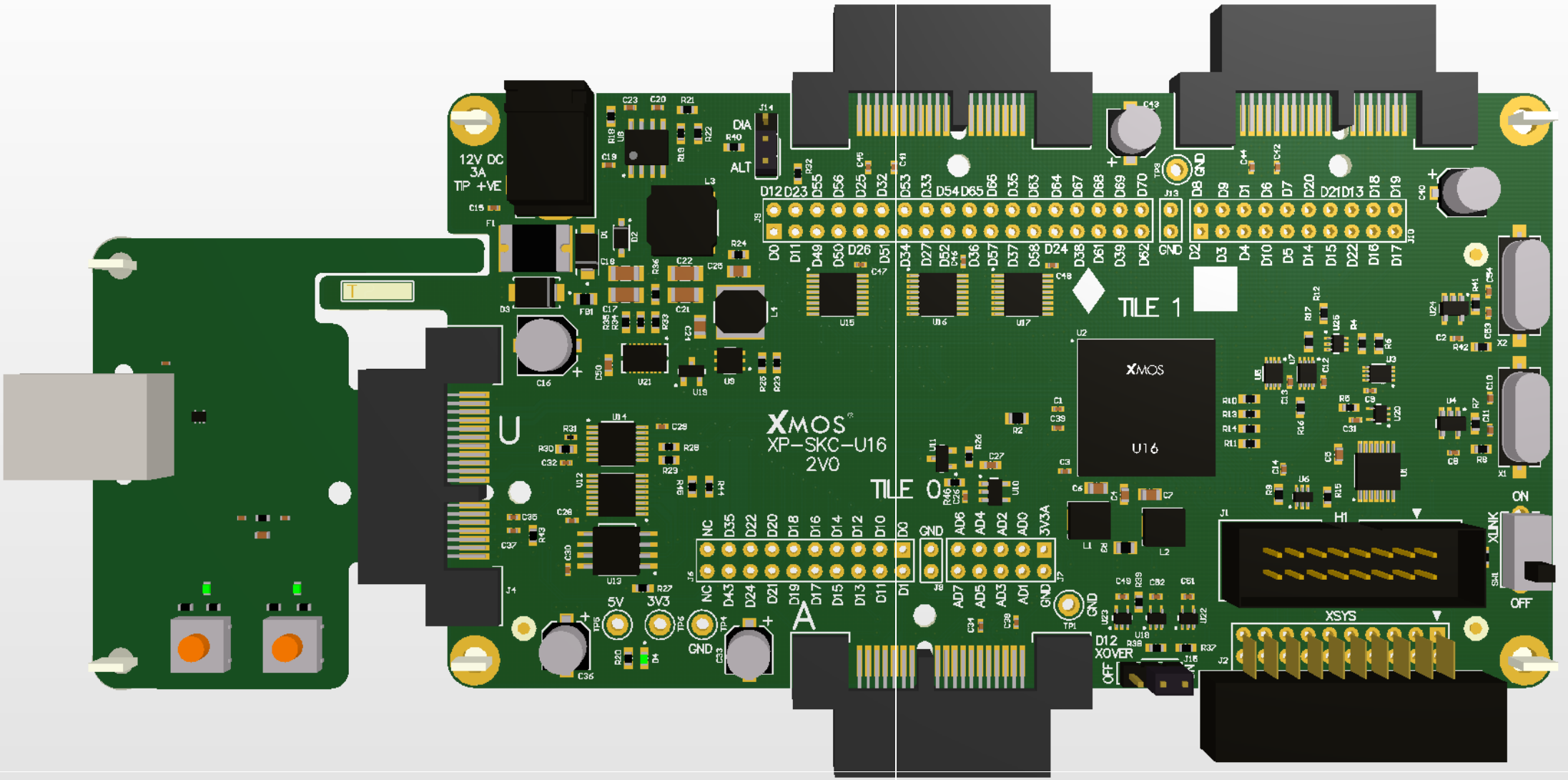

12V DC
3A
TIP +VE
DIA
ALT
XMOS
XP-SKC-U16
2V0
TILE 1
TILE 0
XMOS
U16
H1
XSYS
XLNK
ON
OFF
XOVER
5V
3V3
GND

PCB Manufacturing Notes

General Info

Board dimensions – 145mm x 70mm
Number of layers – 4
Smallest hole – 0.3mm
Number of holes – Approx 725
Minimum Track & Gap – 0.15mm
RoHS/Lead Free – Yes
Material – FR4

Stackup

Stackup is to be as follows:

Layer	Copper Weight (Pre-Plating)
Top Copper	0.5oz
Inner 1	1oz
Inner 2	1oz
Bottom Copper	0.5oz

Finished board thickness to be 1.6mm, tolerance 0.1mm

Impedance Control

None required

Copper Thieving/Balancing

The supplier may add copper thieving/balancing if required.

Finish

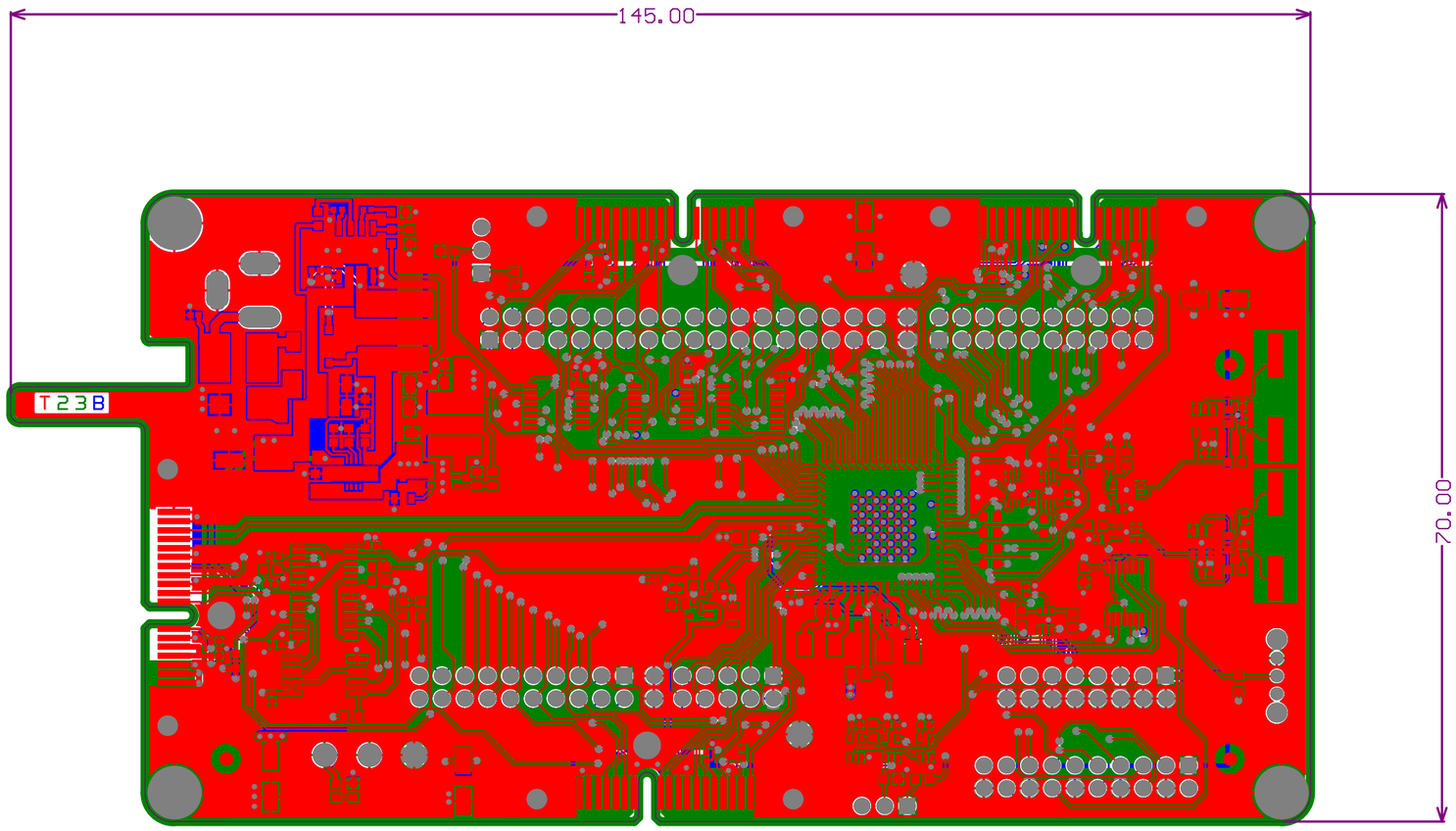
A.) Conductive finish
Plating to be immersion gold.

B.) Soldermask
Liquid photo imageable soldermask (GREEN). Pads have not been oversized.
Supplier should oversize soldermask on pads to suit process.

C.) Silkscreen
Colour white. Supplier should remove any silkscreen which overhangs pads.

Drill Data

Drill data is in Excellon format, metric (0000.000), no zero suppression, absolute coordinates.
Hole size is finished size.



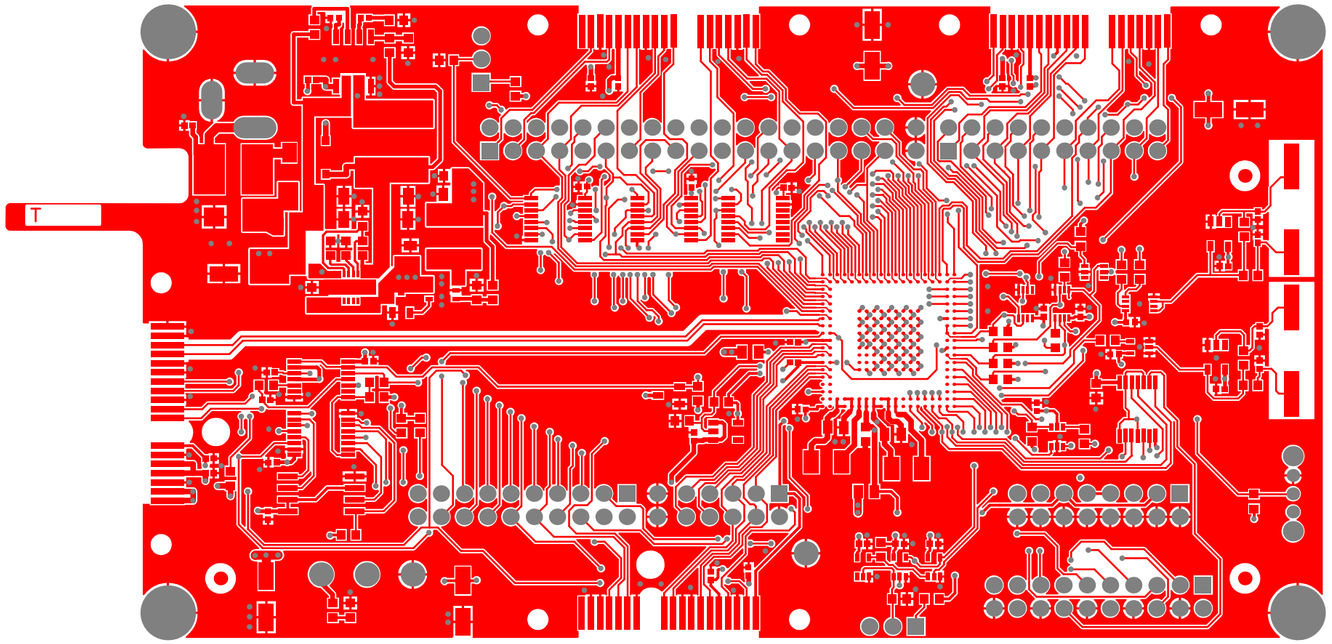
XMOS LTD = XP-SKC-U16 = 2V0A = 12 Sept 2014
FABRICATION INSTRUCTIONS
TOP COPPER LAYER
BOTTOM COPPER LAYER
INNER 1 COPPER LAYER
INNER 2 COPPER LAYER

XMOS®

Project Name		
XP-SKC-U16		
Sheet	Date	Revision
A4	SEPT 2014	2V0A

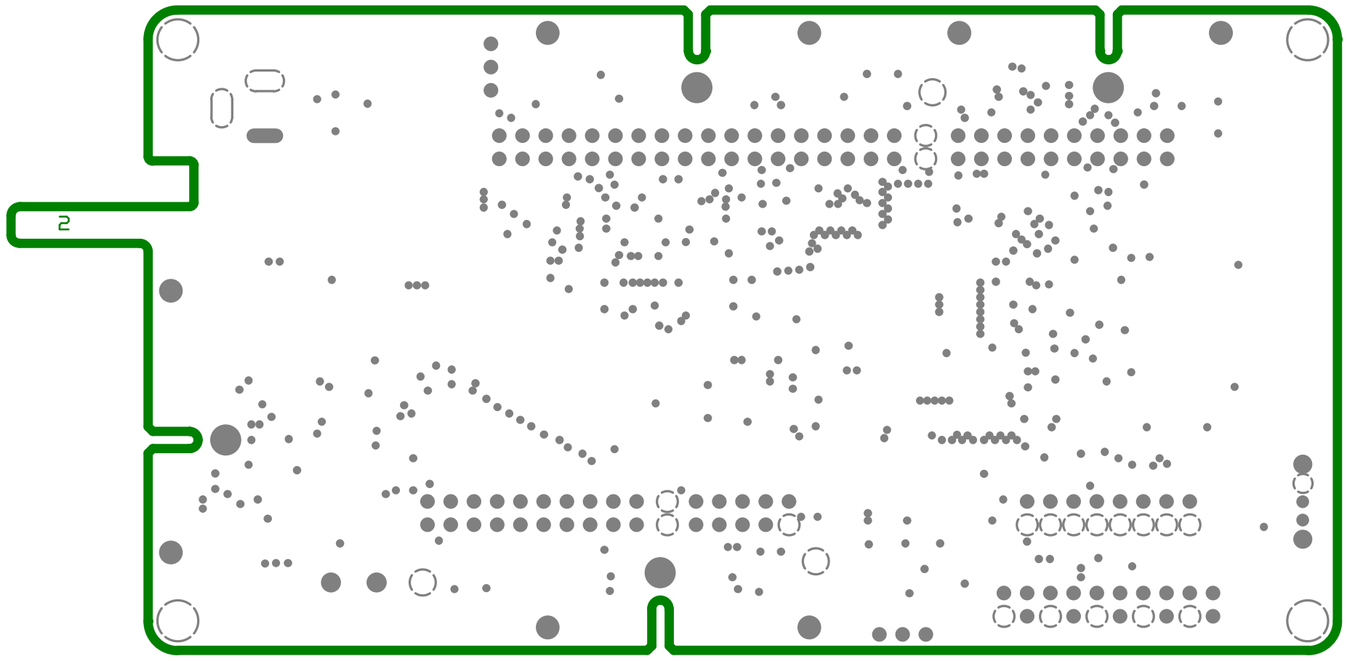
Copyright (c) 2013 XMOS Ltd.
Confidential information. All rights reserved.

Top Copper



TOP COPPER LAYER

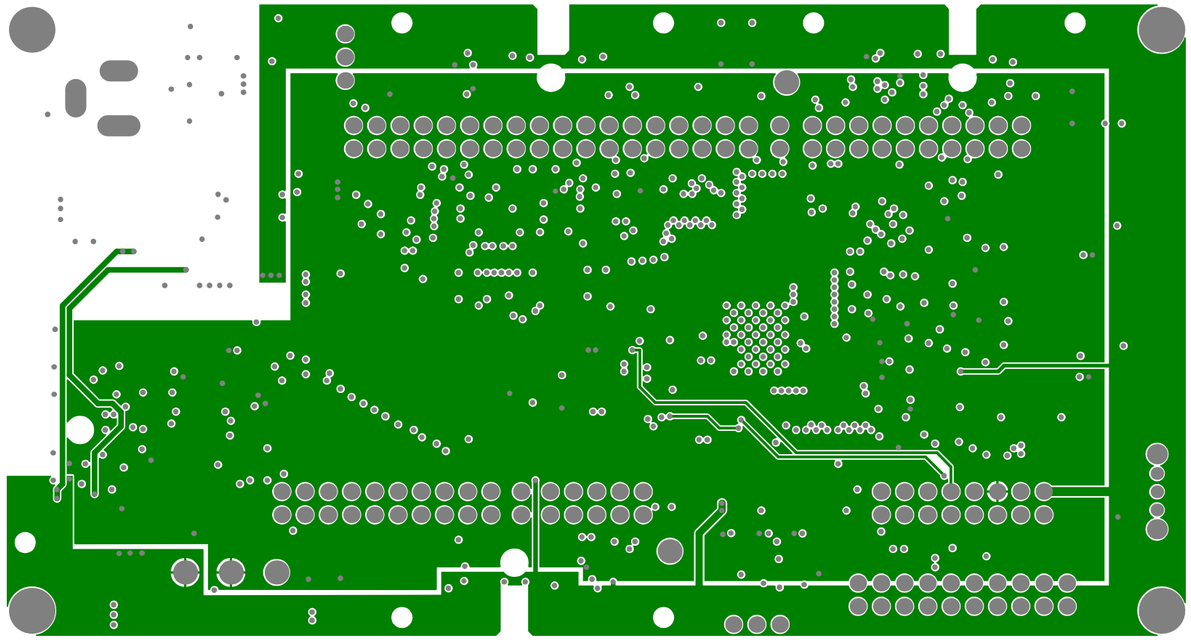
Inner 1



INNER 1 COPPER LAYER

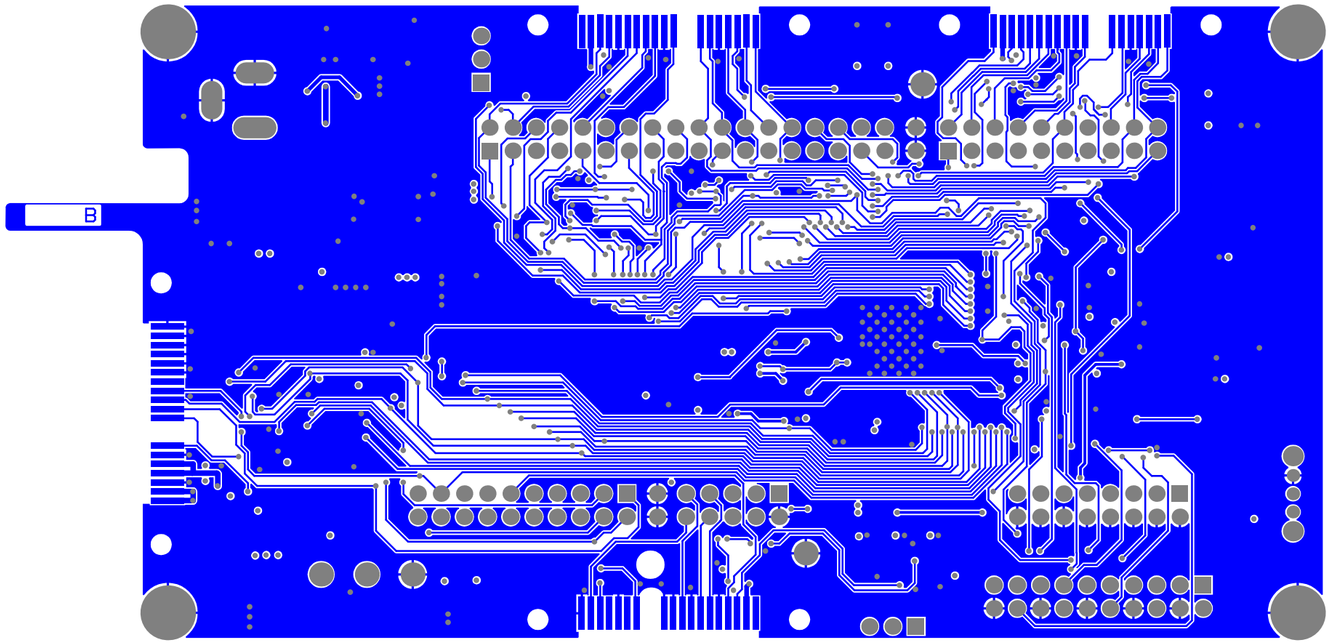
Inner 2

3

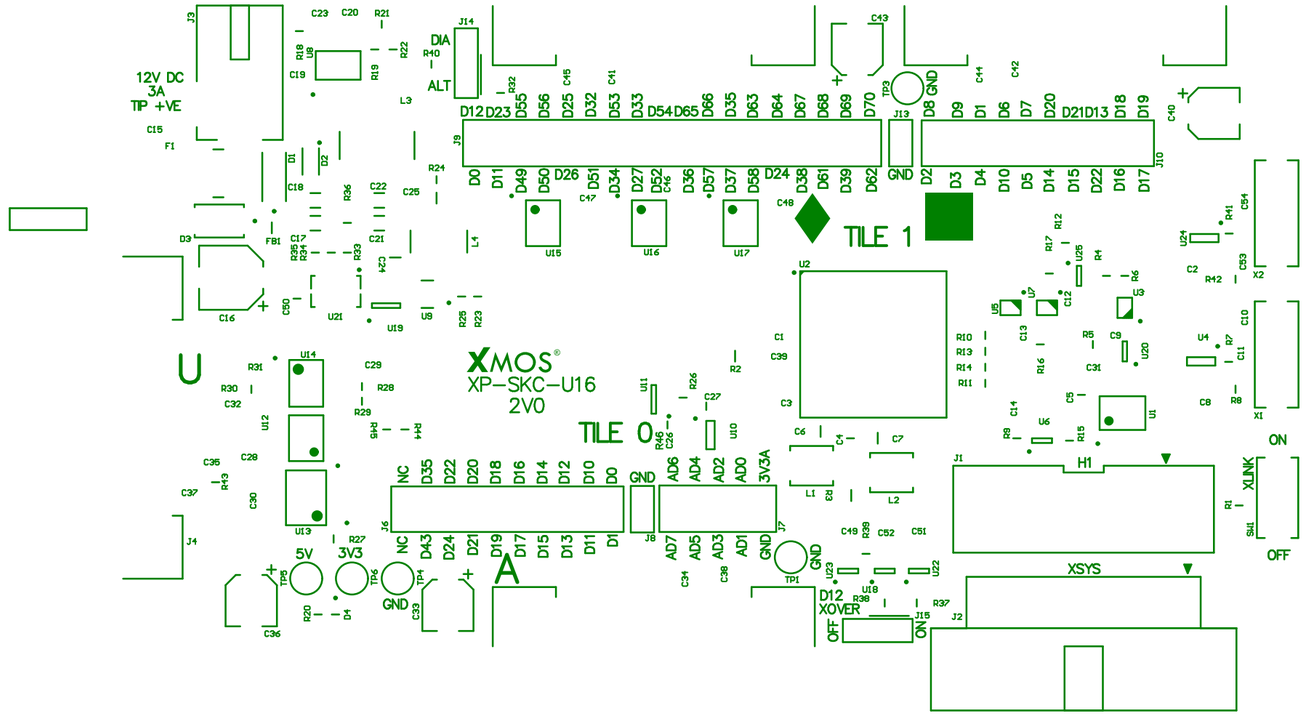


INNER 2 COPPER LAYER

Bottom Copper

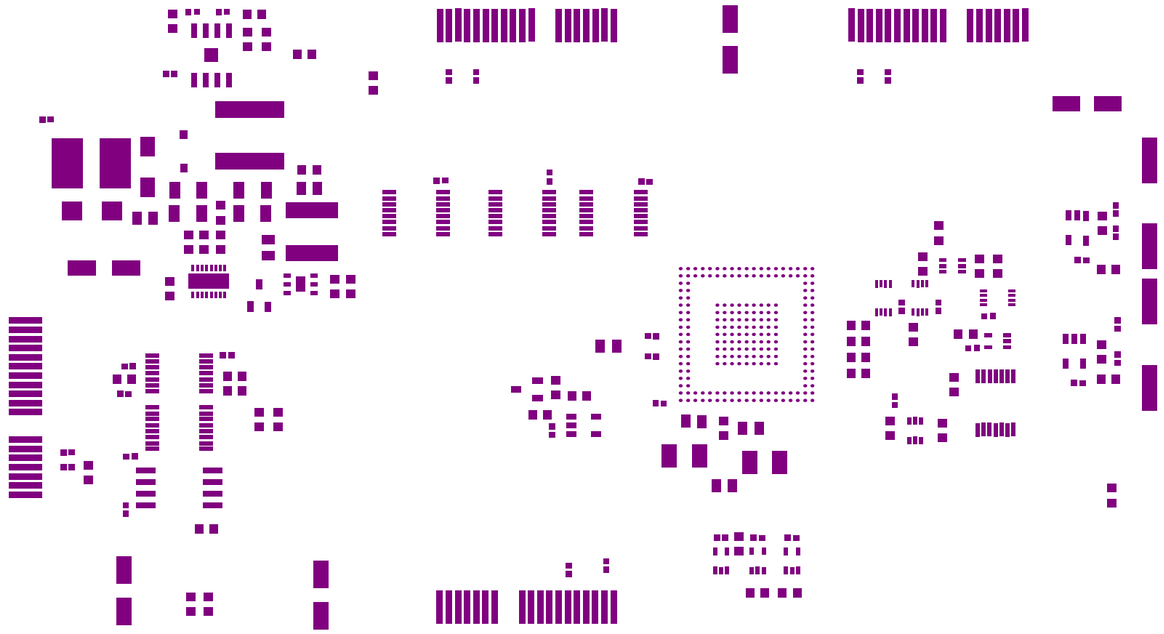


BOTTOM COPPER LAYER



TOP SILKSCREEN LAYER

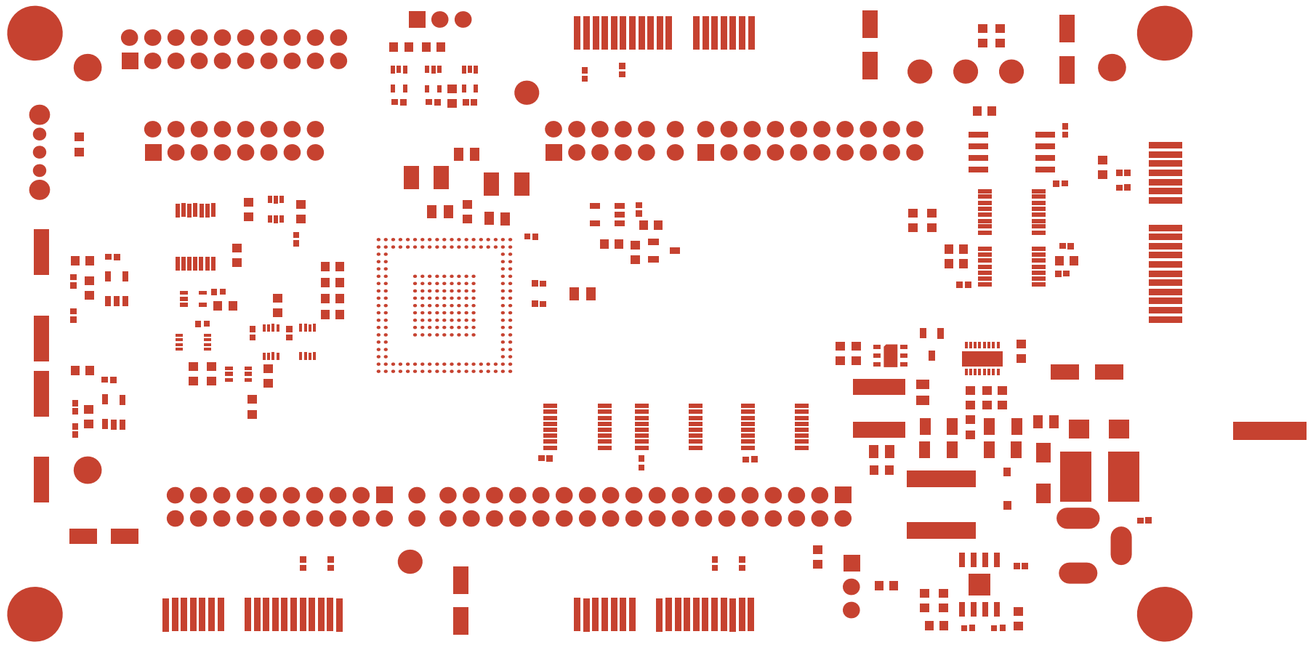
BOTTOM SILKSCREEN LAYER



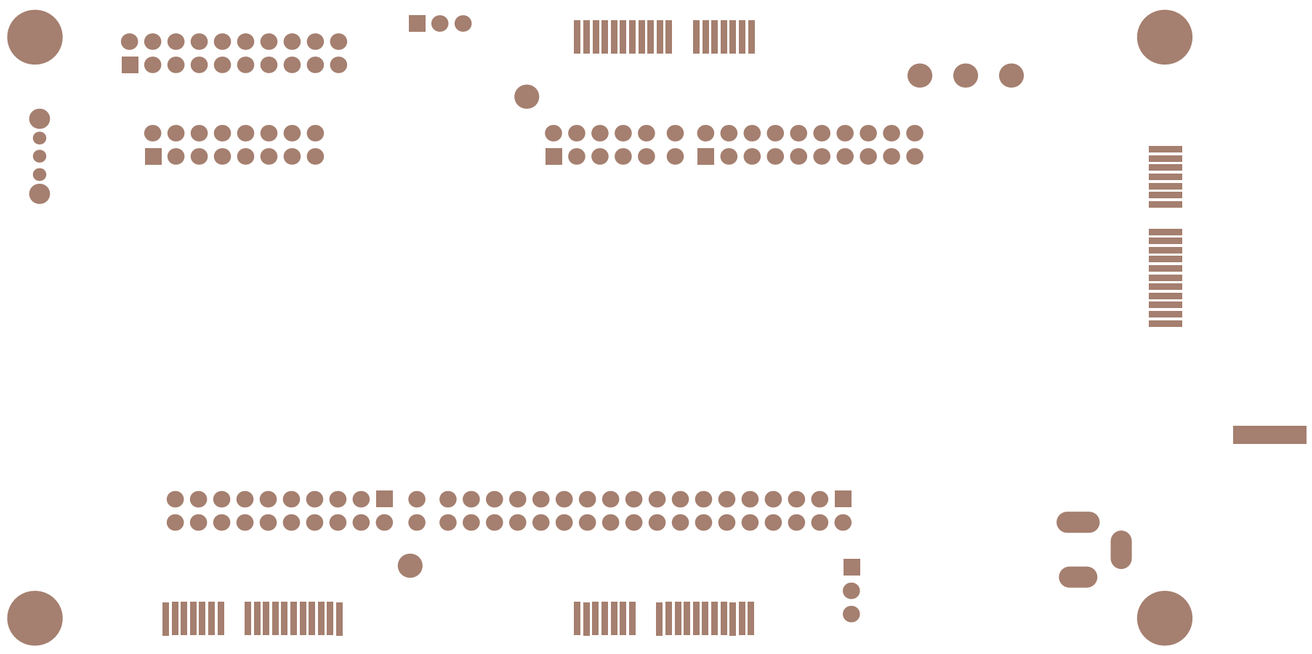
TOP PASTE LAYER

BOTTOM PASTE LAYER

TOP SOLDER MASK LAYER



BOTTOM SOLDER MASK LAYER



PCB Manufacturing Notes

General Info

Board dimensions – 145mm x 70mm
Number of layers – 4
Smallest hole – 0.3mm
Number of holes – Approx 725
Minimum Track & Gap – 0.15mm
RoHS/Lead Free – Yes
Material – FR4

Stackup

Stackup is to be as follows:

Layer	Copper Weight (Pre-Plating)
	0.5oz
	1oz
	1oz
	0.5oz

Finished board thickness to be 1.6mm, tolerance 0.1mm

Impedance Control

None required

Copper Thieving/Balancing

The supplier may add copper thieving/balancing if required.

Finish

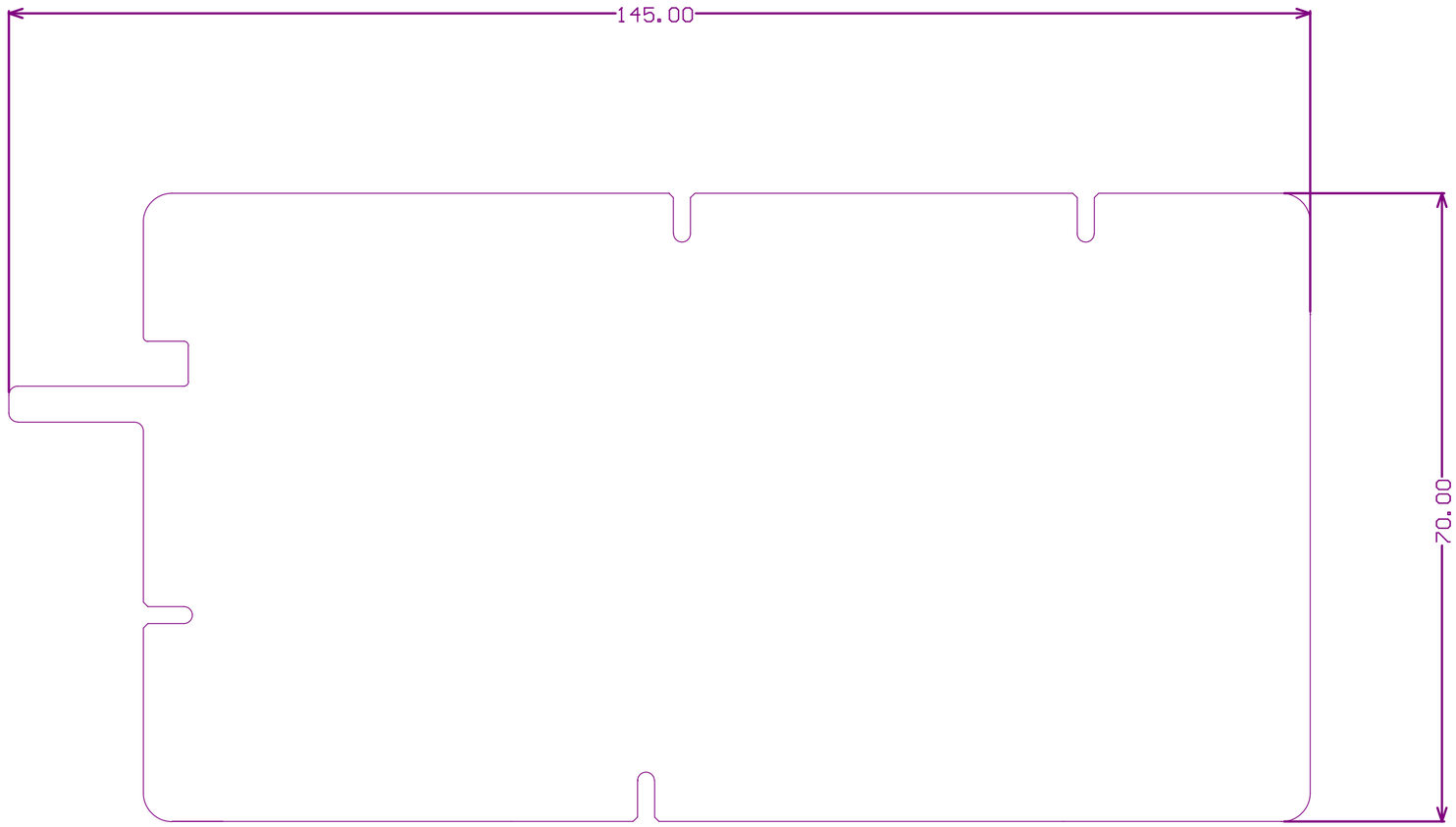
A.) Conductive finish
Plating to be immersion gold.

B.) Soldermask
Liquid photo imageable soldermask (GREEN). Pads have not been oversized.
Supplier should oversize soldermask on pads to suit process.

C.) Silkscreen
Colour white. Supplier should remove any silkscreen which overhangs pads.

Drill Data

Drill data is in Excellon format, metric (0000.000), no zero suppression, absolute coordinates.
Hole size is finished size.



FABRICATION INSTRUCTIONS

XMOS®

Project Name
XP-SKC-U16

Sheet	Date	Revision
A4	SEPT 2014	2V0A

Copyright (c) 2013 XMOS Ltd.
Confidential information. All rights reserved.

PCB Manufacturing Notes

General Info

Board dimensions – 145mm x 70mm
Number of layers – 4
Smallest hole – 0.3mm
Number of holes – Approx 725
Minimum Track & Gap – 0.15mm
RoHS/Lead Free – Yes
Material – FR4

Stackup

Stackup is to be as follows:

Layer	Copper Weight (Pre-Plating)
	0.5oz
	1oz
	1oz
	0.5oz

Finished board thickness to be 1.6mm, tolerance 0.1mm

Impedance Control

None required

Copper Thieving/Balancing

The supplier may add copper thieving/balancing if required.

Finish

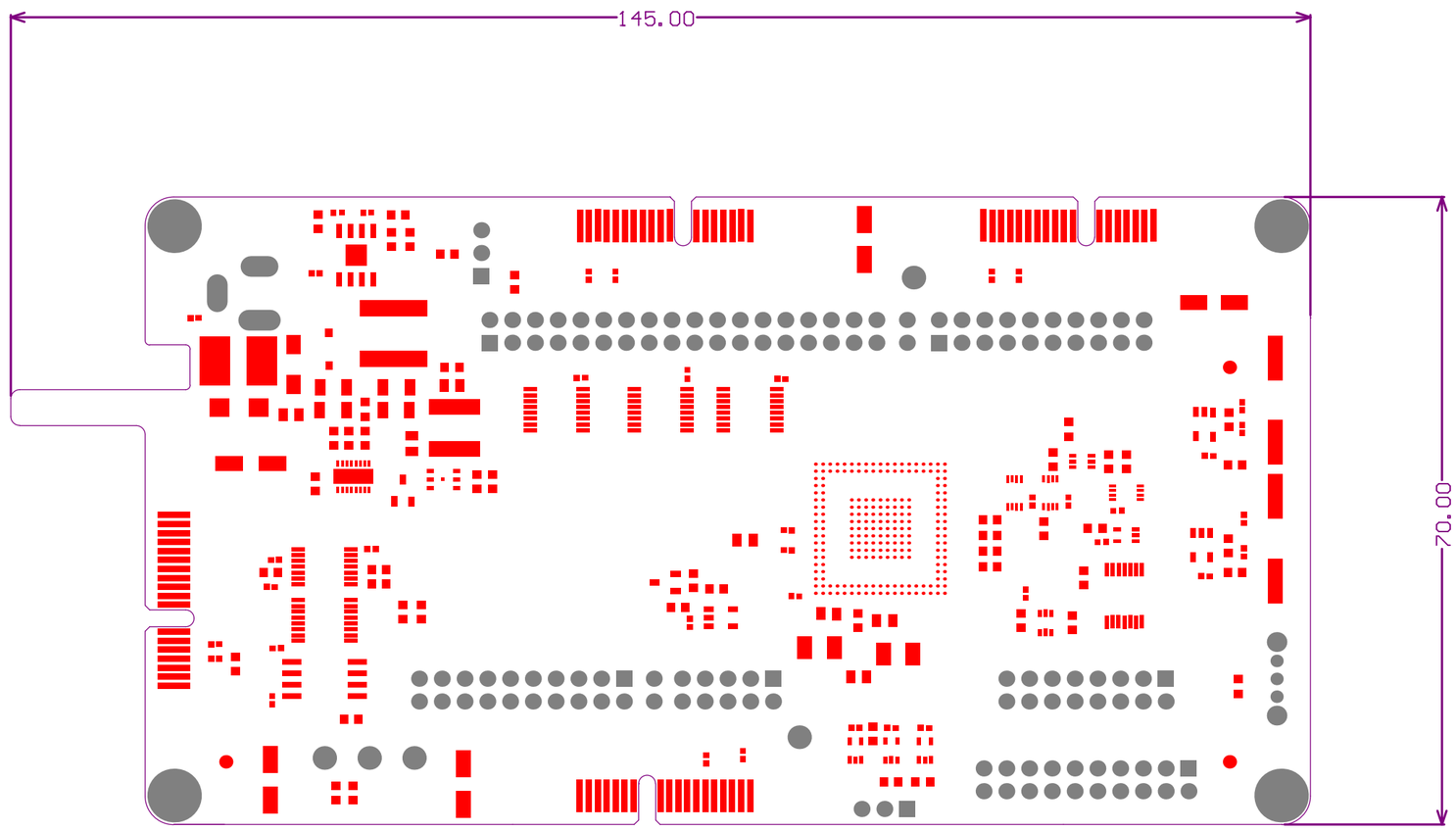
A.) Conductive finish
Plating to be immersion gold.

B.) Soldermask
Liquid photo imageable soldermask (GREEN). Pads have not been oversized.
Supplier should oversize soldermask on pads to suit process.

C.) Silkscreen
Colour white. Supplier should remove any silkscreen which overhangs pads.

Drill Data

Drill data is in Excellon format, metric (0000.000), no zero suppression, absolute coordinates.
Hole size is finished size.



FABRICATION INSTRUCTIONS

XMOS®

Project Name
XP-SKC-U16

Sheet	Date	Revision
A4	SEPT 2014	2V0A

Copyright (c) 2013 XMOS Ltd.
Confidential information. All rights reserved.

PCB Manufacturing Notes

General Info

Board dimensions – 145mm x 70mm
Number of layers – 4
Smallest hole – 0.3mm
Number of holes – Approx 725
Minimum Track & Gap – 0.15mm
RoHS/Lead Free – Yes
Material – FR4

Stackup

Stackup is to be as follows:

Layer	Copper Weight (Pre-Plating)
	0.5oz
	1oz
	1oz
	0.5oz

Finished board thickness to be 1.6mm, tolerance 0.1mm

Impedance Control

None required

Copper Thieving/Balancing

The supplier may add copper thieving/balancing if required.

Finish

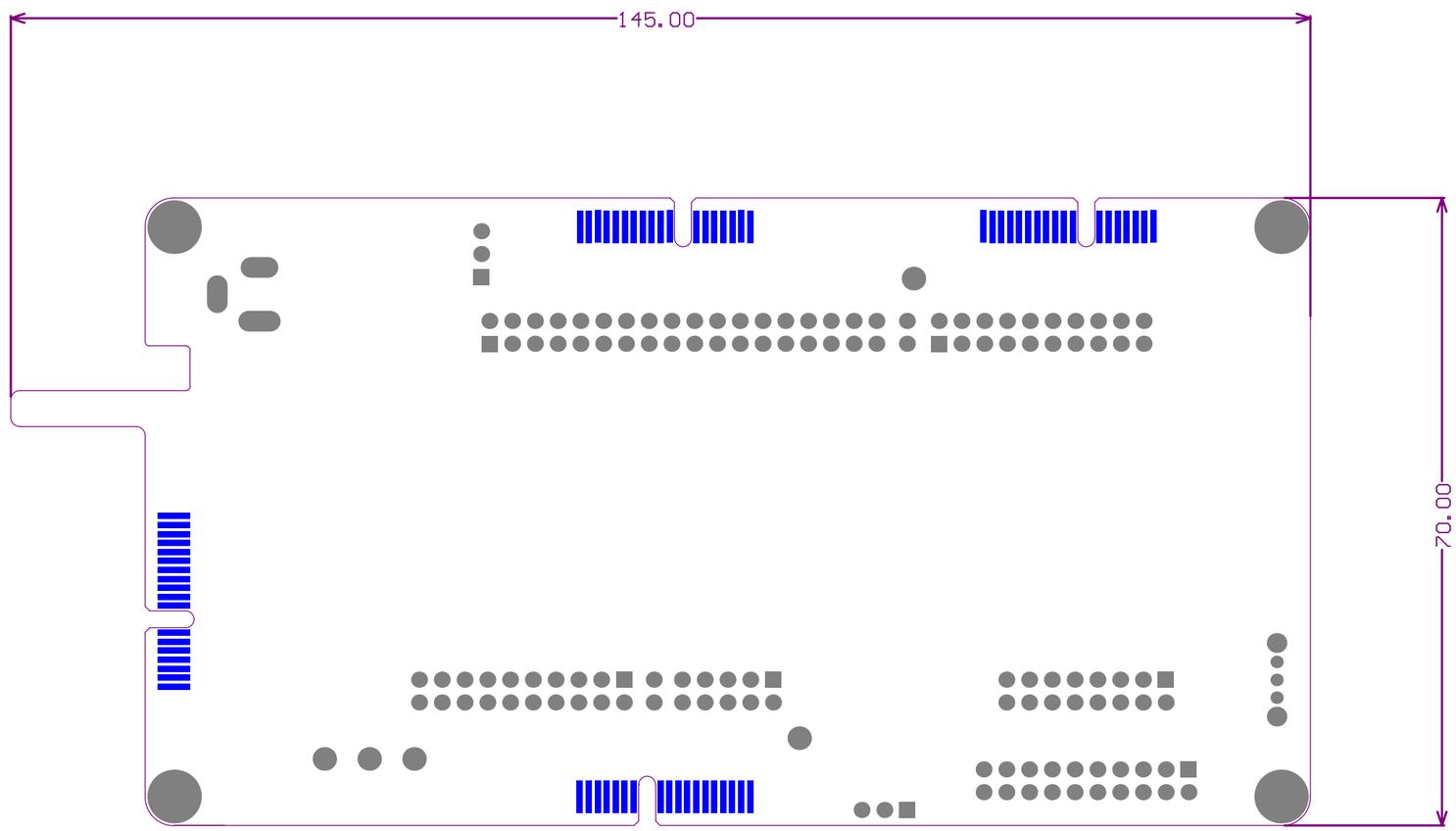
A.) Conductive finish
Plating to be immersion gold.

B.) Soldermask
Liquid photo imageable soldermask (GREEN). Pads have not been oversized.
Supplier should oversize soldermask on pads to suit process.

C.) Silkscreen
Colour white. Supplier should remove any silkscreen which overhangs pads.

Drill Data

Drill data is in Excellon format, metric (0000.000), no zero suppression, absolute coordinates.
Hole size is finished size.



FABRICATION INSTRUCTIONS

XMOS®

Project Name
XP-SKC-U16

Sheet	Date	Revision
A4	SEPT 2014	2V0A

Copyright (c) 2013 XMOS Ltd.
Confidential information. All rights reserved.

PCB Manufacturing Notes

General Info

Board dimensions – 145mm x 70mm
Number of layers – 4
Smallest hole – 0.3mm
Number of holes – Approx 725
Minimum Track & Gap – 0.15mm
RoHS/Lead Free – Yes
Material – FR4

Stackup

Stackup is to be as follows:

Layer	Copper Weight (Pre-Plating)
	0.5oz
	1oz
	1oz
	0.5oz

Finished board thickness to be 1.6mm, tolerance 0.1mm

Impedance Control

None required

Copper Thieving/Balancing

The supplier may add copper thieving/balancing if required.

Finish

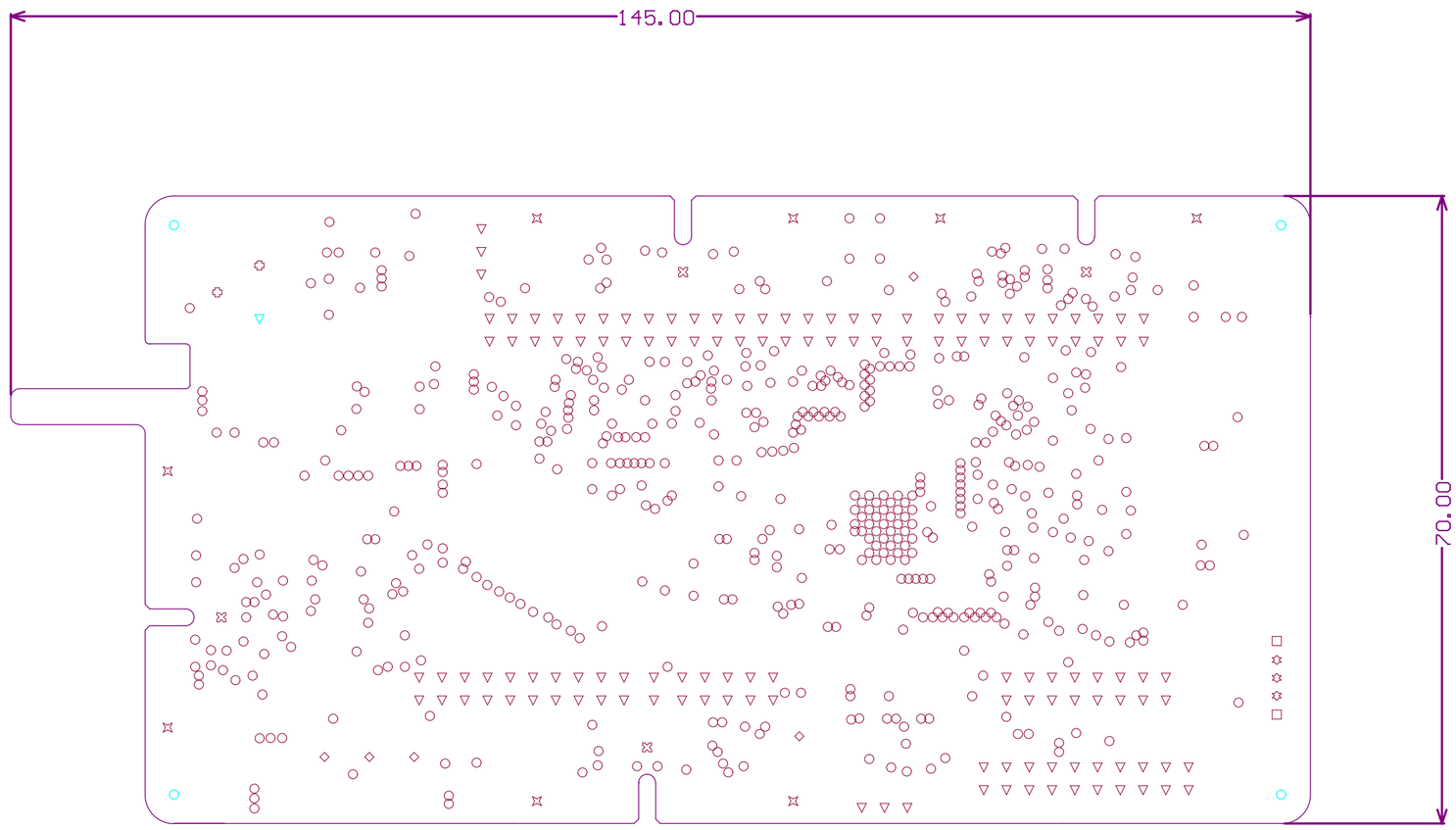
A.) Conductive finish
Plating to be immersion gold.

B.) Soldermask
Liquid photo imageable soldermask (GREEN). Pads have not been oversized.
Supplier should oversize soldermask on pads to suit process.

C.) Silkscreen
Colour white. Supplier should remove any silkscreen which overhangs pads.

Drill Data

Drill data is in Excellon format, metric (0000.000), no zero suppression, absolute coordinates.
Hole size is finished size.



FABRICATION INSTRUCTIONS DRILL DRAWING

Symbol	Hit Count	Tool Size	Physical Length	Rout Path Length	Plated	Hole Type
○	562	0.3mm (11.811mil)			PTH	Round
✡	3	0.8mm (31.496mil)			PTH	Round
▽	132	1mm (39.37mil)			PTH	Round
□	2	1.5mm (59.055mil)			PTH	Round
◇	5	1.6mm (62.992mil)			PTH	Round
⌑	8	2mm (78.74mil)			NPTH	Round
⊠	4	2.8mm (110.236mil)			NPTH	Round
○	4	3.2mm (125.984mil)			PTH	Round
✪	2	1mm (39.37mil)	2.9mm (114.173mil)	1.9mm (74.803mil)	PTH	Slot
▽	1	1mm (39.37mil)	3.4mm (133.858mil)	2.4mm (94.488mil)	PTH	Slot
	723 Total					

Slot definitions : **Rout Path Length** = Calculated from tool start centre position to tool end centre position.
Physical Length = Rout Path Length + Tool Size = Slot length as defined in the PCB layout Drill Drawing.

XMOS®

Project Name
XP-SKC-U16

Sheet	Date	Revision
A4	SEPT 2014	2V0A

Copyright (c) 2013 XMOS Ltd.
Confidential information. All rights reserved.

PCB Manufacturing Notes

General Info

Board dimensions – 145mm x 70mm
Number of layers – 4
Smallest hole – 0.3mm
Number of holes – Approx 725
Minimum Track & Gap – 0.15mm
RoHS/Lead Free – Yes
Material – FR4

Stackup

Stackup is to be as follows:

Layer	Copper Weight (Pre-Plating)
	0.5oz
	1oz
	1oz
	0.5oz

Finished board thickness to be 1.6mm, tolerance 0.1mm

Impedance Control

None required

Copper Thieving/Balancing

The supplier may add copper thieving/balancing if required.

Finish

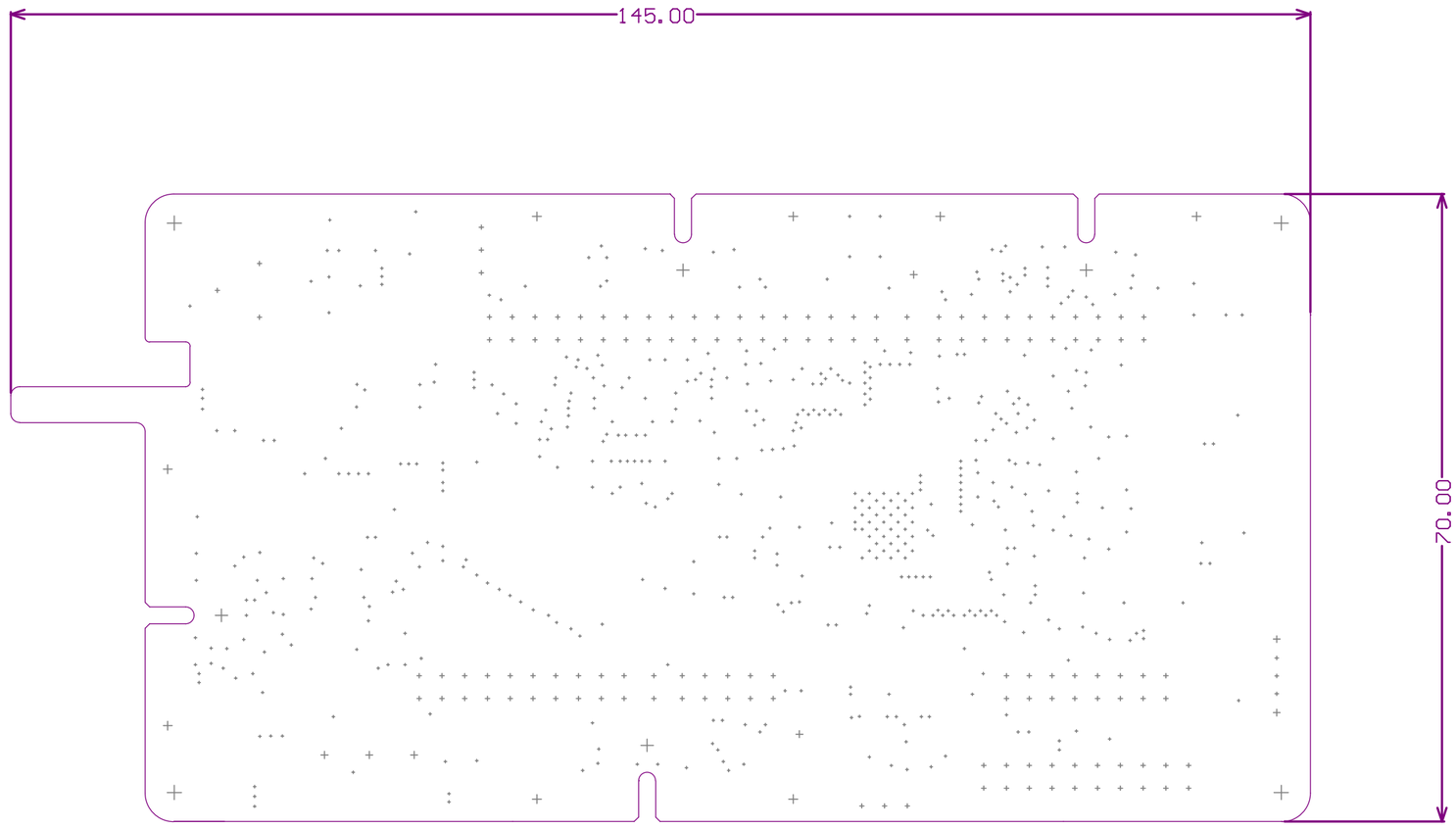
A.) Conductive finish
Plating to be immersion gold.

B.) Soldermask
Liquid photo imageable soldermask (GREEN). Pads have not been oversized.
Supplier should oversize soldermask on pads to suit process.

C.) Silkscreen
Colour white. Supplier should remove any silkscreen which overhangs pads.

Drill Data

Drill data is in Excellon format, metric (0000.000), no zero suppression, absolute coordinates.
Hole size is finished size.



FABRICATION INSTRUCTIONS

DRILL GUIDE

XMOS®		
Project Name: XP-SKC-U16		
Sheet: A4	Date: SEPT 2014	Revision: 2V0A

Copyright (c) 2013 XMOS Ltd.
Confidential information. All rights reserved.

BOM

Bill of Materials For Project [XPCB-073-U16 CORE BOARD.PrjPcb] (No PCB Document Selected)

Source Data From: XPCB-073-U16 CORE BOARD.PrjPcb
Project: XPCB-073-U16 CORE BOARD.PrjPcb
Variant: 2V0A

Report Date: 01/10/2014 17:41:53
Print Date: 01-Oct-14 5:42:02 PM

#	LibRef	Designator	Description	Footprint	Manufacturer	Manufacturer Part Number	Quantity
1	E-01-0001	R20, R32, R37, R39	RES 1k 0603 1%	0603_R	ROHM	MCR03EZFFX1001	4
2	E-01-0002	R1, R9, R10, R11, R12, R13, R14, R26, R27, R38, R40, R43	RES 10k 0603 1%	0603_R	ROHM	MCR03EZFFX1002	12
3	E-01-0008	R4, R5, R6, R15, R16, R17	RES 33R 0603 1%	0603_R	ROHM	MCR03EZFFX33R0	6
4	E-01-0012	R30, R46	RES 0R 0603 1%	0603_R	ROHM	MCR03EZPJ000	2
5	E-01-0017	R25	RES 5.6k 0603 1%	0603_R	ROHM	MCR03EZFFX5601	1
6	E-01-0021	R44, R45	RES 4.7k 0603 1%	0603_R	ROHM	MCR03EZFFX4701	2
7	E-01-0022	R8, R42	RES 470R 0603 1%	0603_R	ROHM	MCR03EZFFX4700	2
8	E-01-0027	R24	RES 2.2k 0603 1%	0603_R	ROHM	MCR03EZFFX2201	1
9	E-01-0032	R18, R33	RES 100k 0603 1%	0603_R	ROHM	MCR03EZFFX1003	2
10	E-01-0035	R7, R41	RES 2.2M 0603 5%	0603_R	ROHM	MCR03EZPJ225	2
11	E-01-0050	R23, R29	RES 18k 0603 1%	0603_R	ROHM	MCR03EZFFX1802	2
12	E-01-0083	R34, R35	RES 160R 0603 1%	0603_R	ROHM	MCR03EZFFX1600	2
13	E-01-0118	R36	RES 22k 0603 1%	0603_R	ROHM	MCR03EZFFX2202	1
14	E-01-0122	R21	RES 33k 0603 1%	0603_R	ROHM	MCR03EZFFX3302	1
15	E-01-0128	R19	RES 62k 0603 1%	0603_R	ROHM	MCR03EZFFX6202	1
16	E-01-0220	R31	RES 100K 0402 1%	0402_R	ROHM	MCR01MZPF1003	1
17	E-01-0270	R22	RES 11.8k 0603 1%	0603_R	ROHM	MCR03EZFFX1182	1
18	E-01-0275	R2, R3	RES 0R1 0805 5%	0805_R	TE Connectivity	1622825-1	2
19	E-02-0002	C1, C2, C3, C8, C9, C12, C13, C14, C15, C19, C23, C26, C28, C29, C30, C31, C34, C35, C37, C38, C39, C41, C42, C44, C45, C46, C47, C48, C49, C51, C52	MLCC 100nF 0402 X7R 16V	0402_C	Murata	GRM155R71C104KA88	31
20	E-02-0003	C32	MLCC 10nF 0402 X7R 50V	0402_C	Murata	GRM155R71H103KA88	1
21	E-02-0004	C6, C7, C25	MLCC 22uF 0805 X5R 6.3V	0805_C	Murata	GRM21BR60J226ME39	3
22	E-02-0005	C4, C50	MLCC 4.7uF 0603 X5R 6.3V	0603_C	Murata	GRM188R60J475KE19	2
23	E-02-0008	C10, C11, C53, C54	MLCC 33pF 0402 C0G 50V	0402_C	Murata	GRM1555C1H330JZ01	4
24	E-02-0011	C20	MLCC 2.2nF 0402 X7R 50V	0402_C	Murata	GRM155R71H222KA01	1
25	E-02-0015	C16	Al Elec 100uF 16V CaseD SMD	AL_ELEC_SMD_D	Panasonic	EEEFK1C101P	1
26	E-02-0017	C5	MLCC 100nF 0603 X7R 16V	0603_C	Murata	GRM188R71C104KA01	1
27	E-02-0019	C27	MLCC 2.2uF 0603 X5R 10V	0603_C	Murata	GRM188R61A225ME34	1
28	E-02-0021	C24	MLCC 4.7uF 0805 X5R 10V	0805_C	Murata	GRM219R61A475KE34	1
29	E-02-0031	C33, C36, C40, C43	Al Elec 47uF 16V CaseC SMD	AL_ELEC_SMD_C	Panasonic	EEEFK1C470UR	4
30	E-02-0037	C21, C22	MLCC 22uF 1206 X5R 16V	CAPC3216X140N	Murata	GRM31CR61C226ME15	2
31	E-02-0039	C17, C18	MLCC 10uF 1206 X5R 25V	CAPC3216X140N	Murata	GRM31CR61E106MA12L	2
32	E-03-0021	U13	Memory, Flash, SPI, 16Mb (8Kx256), SOIC-8W	SOIC8W	Micron	M25P16-VMW6	1
33	E-04-0022	J2	IDC Boxed Header, Right Angle, PCB Mount, Polarised, 20 Way, 2x10, 0.1" Pitch	IDC_HEADER_RA_20PIN	Sullins	SBH11-PBPC-D10-RA-BK	1
34	E-04-0050	J3	DC Power Jack, 5.5mm x 2.1mm, 2.5A, Through Hole	PWR_JACK_TH_55	CUI	PJ-002A	1
35	E-04-0067	J4, J5, J11, J12	PCIe End Fire Socket, x1, 36 Pin, SMD	PCIE_EDGE_SOCKET_X1	Sullins	NWE18DHRQ-T941	4
36	E-04-0080	J1	Male Header, Shrouded, 16 Way, 2x8, 0.1" pitch	HEADER_2x8PIN_BOX	Sullins	SBH11-PBPC-D08-ST-BK	1
37	E-04-0090	J14, J15	Male Header, Unshrouded, 3 Way, 1x3, 0.1" pitch	JUMPER_HEADER_3PIN	FCI	68000-103HLF	2
38	E-05-0006	U10	Voltage regulator, LDO, Fixed, 3.3V, 150mA	SOT23_5	ON Semiconductor	NCP699SN33T1G	1
39	E-05-0028	U9	DC-DC Buck Converter, 1.5A, 1.5MHz, DFN6	DFN6_ST1S06	ST Microelectronics	ST1S06PUR	1
40	E-05-0031	U8	DC-DC Buck Converter, Adjustable, 1.2MHz, 3A, SOIC8	SOIC127P600X175-9AN	Richtek	RT8293BHGSP	1
41	E-05-0033	U21	Dual Diode Current Limiting OR DFN16EP	DFN17-EP	Linear Technology	LTC4415EDHC#PBF	1
42	E-07-0019	X2	Crystal, 25MHz, HC49/US SMD, Fundamental, 18pF, Tol. ±30ppm, Stab. ±50ppm	XTAL_HC49US_SMD	Abracon	ABLS-25.000MHZ-B4-F-T	1
43	E-07-0030	X1	Crystal, 24MHz, HC49/US SMD, Fundamental, 18pF, Tol. ±30ppm, Stab. ±50ppm	XTAL_HC49US_SMD	Abracon	ABLS-24.000MHz-B4	1
44	E-08-0006	FB1	Ferrite Bead, 120R AT 100MHz, 0805, 3A	0805	Murata	BLM21PG121SN1	1
45	E-09-0005	L4	Power Inductor, 2.2uH, 2.7A, 44mR DCR	TAIYO_NR6020	Taiyo Yuden	NR6020T2R2N	1
46	E-09-0018	L3	Power Inductor, 6.8uH, 4A, 33mR DCR	TAIYO_NR8040	Taiyo Yuden	NR8040T6R8N	1
47	E-09-0020	L1, L2	Power Inductor, 4.7uH, 2.9A, 67mR DCR	MP4040	Cooper Bussmann	MP4040R4-4R7-R	2
48	E-10-0013	D2	Diode, 100V, 0.3A, SOD123	SOD123	Diodes Inc	1N4148W-7-F	1
49	E-10-0021	D1	Schottky Diode, 40V, 2A, SMA	DIOM5326X230N	Diodes Inc	B240A-13-F	1
50	E-10-0022	D3	Unidirectional Transient Protection Diode, 22V Stand-Off, 600W, SMB	SMB	STMicroelectronics	SMBJ22A	1
51	E-11-0016	U2	XMOS XS1-U16A Processor, 217BGA, 500MHz	BGA217C80P19X19_1600X1600X136	XMOS	XS1–U16A–128–FB217-C10	1
52	E-12-0001	D4	LED, GREEN, 0603	0603_LED	Kingbright	APT1608CGCK	1
53	E-13-0006	U20	Logic Buffer, Tri-State, UHS Series, SC70	SC70_5	Fairchild	NC7SZ125P5X	1
54	E-13-0009	U6	2-Input Multiplexer, UHS Series, SC70	SC70_6	Fairchild	NC7SZ157P6X	1
55	E-13-0014	U3	Triple Logic Buffer, UHS Series, US8	US8	Fairchild	NC7NZ34K8X	1
56	E-13-0021	U4, U24	Unbuffered Inverter, UHS Series, SOT-23-5	SOT23_5	Fairchild	NC7SZU04M5X	2
57	E-13-0026	U25	Dual Logic Buffer, Open Drain Output, UHS Series, SC70	SC70_6	Fairchild	NC7WZ07P6X	1
58	E-13-0099	U12, U15, U16, U17	Quad 1-of-2 Multiplexer/Demultiplexer, Bus Switch, CBTLV Series, TSSOP16	SOP65P640X110-16N	NXP Semiconductor	74CBTLV3257PW	4
59	E-13-0101	U1	Quad Bus Switch, CBT Series, TSSOP14	SOP65P640X110-14N	NXP Semiconductor	CBT3125PW	1
60	E-13-0103	U5, U7	Triple Logic Buffer, Schmitt Trigger, UHS Series, US8	US8	Fairchild	NC7NZ17K8X	2
61	E-13-0106	U11	Microprocessor Reset Circuit, 2.9V, Active Low, Open Drain, SOT23	SOT23	Diodes Inc	APX803-29SAG	1
62	E-13-0108	U14	Dual D-type flip-flop with set and reset, p.e. trig, TSSOP14	TSSOP14	NXP Semiconductor	74LV74PW	1
63	E-13-0111	U23	Buffered Inverter, SC70	SC70_5	Texas Instruments	SN74LVC1G06DCKT	1
64	E-13-0132	U18, U22	Single FET Bus Switch, SC70-5	SC70_5	Texas Instruments	SN74CBT1G125DCK	2
65	E-13-0142	U19	Microprocessor Reset Circuit, 4.4V, Active Low, Push Pull, SOT23	SOT23	Diodes Inc	APX809-44SAG	1
66	E-15-0032	TP5, TP6	Through Hole Testpoint, Compact, 1.8mm Loop, Red	TESTPOINT_1_6MM_THT	Keystone	5005	2
67	E-15-0033	TP1, TP3, TP4	Through Hole Testpoint, Compact, 1.8mm Loop, Black	TESTPOINT_1_6MM_THT	Keystone	5006	3
68	E-16-0006	SW1	Miniature Slide Switch, SPDT, Vertical, THT	SW_OS_VERT_SPDT	C&K	OS102011MS2QN1	1
69	E-17-0025	F1	Polyswitch Resettable Fuse, 2920, 3A, 15V	2920_FUSE_CONC	Littelfuse	2920L300/15DR	1
70	P-01-0011	PROD1, PROD2, PROD3, PROD4	Feet, Nylon, M3, 6mm Standoff		Toby Electronics	DCB-6	4
71	P-01-0034	PROD5, PROD6	Jumper, 2 Position, 2.54mm x 13.5mm, Black, Handled		Toby Electronics	TSL-260-R-H	2
Approved			**Notes**				**157**