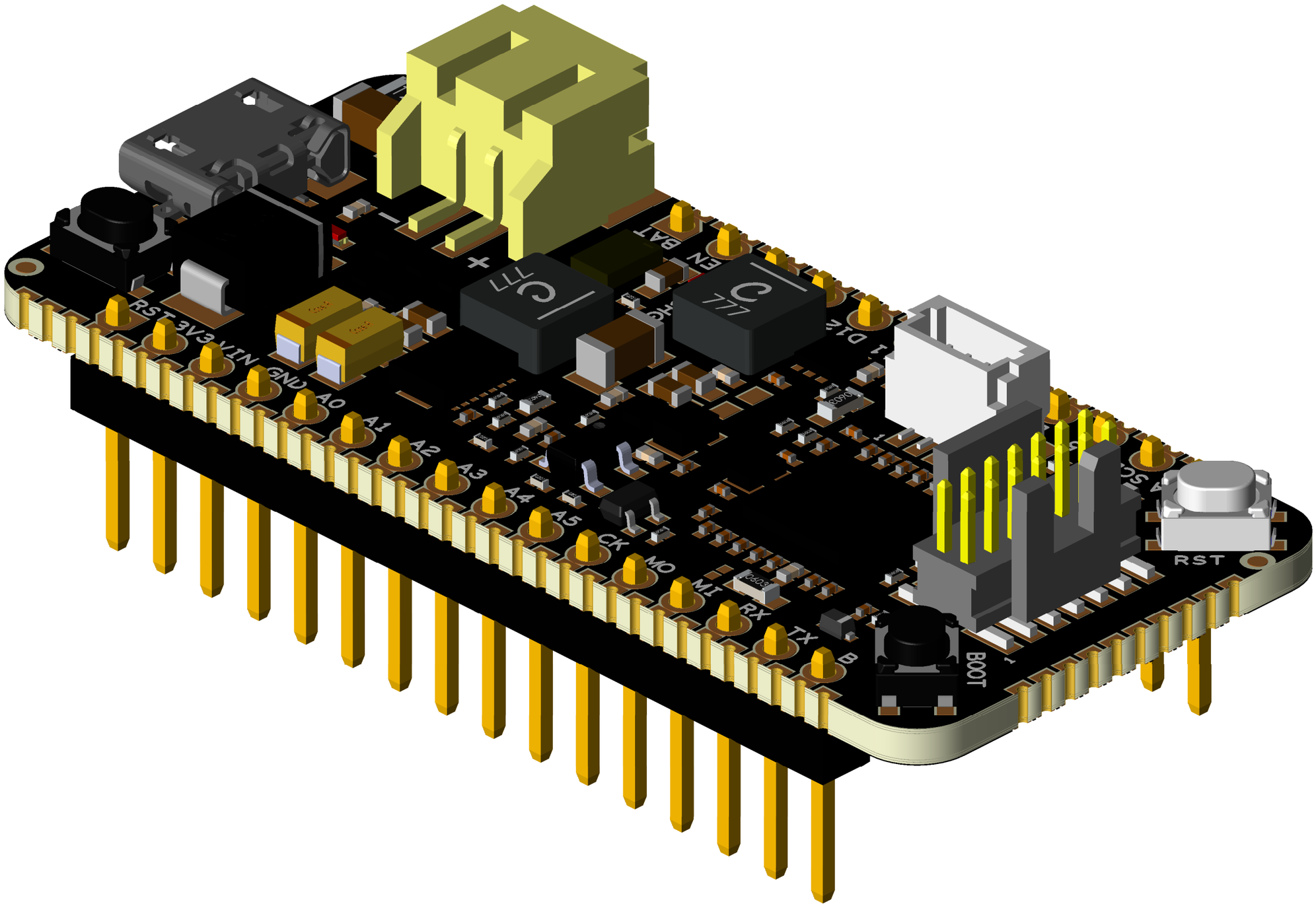
PCB DOCUMENTATION

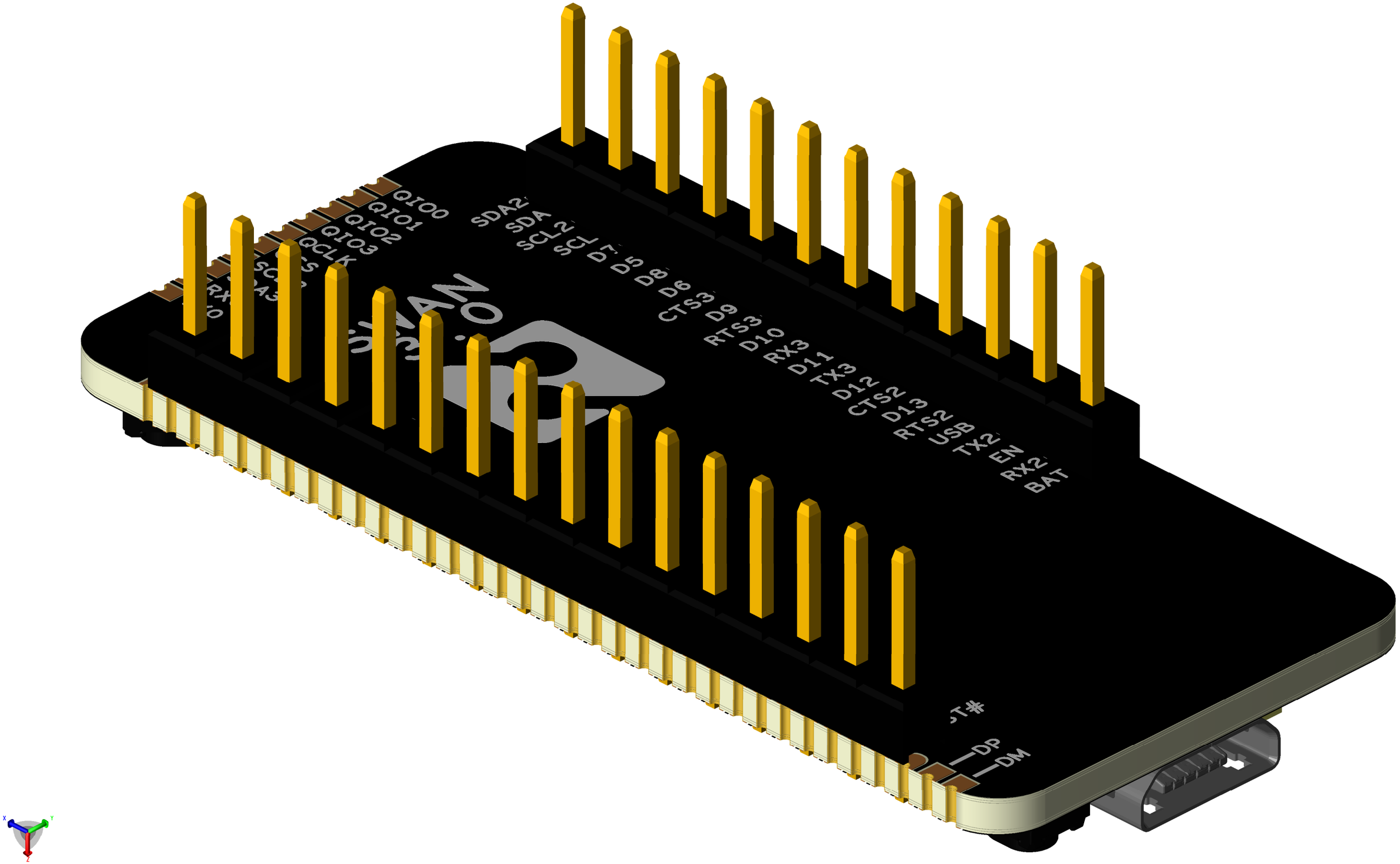
CUSTOMER: BLUES

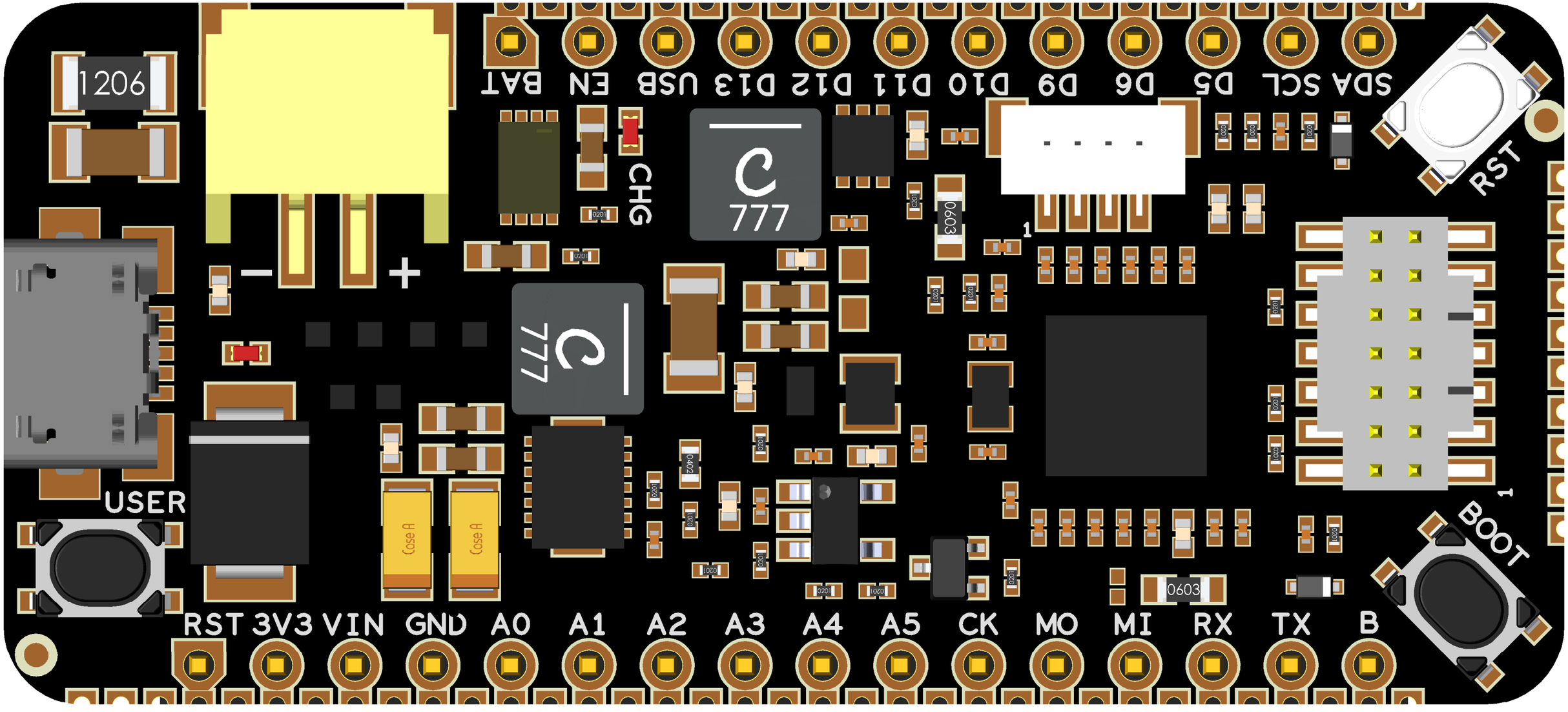
PROJECT: SWAN-F_V7

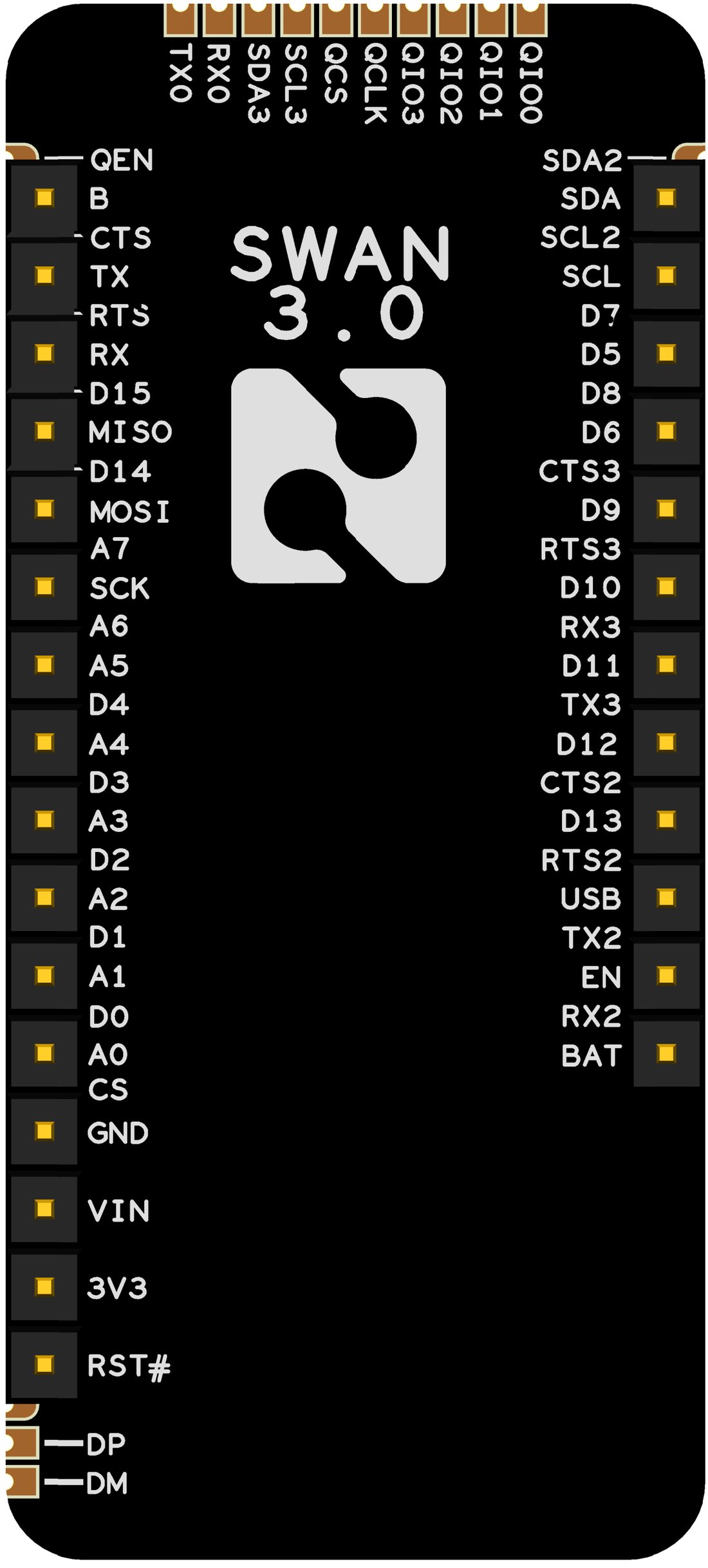
FAE CODE: 2021-0248

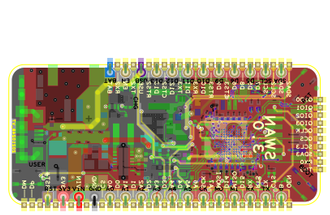
DATE: 21/04/2022

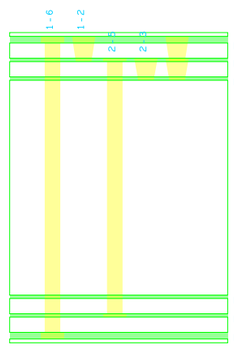

RST
3V3
VIN
GND
A0
A1
A2
A3
A4
A5
SCK
MO
MI
RX
TX
BAT
EN
BOOT
RST


QIO0
QIO1
QIO2
QIO3
QCLK
SDA2
SDA
SCL2
SCL
D7
D5
D8
D6
CTS3
D9
RTS3
D10
RX3
D11
TX3
D12
CTS2
D13
RTS2
USB
TX2
EN
RX2
BAT
DP
DM


1206
BAT
EN
USB
D13
D12
D11
D10
D9
D6
D5
SCL
SDA
CHG
777
RST
0603
USER
Case A
Case A
BOOT
RST
3V3
VIN
GND
A0
A1
A2
A3
A4
A5
CK
MO
MI
RX
TX
B


TXO
RXO
SDA3
SCL3
QCS
QCLK
QIO3
QIO2
QIO1
QIO0
QEN
B
CTS
TX
RTS
RX
D15
MISO
D14
MOSI
A7
SCK
A6
A5
D4
A4
D3
A3
D2
A2
D1
A1
D0
A0
CS
GND
VIN
3V3
RST#
DP
DM
SWAN
3.0
SDA2
SDA
SCL2
SCL
D7
D5
D8
D6
CTS3
D9
RTS3
D10
RX3
D11
TX3
D12
CTS2
D13
RTS2
USB
TX2
EN
RX2
BAT





* SURFACE - AIR 0 MM
* SOLDERMASK TOP MASK - SOLDERMASK 0.02 MM
L1 TOP CONDUCTOR - COPPER 0.035 MM
* DIELECTRIC - FR-4 0.08 MM
L2 GND PLANE - COPPER 0.018 MM
* DIELECTRIC - FR-4 0.08 MM
L3 INT1 CONDUCTOR - COPPER 0.018 MM

* DIELECTRIC - FR-4 1.13 MM

L4 INT2 CONDUCTOR - COPPER 0.018 MM
* DIELECTRIC - FR-4 0.08 MM
L5 POWER PLANE - COPPER 0.018 MM
* DIELECTRIC - FR-4 0.08 MM
L6 BOTTOM CONDUCTOR - COPPER 0.035 MM
* SOLDERMASK BOTTOM MASK - SOLDERMASK 0.02 MM
* SURFACE - AIR 0 MM

DESIGN CROSS SECTION CHART
TOTAL THICKNESS 1.632 MM

TOP and BOTTOM thickness layer shown in the image above contains +20um (from IPC-A-600 Class 2) of plating

IMPEDANCE CONTROL TABLE

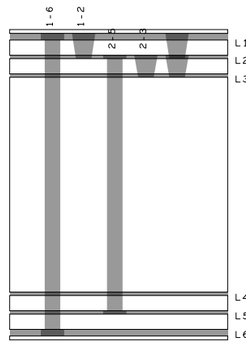
LAYER	TRACE [MM]	SPACING [MM]	IMPEDANCE SINGLE-ENDED	IMPEDANCE DIFFERENTIAL	TOLLERANCE
INT1	0.1	0.14	NA	90 ohm	+/- 10%

MANUFACTURING SPECIFICATIONS

BOARD SIZE (XxYxZ)	50.8x22.86x1.6mm	IPC-6012 - IPC-A-600	CLASS 2
BOARD TOLLERANCE (X|Y|Z)	+-/0.2 | +/-0.2 | +/-10%	E-TESTING	YES
NO.OF LAYERS	6	UL-MARKING	YES
BASE COPPER OUTSIDE	18um	MICROVIA (hole < 100um)	YES
BASE COPPER INSIDE	18um	BLIND VIA	YES
FINISH	ENIG	BURIED VIA	YES
SOLDER COLOR	MATTE BLACK	VIA FILL/VIA IN PAD	YES - BGA PADS
SILKSCREEN COLOR	WHITE	MIN. VIA SIZE	0.1mm
DIELECTRIC MATERIAL	FR4-TG150	MIN.TRACE SPACING	0.08mm
IMPEDANCE CONTROL	YES	OUTER LAYER MIN.TRACE WIDTH	0.087mm
CTI	175V	INNER LAYER MIN.TRACE WIDTH	0.087mm

FAE TECHNOLOGY

Project name: SWAN			Board name: SWAN-F
Designer: G. Boschini/M. Gregis			Approved: Not approved
Project Code: 2021-0248			Customer: BLUES
Internal Code: -			Code: -
Via C. Battisti 136, 24025, Gazzaniga (Bg), Italy Mail: info@fae.technology Tel: +39 035738130	Rev.: 7	Size Page: A3	Scale: 1:1
			Data: 17/02/2022

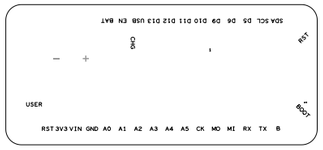


* SURFACE - AIR 0 MM
* SOLDERMASK TOP MASK - SOLDERMASK 0.02 MM
L1 TOP CONDUCTOR - COPPER 0.035 MM
* DIELECTRIC - FR-4 0.08 MM
L2 GND PLANE - COPPER 0.018 MM
* DIELECTRIC - FR-4 0.08 MM
L3 INT1 CONDUCTOR - COPPER 0.018 MM

* DIELECTRIC - FR-4 1.13 MM

L4 INT2 CONDUCTOR - COPPER 0.018 MM
* DIELECTRIC - FR-4 0.08 MM
L5 POWER PLANE - COPPER 0.018 MM
* DIELECTRIC - FR-4 0.08 MM
L6 BOTTOM CONDUCTOR - COPPER 0.035 MM
* SOLDERMASK BOTTOM MASK - SOLDERMASK 0.02 MM
* SURFACE - AIR 0 MM

DESIGN CROSS SECTION CHART
TOTAL THICKNESS 1.632 MM



TOP and BOTTOM thickness layer shown in the image above contains +20um (from IPC-A-600 Class 2) of plating

IMPEDANCE CONTROL TABLE

LAYER	TRACE [MM]	SPACING [MM]	IMPEDANCE SINGLE-ENDED	IMPEDANCE DIFFERENTIAL	TOLLERANCE
INT1	0.1	0.14	NA	90 ohm	+/- 10%

MANUFACTURING SPECIFICATIONS

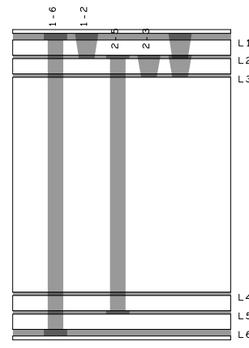
BOARD SIZE (XxYxZ)	50.8x22.86x1.6mm	IPC-6012 - IPC-A-600	CLASS 2
BOARD TOLLERANCE (X|Y|Z)	+-/0.2 | +/-0.2 | +/-10%	E-TESTING	YES
NO.OF LAYERS	6	UL-MARKING	YES
BASE COPPER OUTSIDE	18um	MICROVIA (hole < 100um)	YES
BASE COPPER INSIDE	18um	BLIND VIA	YES
FINISH	ENIG	BURIED VIA	YES
SOLDER COLOR	MATTE BLACK	VIA FILL/VIA IN PAD	YES - BGA PADS
SILKSCREEN COLOR	WHITE	MIN. VIA SIZE	0.1mm
DIELECTRIC MATERIAL	FR4-TG150	MIN.TRACE SPACING	0.08mm
IMPEDANCE CONTROL	YES	OUTER LAYER MIN.TRACE WIDTH	0.087mm
CTI	175V	INNER LAYER MIN.TRACE WIDTH	0.087mm

FAE TECHNOLOGY

Project name: SWAN			Board name: SWAN-F
Designer: G. Boschini/M. Gregis			Approved: Not approved
Project Code: 2021-0248			Customer: BLUES
Internal Code: -			Code: -

Via C. Battisti 136, 24025, Gazzaniga (Bg), Italy
Mail: info@fae.technology Tel: +39 035738130

Rev.	Size Page	Scale	Data
7	A3	1:1	17/02/2022



* SURFACE - AIR 0 MM
* SOLDERMASK TOP MASK - SOLDERMASK 0.02 MM
L1 TOP CONDUCTOR - COPPER 0.035 MM
* DIELECTRIC - FR-4 0.08 MM
L2 GND PLANE - COPPER 0.018 MM
* DIELECTRIC - FR-4 0.08 MM
L3 INT1 CONDUCTOR - COPPER 0.018 MM

* DIELECTRIC - FR-4 1.13 MM

L4 INT2 CONDUCTOR - COPPER 0.018 MM
* DIELECTRIC - FR-4 0.08 MM
L5 POWER PLANE - COPPER 0.018 MM
* DIELECTRIC - FR-4 0.08 MM
L6 BOTTOM CONDUCTOR - COPPER 0.035 MM
* SOLDERMASK BOTTOM MASK - SOLDERMASK 0.02 MM
* SURFACE - AIR 0 MM

DESIGN CROSS SECTION CHART
TOTAL THICKNESS 1.632 MM

TOP and BOTTOM thickness layer shown in the image above contains +20um (from IPC-A-600 Class 2) of plating

IMPEDANCE CONTROL TABLE

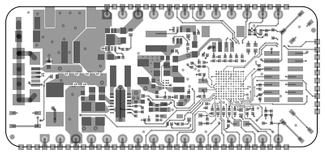
LAYER	TRACE [MM]	SPACING [MM]	IMPEDANCE SINGLE-ENDED	IMPEDANCE DIFFERENTIAL	TOLLERANCE
INT1	0.1	0.14	NA	90 ohm	+/- 10%

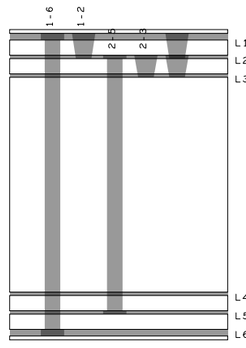
MANUFACTURING SPECIFICATIONS

BOARD SIZE (XxYxZ)	50.8x22.86x1.6mm	IPC-6012 - IPC-A-600	CLASS 2
BOARD TOLLERANCE (X|Y|Z)	+-/0.2 | +/-0.2 | +/-10%	E-TESTING	YES
NO.OF LAYERS	6	UL-MARKING	YES
BASE COPPER OUTSIDE	18um	MICROVIA (hole < 100um)	YES
BASE COPPER INSIDE	18um	BLIND VIA	YES
FINISH	ENIG	BURIED VIA	YES
SOLDER COLOR	MATTE BLACK	VIA FILL/VIA IN PAD	YES - BGA PADS
SILKSCREEN COLOR	WHITE	MIN. VIA SIZE	0.1mm
DIELECTRIC MATERIAL	FR4-TG150	MIN.TRACE SPACING	0.08mm
IMPEDANCE CONTROL	YES	OUTER LAYER MIN.TRACE WIDTH	0.087mm
CTI	175V	INNER LAYER MIN.TRACE WIDTH	0.087mm

FAE TECHNOLOGY

Project name: SWAN			Board name: SWAN-F
Designer: G. Boschini/M. Gregis			Approved: Not approved
Project Code: 2021-0248			Customer: BLUES
Internal Code: -			Code: -
Via C. Battisti 136, 24025, Gazzaniga (Bg), Italy Mail: info@fae.technology Tel: +39 035738130	Rev.: 7	Size Page: A3	Scale: 1:1
			Data: 17/02/2022





* SURFACE - AIR 0 MM
* SOLDERMASK TOP MASK - SOLDERMASK 0.02 MM
L1 TOP CONDUCTOR - COPPER 0.035 MM
* DIELECTRIC - FR-4 0.08 MM
L2 GND PLANE - COPPER 0.018 MM
* DIELECTRIC - FR-4 0.08 MM
L3 INT1 CONDUCTOR - COPPER 0.018 MM

* DIELECTRIC - FR-4 1.13 MM

L4 INT2 CONDUCTOR - COPPER 0.018 MM
* DIELECTRIC - FR-4 0.08 MM
L5 POWER PLANE - COPPER 0.018 MM
* DIELECTRIC - FR-4 0.08 MM
L6 BOTTOM CONDUCTOR - COPPER 0.035 MM
* SOLDERMASK BOTTOM MASK - SOLDERMASK 0.02 MM
* SURFACE - AIR 0 MM

DESIGN CROSS SECTION CHART
TOTAL THICKNESS 1.632 MM

TOP and BOTTOM thickness layer shown in the image above contains +20um (from IPC-A-600 Class 2) of plating

IMPEDANCE CONTROL TABLE

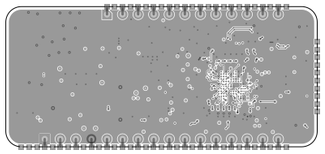
LAYER	TRACE [MM]	SPACING [MM]	IMPEDANCE SINGLE-ENDED	IMPEDANCE DIFFERENTIAL	TOLLERANCE
INT1	0.1	0.14	NA	90 ohm	+/- 10%

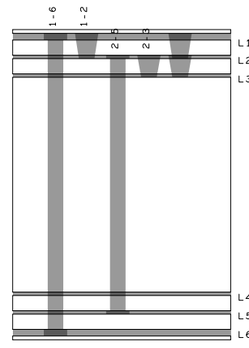
MANUFACTURING SPECIFICATIONS

BOARD SIZE (XxYxZ)	50.8x22.86x1.6mm	IPC-6012 - IPC-A-600	CLASS 2
BOARD TOLLERANCE (X|Y|Z)	+-/0.2 | +/-0.2 | +/-10%	E-TESTING	YES
NO.OF LAYERS	6	UL-MARKING	YES
BASE COPPER OUTSIDE	18um	MICROVIA (hole < 100um)	YES
BASE COPPER INSIDE	18um	BLIND VIA	YES
FINISH	ENIG	BURIED VIA	YES
SOLDER COLOR	MATTE BLACK	VIA FILL/VIA IN PAD	YES - BGA PADS
SILKSCREEN COLOR	WHITE	MIN. VIA SIZE	0.1mm
DIELECTRIC MATERIAL	FR4-TG150	MIN.TRACE SPACING	0.08mm
IMPEDANCE CONTROL	YES	OUTER LAYER MIN.TRACE WIDTH	0.087mm
CTI	175V	INNER LAYER MIN.TRACE WIDTH	0.087mm

FAE TECHNOLOGY

Project name: SWAN			Board name: SWAN-F
Designer: G. Boschini/M. Gregis			Approved: Not approved
Project Code: 2021-0248			Customer: BLUES
Internal Code: -			Code: -
Via C. Battisti 136, 24025, Gazzaniga (Bg), Italy Mail: info@fae.technology Tel: +39 035738130	Rev.: 7	Size Page: A3	Scale: 1:1 / Data: 17/02/2022





* SURFACE - AIR 0 MM
* SOLDERMASK TOP MASK - SOLDERMASK 0.02 MM
L1 TOP CONDUCTOR - COPPER 0.035 MM
* DIELECTRIC - FR-4 0.08 MM
L2 GND PLANE - COPPER 0.018 MM
* DIELECTRIC - FR-4 0.08 MM
L3 INT1 CONDUCTOR - COPPER 0.018 MM

* DIELECTRIC - FR-4 1.13 MM

L4 INT2 CONDUCTOR - COPPER 0.018 MM
* DIELECTRIC - FR-4 0.08 MM
L5 POWER PLANE - COPPER 0.018 MM
* DIELECTRIC - FR-4 0.08 MM
L6 BOTTOM CONDUCTOR - COPPER 0.035 MM
* SOLDERMASK BOTTOM MASK - SOLDERMASK 0.02 MM
* SURFACE - AIR 0 MM

DESIGN CROSS SECTION CHART
TOTAL THICKNESS 1.632 MM

TOP and BOTTOM thickness layer shown in the image above contains +20um (from IPC-A-600 Class 2) of plating

IMPEDANCE CONTROL TABLE

LAYER	TRACE [MM]	SPACING [MM]	IMPEDANCE SINGLE-ENDED	IMPEDANCE DIFFERENTIAL	TOLLERANCE
INT1	0.1	0.14	NA	90 ohm	+/- 10%

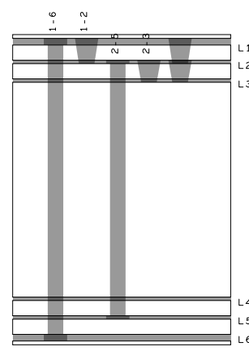
MANUFACTURING SPECIFICATIONS

BOARD SIZE (XxYxZ)	50.8x22.86x1.6mm	IPC-6012 - IPC-A-600	CLASS 2
BOARD TOLLERANCE (X|Y|Z)	+-/0.2 | +/-0.2 | +/-10%	E-TESTING	YES
NO.OF LAYERS	6	UL-MARKING	YES
BASE COPPER OUTSIDE	18um	MICROVIA (hole < 100um)	YES
BASE COPPER INSIDE	18um	BLIND VIA	YES
FINISH	ENIG	BURIED VIA	YES
SOLDER COLOR	MATTE BLACK	VIA FILL/VIA IN PAD	YES - BGA PADS
SILKSCREEN COLOR	WHITE	MIN. VIA SIZE	0.1mm
DIELECTRIC MATERIAL	FR4-TG150	MIN.TRACE SPACING	0.08mm
IMPEDANCE CONTROL	YES	OUTER LAYER MIN.TRACE WIDTH	0.087mm
CTI	175V	INNER LAYER MIN.TRACE WIDTH	0.087mm

FAE TECHNOLOGY

Project name: SWAN			Board name: SWAN-F
Designer: G. Boschini/M. Gregis			Approved: Not approved
Project Code: 2021-0248			Customer: BLUES
Internal Code: -			Code: -
Rev.: 7	Size Page: A3	Scale: 1:1	Data: 17/02/2022

Via C. Battisti 136, 24025, Gazzaniga (Bg), Italy
Mail: info@fae.technology Tel: +39 035738130



* SURFACE - AIR 0 MM
* SOLDERMASK TOP MASK - SOLDERMASK 0.02 MM
L1 TOP CONDUCTOR - COPPER 0.035 MM
* DIELECTRIC - FR-4 0.08 MM
L2 GND PLANE - COPPER 0.018 MM
* DIELECTRIC - FR-4 0.08 MM
L3 INT1 CONDUCTOR - COPPER 0.018 MM

* DIELECTRIC - FR-4 1.13 MM

L4 INT2 CONDUCTOR - COPPER 0.018 MM
* DIELECTRIC - FR-4 0.08 MM
L5 POWER PLANE - COPPER 0.018 MM
* DIELECTRIC - FR-4 0.08 MM
L6 BOTTOM CONDUCTOR - COPPER 0.035 MM
* SOLDERMASK BOTTOM MASK - SOLDERMASK 0.02 MM
* SURFACE - AIR 0 MM

DESIGN CROSS SECTION CHART
TOTAL THICKNESS 1.632 MM

TOP and BOTTOM thickness layer shown in the image above contains +20um (from IPC-A-600 Class 2) of plating

IMPEDANCE CONTROL TABLE

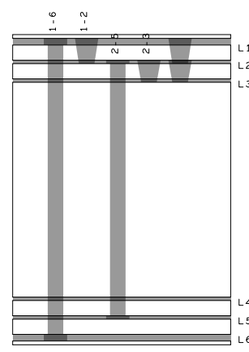
LAYER	TRACE [MM]	SPACING [MM]	IMPEDANCE SINGLE-ENDED	IMPEDANCE DIFFERENTIAL	TOLLERANCE
INT1	0.1	0.14	NA	90 ohm	+/- 10%

MANUFACTURING SPECIFICATIONS

BOARD SIZE (XxYxZ)	50.8x22.86x1.6mm	IPC-6012 - IPC-A-600	CLASS 2
BOARD TOLLERANCE (X|Y|Z)	+-/0.2 | +/-0.2 | +/-10%	E-TESTING	YES
NO.OF LAYERS	6	UL-MARKING	YES
BASE COPPER OUTSIDE	18um	MICROVIA (hole < 100um)	YES
BASE COPPER INSIDE	18um	BLIND VIA	YES
FINISH	ENIG	BURIED VIA	YES
SOLDER COLOR	MATTE BLACK	VIA FILL/VIA IN PAD	YES - BGA PADS
SILKSCREEN COLOR	WHITE	MIN. VIA SIZE	0.1mm
DIELECTRIC MATERIAL	FR4-TG150	MIN.TRACE SPACING	0.08mm
IMPEDANCE CONTROL	YES	OUTER LAYER MIN.TRACE WIDTH	0.087mm
CTI	175V	INNER LAYER MIN.TRACE WIDTH	0.087mm

FAE TECHNOLOGY

Project name: SWAN			Board name: SWAN-F
Designer: G. Boschini/M. Gregis			Approved: Not approved
Project Code: 2021-0248			Customer: BLUES
Internal Code: -			Code: -
Via C. Battisti 136, 24025, Gazzaniga (Bg), Italy Mail: info@fae.technology Tel: +39 035738130	Rev.: 7	Size Page: A3	Scale: 1:1
			Data: 17/02/2022



* SURFACE - AIR 0 MM
* SOLDERMASK TOP MASK - SOLDERMASK 0.02 MM
L1 TOP CONDUCTOR - COPPER 0.035 MM
* DIELECTRIC - FR-4 0.08 MM
L2 GND PLANE - COPPER 0.018 MM
* DIELECTRIC - FR-4 0.08 MM
L3 INT1 CONDUCTOR - COPPER 0.018 MM

* DIELECTRIC - FR-4 1.13 MM

L4 INT2 CONDUCTOR - COPPER 0.018 MM
* DIELECTRIC - FR-4 0.08 MM
L5 POWER PLANE - COPPER 0.018 MM
* DIELECTRIC - FR-4 0.08 MM
L6 BOTTOM CONDUCTOR - COPPER 0.035 MM
* SOLDERMASK BOTTOM MASK - SOLDERMASK 0.02 MM
* SURFACE - AIR 0 MM

DESIGN CROSS SECTION CHART
TOTAL THICKNESS 1.632 MM

TOP and BOTTOM thickness layer shown in the image above contains +20um (from IPC-A-600 Class 2) of plating

IMPEDANCE CONTROL TABLE

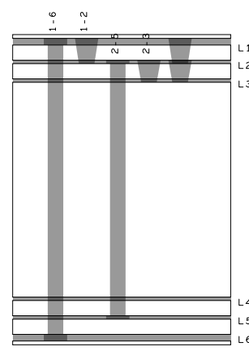
LAYER	TRACE [MM]	SPACING [MM]	IMPEDANCE SINGLE-ENDED	IMPEDANCE DIFFERENTIAL	TOLLERANCE
INT1	0.1	0.14	NA	90 ohm	+/- 10%

MANUFACTURING SPECIFICATIONS

BOARD SIZE (XxYxZ)	50.8x22.86x1.6mm	IPC-6012 - IPC-A-600	CLASS 2
BOARD TOLLERANCE (X|Y|Z)	+-/0.2 | +/-0.2 | +/-10%	E-TESTING	YES
NO.OF LAYERS	6	UL-MARKING	YES
BASE COPPER OUTSIDE	18um	MICROVIA (hole < 100um)	YES
BASE COPPER INSIDE	18um	BLIND VIA	YES
FINISH	ENIG	BURIED VIA	YES
SOLDER COLOR	MATTE BLACK	VIA FILL/VIA IN PAD	YES - BGA PADS
SILKSCREEN COLOR	WHITE	MIN. VIA SIZE	0.1mm
DIELECTRIC MATERIAL	FR4-TG150	MIN.TRACE SPACING	0.08mm
IMPEDANCE CONTROL	YES	OUTER LAYER MIN.TRACE WIDTH	0.087mm
CTI	175V	INNER LAYER MIN.TRACE WIDTH	0.087mm

FAE TECHNOLOGY

Project name: SWAN			Board name: SWAN-F
Designer: G. Boschini/M. Gregis			Approved: Not approved
Project Code: 2021-0248			Customer: BLUES
Internal Code: -			Code: -
Via C. Battisti 136, 24025, Gazzaniga (Bg), Italy Mail: info@fae.technology Tel: +39 035738130	Rev.: 7	Size Page: A3	Scale: 1:1 / Data: 17/02/2022



* SURFACE - AIR 0 MM
* SOLDERMASK TOP MASK - SOLDERMASK 0.02 MM
L1 TOP CONDUCTOR - COPPER 0.035 MM
* DIELECTRIC - FR-4 0.08 MM
L2 GND PLANE - COPPER 0.018 MM
* DIELECTRIC - FR-4 0.08 MM
L3 INT1 CONDUCTOR - COPPER 0.018 MM

* DIELECTRIC - FR-4 1.13 MM

L4 INT2 CONDUCTOR - COPPER 0.018 MM
* DIELECTRIC - FR-4 0.08 MM
L5 POWER PLANE - COPPER 0.018 MM
* DIELECTRIC - FR-4 0.08 MM
L6 BOTTOM CONDUCTOR - COPPER 0.035 MM
* SOLDERMASK BOTTOM MASK - SOLDERMASK 0.02 MM
* SURFACE - AIR 0 MM

DESIGN CROSS SECTION CHART
TOTAL THICKNESS 1.632 MM

TOP and BOTTOM thickness layer shown in the image above contains +20um (from IPC-A-600 Class 2) of plating

IMPEDANCE CONTROL TABLE

LAYER	TRACE [MM]	SPACING [MM]	IMPEDANCE SINGLE-ENDED	IMPEDANCE DIFFERENTIAL	TOLLERANCE
INT1	0.1	0.14	NA	90 ohm	+/- 10%

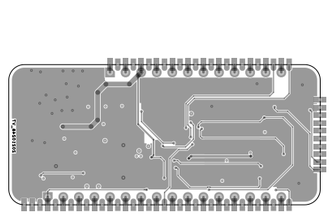
MANUFACTURING SPECIFICATIONS

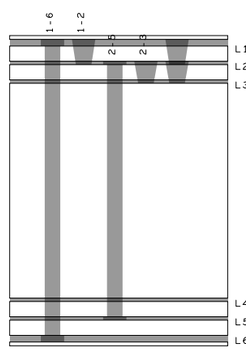
BOARD SIZE (XxYxZ)	50.8x22.86x1.6mm	IPC-6012 - IPC-A-600	CLASS 2
BOARD TOLLERANCE (X|Y|Z)	+-/0.2 | +/-0.2 | +/-10%	E-TESTING	YES
NO.OF LAYERS	6	UL-MARKING	YES
BASE COPPER OUTSIDE	18um	MICROVIA (hole < 100um)	YES
BASE COPPER INSIDE	18um	BLIND VIA	YES
FINISH	ENIG	BURIED VIA	YES
SOLDER COLOR	MATTE BLACK	VIA FILL/VIA IN PAD	YES - BGA PADS
SILKSCREEN COLOR	WHITE	MIN. VIA SIZE	0.1mm
DIELECTRIC MATERIAL	FR4-TG150	MIN.TRACE SPACING	0.08mm
IMPEDANCE CONTROL	YES	OUTER LAYER MIN.TRACE WIDTH	0.087mm
CTI	175V	INNER LAYER MIN.TRACE WIDTH	0.087mm

FAE TECHNOLOGY

Project name: SWAN			Board name: SWAN-F
Designer: G. Boschini/M. Gregis			Approved: Not approved
Project Code: 2021-0248			Customer: BLUES
Internal Code: -			Code: -
Rev.: 7	Size Page: A3	Scale: 1:1	Data: 17/02/2022

Via C. Battisti 136, 24025, Gazzaniga (Bg), Italy
Mail: info@fae.technology Tel: +39 035738130





* SURFACE - AIR 0 MM
* SOLDERMASK TOP MASK - SOLDERMASK 0.02 MM
L1 TOP CONDUCTOR - COPPER 0.035 MM
* DIELECTRIC - FR-4 0.08 MM
L2 GND PLANE - COPPER 0.018 MM
* DIELECTRIC - FR-4 0.08 MM
L3 INT1 CONDUCTOR - COPPER 0.018 MM

* DIELECTRIC - FR-4 1.13 MM

L4 INT2 CONDUCTOR - COPPER 0.018 MM
* DIELECTRIC - FR-4 0.08 MM
L5 POWER PLANE - COPPER 0.018 MM
* DIELECTRIC - FR-4 0.08 MM
L6 BOTTOM CONDUCTOR - COPPER 0.035 MM
* SOLDERMASK BOTTOM MASK - SOLDERMASK 0.02 MM
* SURFACE - AIR 0 MM

DESIGN CROSS SECTION CHART
TOTAL THICKNESS 1.632 MM

TOP and BOTTOM thickness layer shown in the image above contains +20um (from IPC-A-600 Class 2) of plating

IMPEDANCE CONTROL TABLE

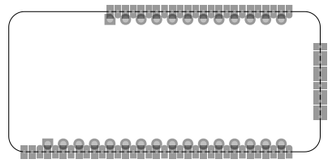
LAYER	TRACE [MM]	SPACING [MM]	IMPEDANCE SINGLE-ENDED	IMPEDANCE DIFFERENTIAL	TOLLERANCE
INT1	0.1	0.14	NA	90 ohm	+/- 10%

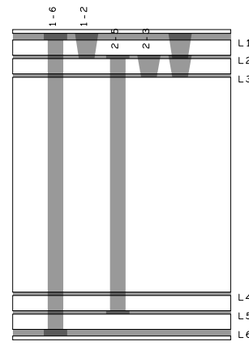
MANUFACTURING SPECIFICATIONS

BOARD SIZE (XxYxZ)	50.8x22.86x1.6mm	IPC-6012 - IPC-A-600	CLASS 2
BOARD TOLLERANCE (X|Y|Z)	+-/0.2 | +/-0.2 | +/-10%	E-TESTING	YES
NO.OF LAYERS	6	UL-MARKING	YES
BASE COPPER OUTSIDE	18um	MICROVIA (hole < 100um)	YES
BASE COPPER INSIDE	18um	BLIND VIA	YES
FINISH	ENIG	BURIED VIA	YES
SOLDER COLOR	MATTE BLACK	VIA FILL/VIA IN PAD	YES - BGA PADS
SILKSCREEN COLOR	WHITE	MIN. VIA SIZE	0.1mm
DIELECTRIC MATERIAL	FR4-TG150	MIN.TRACE SPACING	0.08mm
IMPEDANCE CONTROL	YES	OUTER LAYER MIN.TRACE WIDTH	0.087mm
CTI	175V	INNER LAYER MIN.TRACE WIDTH	0.087mm

FAE TECHNOLOGY

Project name: SWAN			Board name: SWAN-F
Designer: G. Boschini/M. Gregis			Approved: Not approved
Project Code: 2021-0248			Customer: BLUES
Internal Code: -			Code: -
Via C. Battisti 136, 24025, Gazzaniga (Bg), Italy Mail: info@fae.technology Tel: +39 035738130	Rev.: 7	Size Page: A3	Scale: 1:1
			Data: 17/02/2022





* SURFACE - AIR 0 MM
* SOLDERMASK TOP MASK - SOLDERMASK 0.02 MM
L1 TOP CONDUCTOR - COPPER 0.035 MM
* DIELECTRIC - FR-4 0.08 MM
L2 GND PLANE - COPPER 0.018 MM
* DIELECTRIC - FR-4 0.08 MM
L3 INT1 CONDUCTOR - COPPER 0.018 MM

* DIELECTRIC - FR-4 1.13 MM

L4 INT2 CONDUCTOR - COPPER 0.018 MM
* DIELECTRIC - FR-4 0.08 MM
L5 POWER PLANE - COPPER 0.018 MM
* DIELECTRIC - FR-4 0.08 MM
L6 BOTTOM CONDUCTOR - COPPER 0.035 MM
* SOLDERMASK BOTTOM MASK - SOLDERMASK 0.02 MM
* SURFACE - AIR 0 MM

DESIGN CROSS SECTION CHART
TOTAL THICKNESS 1.632 MM

TOP and BOTTOM thickness layer shown in the image above contains +20um (from IPC-A-600 Class 2) of plating

IMPEDANCE CONTROL TABLE

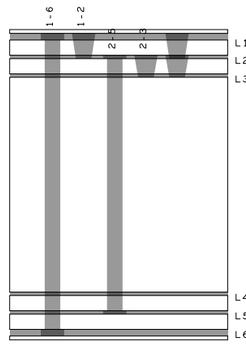
LAYER	TRACE [MM]	SPACING [MM]	IMPEDANCE SINGLE-ENDED	IMPEDANCE DIFFERENTIAL	TOLLERANCE
INT1	0.1	0.14	NA	90 ohm	+/- 10%

MANUFACTURING SPECIFICATIONS

BOARD SIZE (XxYxZ)	50.8x22.86x1.6mm	IPC-6012 - IPC-A-600	CLASS 2
BOARD TOLLERANCE (X|Y|Z)	+-/0.2 | +/-0.2 | +/-10%	E-TESTING	YES
NO.OF LAYERS	6	UL-MARKING	YES
BASE COPPER OUTSIDE	18um	MICROVIA (hole < 100um)	YES
BASE COPPER INSIDE	18um	BLIND VIA	YES
FINISH	ENIG	BURIED VIA	YES
SOLDER COLOR	MATTE BLACK	VIA FILL/VIA IN PAD	YES - BGA PADS
SILKSCREEN COLOR	WHITE	MIN. VIA SIZE	0.1mm
DIELECTRIC MATERIAL	FR4-TG150	MIN.TRACE SPACING	0.08mm
IMPEDANCE CONTROL	YES	OUTER LAYER MIN.TRACE WIDTH	0.087mm
CTI	175V	INNER LAYER MIN.TRACE WIDTH	0.087mm

FAE TECHNOLOGY

Project name: SWAN			Board name: SWAN-F
Designer: G. Boschini/M. Gregis			Approved: Not approved
Project Code: 2021-0248			Customer: BLUES
Internal Code: -			Code: -
Via C. Battisti 136, 24025, Gazzaniga (Bg), Italy Mail: info@fae.technology Tel: +39 035738130	Rev.: 7	Size Page: A3	Scale: 1:1
			Data: 17/02/2022



- ✱ SURFACE - AIR 0 MM
- ✱ SOLDERMASK TOP MASK - SOLDERMASK 0.02 MM

L1 TOP CONDUCTOR - COPPER 0.035 MM

- ✱ DIELECTRIC - FR-4 0.08 MM

L2 GND PLANE - COPPER 0.018 MM

- ✱ DIELECTRIC - FR-4 0.08 MM

L3 INT1 CONDUCTOR - COPPER 0.018 MM

- ✱ DIELECTRIC - FR-4 1.13 MM

L4 INT2 CONDUCTOR - COPPER 0.018 MM

- ✱ DIELECTRIC - FR-4 0.08 MM

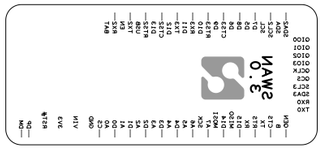
L5 POWER PLANE - COPPER 0.018 MM

- ✱ DIELECTRIC - FR-4 0.08 MM

L6 BOTTOM CONDUCTOR - COPPER 0.035 MM

- ✱ SOLDERMASK BOTTOM MASK - SOLDERMASK 0.02 MM
- ✱ SURFACE - AIR 0 MM

DESIGN CROSS SECTION CHART
TOTAL THICKNESS 1.632 MM



TOP and BOTTOM thickness layer shown in the image above contains +20um (from IPC-A-600 Class 2) of plating

IMPEDANCE CONTROL TABLE

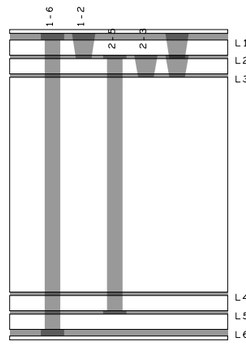
LAYER	TRACE [MM]	SPACING [MM]	IMPEDANCE SINGLE-ENDED	IMPEDANCE DIFFERENTIAL	TOLLERANCE
INT1	0.1	0.14	NA	90 ohm	+/- 10%

MANUFACTURING SPECIFICATIONS

BOARD SIZE (XxYxZ)	50.8x22.86x1.6mm	IPC-6012 - IPC-A-600	CLASS 2
BOARD TOLLERANCE (X|Y|Z)	+-/0.2 | +/-0.2 | +/-10%	E-TESTING	YES
NO.OF LAYERS	6	UL-MARKING	YES
BASE COPPER OUTSIDE	18um	MICROVIA (hole < 100um)	YES
BASE COPPER INSIDE	18um	BLIND VIA	YES
FINISH	ENIG	BURIED VIA	YES
SOLDER COLOR	MATTE BLACK	VIA FILL/VIA IN PAD	YES - BGA PADS
SILKSCREEN COLOR	WHITE	MIN. VIA SIZE	0.1mm
DIELECTRIC MATERIAL	FR4-TG150	MIN.TRACE SPACING	0.08mm
IMPEDANCE CONTROL	YES	OUTER LAYER MIN.TRACE WIDTH	0.087mm
CTI	175V	INNER LAYER MIN.TRACE WIDTH	0.087mm

FAE TECHNOLOGY

Project name: SWAN			Board name: SWAN-F
Designer: G. Boschini/M. Gregis			Approved: Not approved
Project Code: 2021-0248			Customer: BLUES
Internal Code: -			Code: -
Via C. Battisti 136, 24025, Gazzaniga (Bg), Italy Mail: info@fae.technology Tel: +39 035738130	Rev.: 7	Size Page: A3	Scale: 1:1
			Data: 17/02/2022



✱ SURFACE - AIR 0 MM
✱ SOLDERMASK TOP MASK - SOLDERMASK 0.02 MM
L1 TOP CONDUCTOR - COPPER 0.035 MM
✱ DIELECTRIC - FR-4 0.08 MM
L2 GND PLANE - COPPER 0.018 MM
✱ DIELECTRIC - FR-4 0.08 MM
L3 INT1 CONDUCTOR - COPPER 0.018 MM

✱ DIELECTRIC - FR-4 1.13 MM

L4 INT2 CONDUCTOR - COPPER 0.018 MM
✱ DIELECTRIC - FR-4 0.08 MM
L5 POWER PLANE - COPPER 0.018 MM
✱ DIELECTRIC - FR-4 0.08 MM
L6 BOTTOM CONDUCTOR - COPPER 0.035 MM
✱ SOLDERMASK BOTTOM MASK - SOLDERMASK 0.02 MM
✱ SURFACE - AIR 0 MM

DESIGN CROSS SECTION CHART
TOTAL THICKNESS 1.632 MM

TOP and BOTTOM thickness layer shown in the image above contains +20um (from IPC-A-600 Class 2) of plating

IMPEDANCE CONTROL TABLE

LAYER	TRACE [MM]	SPACING [MM]	IMPEDANCE SINGLE-ENDED	IMPEDANCE DIFFERENTIAL	TOLLERANCE
INT1	0.1	0.14	NA	90 ohm	+/- 10%

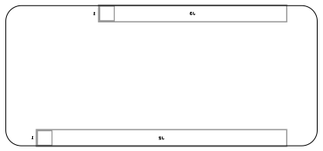
MANUFACTURING SPECIFICATIONS

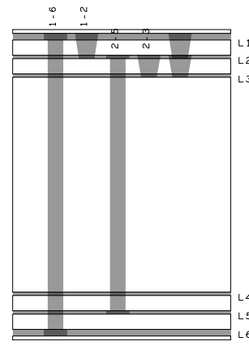
BOARD SIZE (XxYxZ)	50.8x22.86x1.6mm	IPC-6012 - IPC-A-600	CLASS 2
BOARD TOLLERANCE (X|Y|Z)	+-/0.2 | +/-0.2 | +/-10%	E-TESTING	YES
NO.OF LAYERS	6	UL-MARKING	YES
BASE COPPER OUTSIDE	18um	MICROVIA (hole < 100um)	YES
BASE COPPER INSIDE	18um	BLIND VIA	YES
FINISH	ENIG	BURIED VIA	YES
SOLDER COLOR	MATTE BLACK	VIA FILL/VIA IN PAD	YES - BGA PADS
SILKSCREEN COLOR	WHITE	MIN. VIA SIZE	0.1mm
DIELECTRIC MATERIAL	FR4-TG150	MIN.TRACE SPACING	0.08mm
IMPEDANCE CONTROL	YES	OUTER LAYER MIN.TRACE WIDTH	0.087mm
CTI	175V	INNER LAYER MIN.TRACE WIDTH	0.087mm

FAE TECHNOLOGY

Project name: SWAN			Board name: SWAN-F
Designer: G. Boschini/M. Gregis			Approved: Not approved
Project Code: 2021-0248			Customer: BLUES
Internal Code: -			Code: -
Rev.: 7	Size Page: A3	Scale: 1:1	Data: 17/02/2022

Via C. Battisti 136, 24025, Gazzaniga (Bg), Italy
Mail: info@fae.technology Tel: +39 035738130





* SURFACE - AIR 0 MM
* SOLDERMASK TOP MASK - SOLDERMASK 0.02 MM
L1 TOP CONDUCTOR - COPPER 0.035 MM
* DIELECTRIC - FR-4 0.08 MM
L2 GND PLANE - COPPER 0.018 MM
* DIELECTRIC - FR-4 0.08 MM
L3 INT1 CONDUCTOR - COPPER 0.018 MM

* DIELECTRIC - FR-4 1.13 MM

L4 INT2 CONDUCTOR - COPPER 0.018 MM
* DIELECTRIC - FR-4 0.08 MM
L5 POWER PLANE - COPPER 0.018 MM
* DIELECTRIC - FR-4 0.08 MM
L6 BOTTOM CONDUCTOR - COPPER 0.035 MM
* SOLDERMASK BOTTOM MASK - SOLDERMASK 0.02 MM
* SURFACE - AIR 0 MM

DESIGN CROSS SECTION CHART
TOTAL THICKNESS 1.632 MM

TOP and BOTTOM thickness layer shown in the image above contains +20um (from IPC-A-600 Class 2) of plating

IMPEDANCE CONTROL TABLE

LAYER	TRACE [MM]	SPACING [MM]	IMPEDANCE SINGLE-ENDED	IMPEDANCE DIFFERENTIAL	TOLLERANCE
INT1	0.1	0.14	NA	90 ohm	+/- 10%

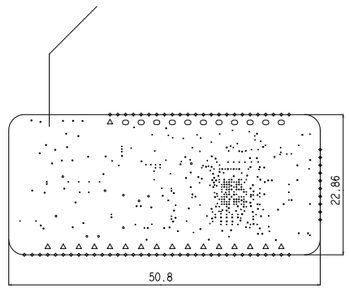
MANUFACTURING SPECIFICATIONS

BOARD SIZE (XxYxZ)	50.8x22.86x1.6mm	IPC-6012 - IPC-A-600	CLASS 2
BOARD TOLLERANCE (X|Y|Z)	+-/0.2 | +/-0.2 | +/-10%	E-TESTING	YES
NO.OF LAYERS	6	UL-MARKING	YES
BASE COPPER OUTSIDE	18um	MICROVIA (hole < 100um)	YES
BASE COPPER INSIDE	18um	BLIND VIA	YES
FINISH	ENIG	BURIED VIA	YES
SOLDER COLOR	MATTE BLACK	VIA FILL/VIA IN PAD	YES - BGA PADS
SILKSCREEN COLOR	WHITE	MIN. VIA SIZE	0.1mm
DIELECTRIC MATERIAL	FR4-TG150	MIN.TRACE SPACING	0.08mm
IMPEDANCE CONTROL	YES	OUTER LAYER MIN.TRACE WIDTH	0.087mm
CTI	175V	INNER LAYER MIN.TRACE WIDTH	0.087mm

FAE TECHNOLOGY

Project name: SWAN			Board name: SWAN-F
Designer: G. Boschini/M. Gregis			Approved: Not approved
Project Code: 2021-0248			Customer: BLUES
Internal Code: -			Code: -
Via C. Battisti 136, 24025, Gazzaniga (Bg), Italy Mail: info@fae.technology Tel: +39 035738130	Rev.: 7	Size Page: A3	Scale: 1:1
			Data: 17/02/2022

Put PCB data code and/or manufacturer logo on Bottom Side



DRILL CHART: TOP to BOTTOM

ALL UNITS ARE IN MILLIMETERS

FIGURE	FINISHED SIZE	TOLERANCE	TYPE	QTY
·	0.2	+0.075/-0.075	PLATED	60
+	0.3	+0.075/-0.075	PLATED	10
◇	0.5	+0.075/-0.075	PLATED	69
○	1.0	+0.075/-0.075	PLATED	11
△	1.0	+0.075/-0.075	PLATED	17

DRILL CHART: TOP to GND

ALL UNITS ARE IN MILLIMETERS

FIGURE	FINISHED SIZE	TOLERANCE	TYPE	QTY
·	0.1	+0.075/-0.075	PLATED	215

DRILL CHART: GND to INT1

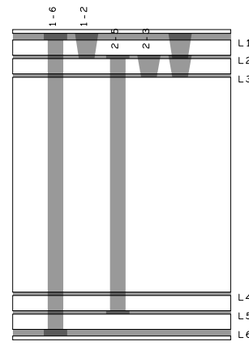
ALL UNITS ARE IN MILLIMETERS

FIGURE	FINISHED SIZE	TOLERANCE	TYPE	QTY
·	0.1	+0.075/-0.075	PLATED	79

DRILL CHART: GND to POWER

ALL UNITS ARE IN MILLIMETERS

FIGURE	FINISHED SIZE	TOLERANCE	TYPE	QTY
·	0.2	+0.075/-0.075	PLATED	71



* SURFACE - AIR 0 MM
* SOLDERMASK TOP MASK - SOLDERMASK 0.02 MM
L1 TOP CONDUCTOR - COPPER 0.035 MM
* DIELECTRIC - FR-4 0.08 MM
L2 GND PLANE - COPPER 0.018 MM
* DIELECTRIC - FR-4 0.08 MM
L3 INT1 CONDUCTOR - COPPER 0.018 MM

* DIELECTRIC - FR-4 1.13 MM

L4 INT2 CONDUCTOR - COPPER 0.018 MM
* DIELECTRIC - FR-4 0.08 MM
L5 POWER PLANE - COPPER 0.018 MM
* DIELECTRIC - FR-4 0.08 MM
L6 BOTTOM CONDUCTOR - COPPER 0.035 MM
* SOLDERMASK BOTTOM MASK - SOLDERMASK 0.02 MM
* SURFACE - AIR 0 MM

DESIGN CROSS SECTION CHART
TOTAL THICKNESS 1.632 MM

TOP and BOTTOM thickness layer shown in the image above contains +20um (from IPC-A-600 Class 2) of plating

IMPEDANCE CONTROL TABLE

LAYER	TRACE [MM]	SPACING [MM]	IMPEDANCE SINGLE-ENDED	IMPEDANCE DIFFERENTIAL	TOLLERANCE
INT1	0.1	0.14	NA	90 ohm	+/- 10%

MANUFACTURING SPECIFICATIONS

BOARD SIZE (XxYxZ)	50.8x22.86x1.6mm	IPC-6012 - IPC-A-600	CLASS 2
BOARD TOLLERANCE (X|Y|Z)	+-/0.2 | +/-0.2 | +/-10%	E-TESTING	YES
NO.OF LAYERS	6	UL-MARKING	YES
BASE COPPER OUTSIDE	18um	MICROVIA (hole < 100um)	YES
BASE COPPER INSIDE	18um	BLIND VIA	YES
FINISH	ENIG	BURIED VIA	YES
SOLDER COLOR	MATTE BLACK	VIA FILL/VIA IN PAD	YES - BGA PADS
SILKSCREEN COLOR	WHITE	MIN. VIA SIZE	0.1mm
DIELECTRIC MATERIAL	FR4-TG150	MIN.TRACE SPACING	0.08mm
IMPEDANCE CONTROL	YES	OUTER LAYER MIN.TRACE WIDTH	0.087mm
CTI	175V	INNER LAYER MIN.TRACE WIDTH	0.087mm

FAE TECHNOLOGY

Project name: SWAN			Board name: SWAN-F
Designer: G. Boschini/M. Gregis			Approved: Not approved
Project Code: 2021-0248			Customer: BLUES
Internal Code: -			Code: -
Via C. Battisti 136, 24025, Gazzaniga (Bg), Italy Mail: info@fae.technology Tel: +39 035738130	Rev.: 7	Size Page: A3	Scale: 1:1
			Data: 17/02/2022