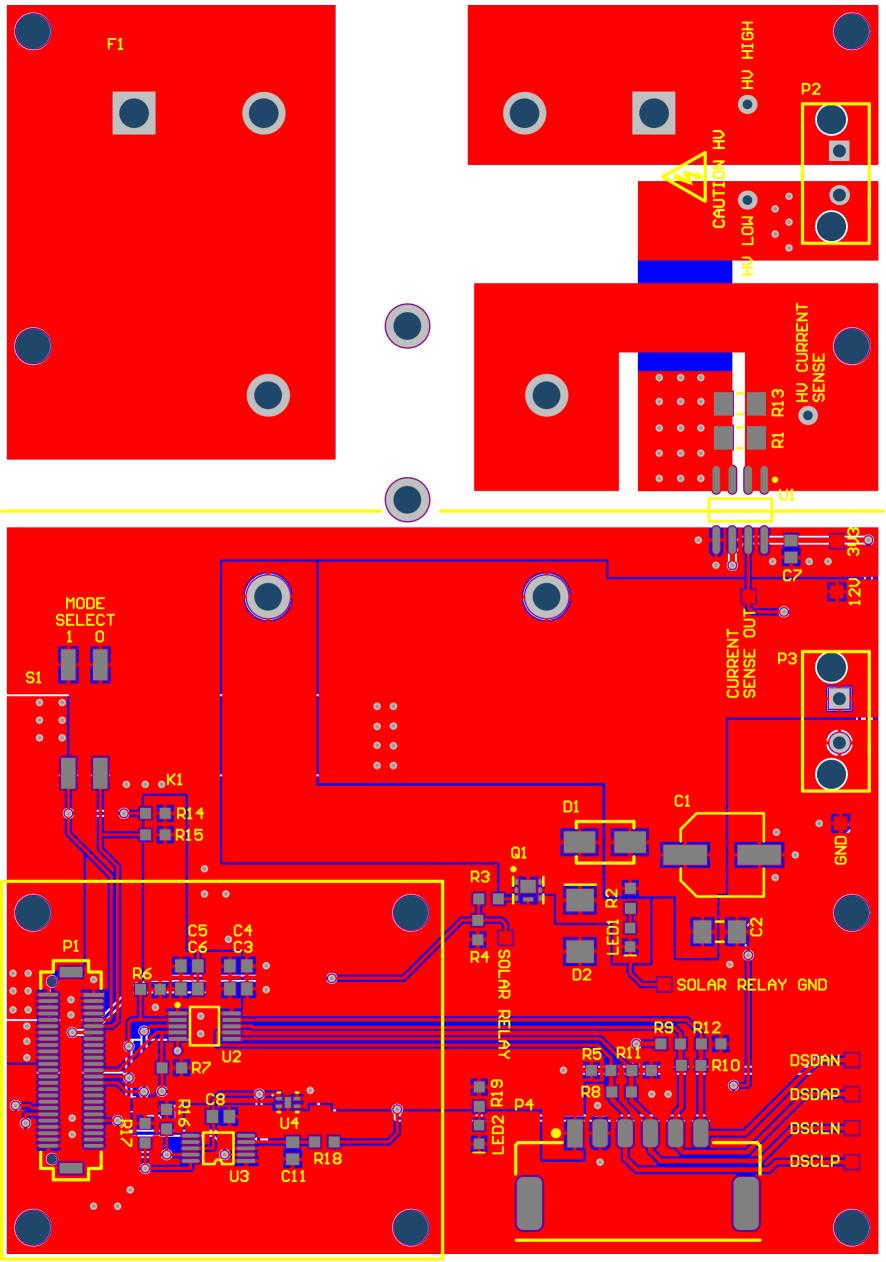
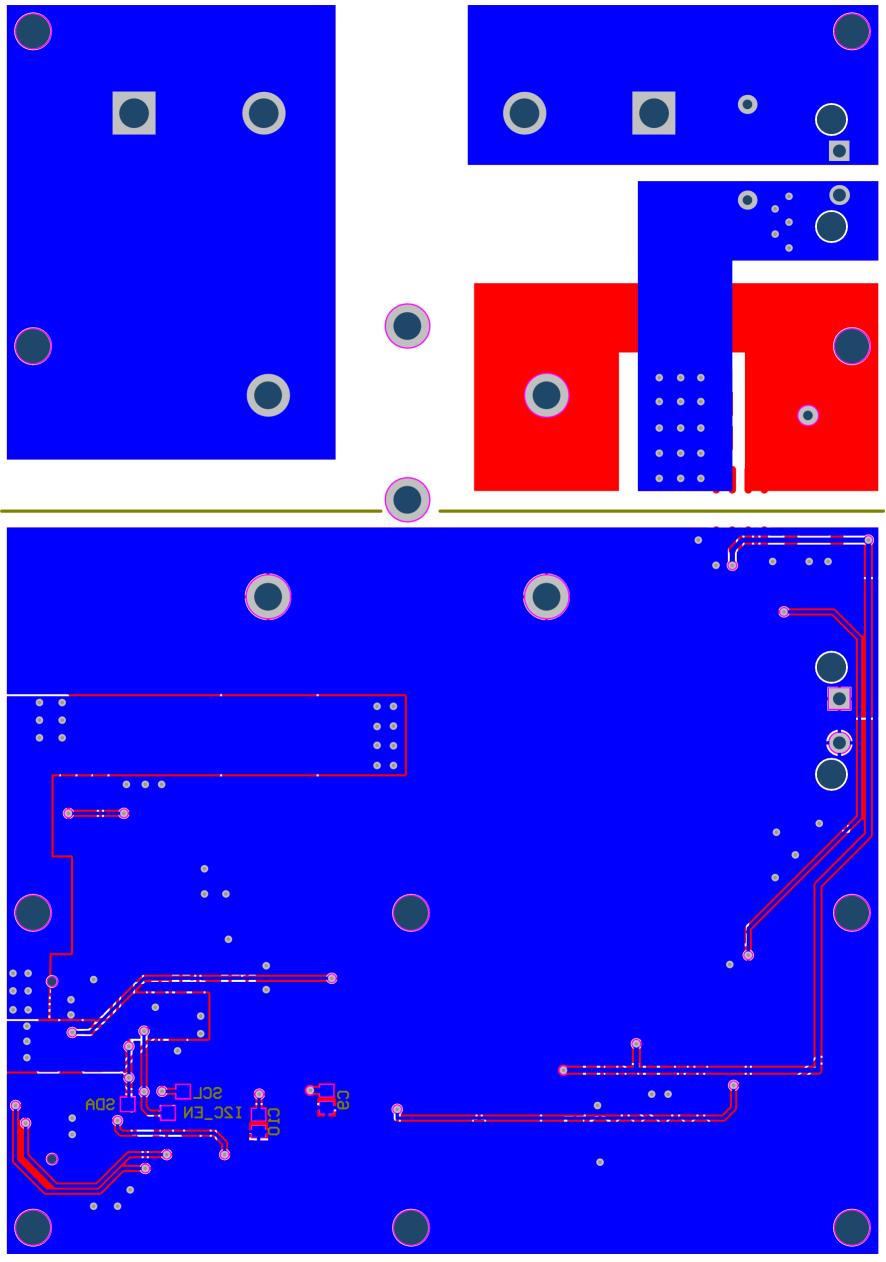


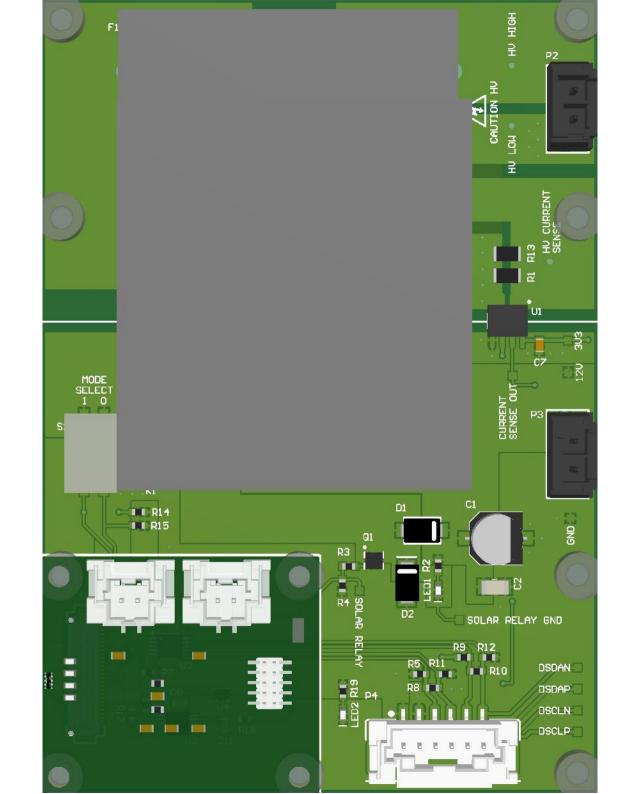
Bill of Materials					
Project:	MSXII_SolarSenseMaster.PrjPcb				
Revision:	1.0				
Project Lead:	Peiliang Guo				
Generated On:	2018-07-08 6:36:43 PM				
Production Quantity:	1				
Currency	CAD				
Total Parts Count:	49				



LibRef	Designator	Manufacturer 1	Manufacturer Part Number 1	Supplier 1	Supplier Part Number 1	Supplier Unit Price 1	Supplier Order Qty 1	Supplier Subtotal 1
CAP ALUM 4.7UF 20% 50V SMD	C1	Panasonic	EEE-1HA4R7NP	Digi-Key	PCE4304CT-ND	0.56	1	\$ 0.56
CAP CER 2.2UF 100V ±20% X7R 1206	C2	Murata	GRM31CR72A225MA73L	Digi-Key	490-12773-1-ND	0.92	1	\$ 0.92
CAP CER 0.1UF 50V 10% X7R 0603	C3	Kyocera AVX	06035C-104KAT2A	Digi-Key	478-5052-1-ND	0.21	1	\$ 0.21
CAP CER 0.1UF 50V 10% X7R 0603	C4	Kyocera AVX	06035C-104KAT2A	Digi-Key	478-5052-1-ND	0.21	1	\$ 0.21
CAP CER 0.1UF 50V 10% X7R 0603	C5	Kyocera AVX	06035C-104KAT2A	Digi-Key	478-5052-1-ND	0.21	1	\$ 0.21
CAP CER 0.1UF 50V 10% X7R 0603	C6	Kyocera AVX	06035C-104KAT2A	Digi-Key	478-5052-1-ND	0.21	1	\$ 0.21
CAP CER 0.1UF 50V 10% X7R 0603	C7	Kyocera AVX	06035C-104KAT2A	Digi-Key	478-5052-1-ND	0.21	1	\$ 0.21
CAP CER 0.1UF 50V 10% X7R 0603	C8	Kyocera AVX	06035C-104KAT2A	Digi-Key	478-5052-1-ND	0.21	1	\$ 0.21
CAP CER 1UF 50V 10% X7R 0603	C9	Taiyo Yuden	UMK107AB7105KA-T	Digi-Key	587-3247-1-ND	0.38	1	\$ 0.38
CAP CER 1UF 50V 10% X7R 0603	C10	Taiyo Yuden	UMK107AB7105KA-T	Digi-Key	587-3247-1-ND	0.38	1	\$ 0.38
CAP CER 0.1UF 50V 10% X7R 0603	C11	Kyocera AVX	06035C-104KAT2A	Digi-Key	478-5052-1-ND	0.21	1	\$ 0.21
DIODE SCHOTTKY 60V 3A SMA	D1	Diodes	B360A-13-F	Digi-Key	B360A-FDICT-ND	0.63	1	\$ 0.63
DIODE ZENER 16V 5W DO-214AA (SMB)	D2	MCC	SMBJ5353B-TP	Digi-Key	SMBJ5353B-TPMSCT- ND	0.89	1	\$ 0.89
FUSE 12 A 600VAC/DC KLM-12	F1	Eaton Bussmann	KLM-12	Digi-Key	KLM-12-ND			
RELAY SPST 12V 10A	K1	Omron	MKS1XT-10DC12	Digi-Key	Z2956-ND	42.55	1	\$ 42.55
LED YELLOW CLEAR 2.1V 0603	LED1	Wurth Electronics	150060YS75000	Digi-Key	732-4981-1-ND	0.21	1	\$ 0.21
LED GREEN CLEAR 2V 0603	LED2	Wurth Electronics	150060VS75000	Digi-Key	732-4980-1-ND	0.21	1	\$ 0.21
CONN 50POS Bergstak Plug 0.02"	P1	Amphenol FCI	10132797-055100LF	Digi-Key	609-5226-1-ND	2.08	1	\$ 2.08
CONN 2POS ULTRA-FIT 0.138"	P2	Molex	1722861302	Digi-Key	WM11673-ND	1.81	1	\$ 1.81
CONN 2POS ULTRA-FIT 0.138"	P3	Molex	1722861302	Digi-Key	WM11673-ND	1.81	1	\$ 1.81
CONN 6POS DURA-CLIK 0.079"	P4	Molex	560020-0620	Digi-Key	WM10866CT-ND	1.64	1	\$ 1.64
MOSFET N-CH 30V 8.7A 2.1W 6-PQFN (2x2)	Q1	Infineon	IRLHS6342TRPBF	Digi-Key	IRLHS6342TRPBFCT- ND	1.06	1	\$ 1.06
RES 0.0 OHM 3/4W 1206	R1	Stackpole Electronics	HCJ1206ZT0R00	Digi-Key	HCJ1206ZT0R00CT-ND	0.72	1	\$ 0.72
RES 4.7K OHM 1% 1/10W 0603	R2	Yageo	RC0603FR-074K7L	Digi-Key	311-4.70KHRCT-ND	0.13	1	\$ 0.13
RES 22.1 OHM 1% 1/10W 0603	R3	Yageo	RC0603FR-0722R1L	Digi-Key	311-22.1HRCT-ND	0.13	1	\$ 0.13
RES 10K OHM 1% 1/10W 0603	R4	Yageo	RC0603FR-0710KL	Digi-Key	311-10.0KHRCT-ND	0.13	1	\$ 0.13
RES 604 OHM 1% 1/10W 0603	R5	Yageo	RC0603FR-07604RL	Digi-Key	311-604HRCT-ND	0.13	1	\$ 0.13
RES 3.3K OHM 1% 1/4W 0603	R6	Panasonic	ERJPA3F3301V	Digi-Key	P3.3KBYCT-ND	0.21	1	\$ 0.21
RES 3.3K OHM 1% 1/4W 0603	R7	Panasonic	ERJPA3F3301V	Digi-Key	P3.3KBYCT-ND	0.21	1	\$ 0.21
RES 120 OHM 1% 1/10W 0603	R8	Yageo	RC0603FR-07120RL	Digi-Key	311-120HRCT-ND	0.13	1	\$ 0.13
RES 604 OHM 1% 1/10W 0603	R9	Yageo	RC0603FR-07604RL	Digi-Key	311-604HRCT-ND	0.13	1	\$ 0.13
RES 120 OHM 1% 1/10W 0603	R10	Yageo	RC0603FR-07120RL	Digi-Key	311-120HRCT-ND	0.13	1	\$ 0.13
RES 604 OHM 1% 1/10W 0603	R11	Yageo	RC0603FR-07604RL	Digi-Key	311-604HRCT-ND	0.13	1	\$ 0.13
RES 604 OHM 1% 1/10W 0603	R12	Yageo	RC0603FR-07604RL	Digi-Key	311-604HRCT-ND	0.13	1	\$ 0.13
RES 0.0 OHM 3/4W 1206	R13	Stackpole Electronics	HCJ1206ZT0R00	Digi-Key	HCJ1206ZT0R00CT-ND	0.72	1	\$ 0.72
RES 10K OHM 1% 1/10W 0603	R14	Yageo	RC0603FR-0710KL	Digi-Key	311-10.0KHRCT-ND	0.13	1	\$ 0.13
RES 10K OHM 1% 1/10W 0603	R15	Yageo	RC0603FR-0710KL	Digi-Key	311-10.0KHRCT-ND	0.13	1	\$ 0.13
RES 4.7K OHM 1% 1/10W 0603	R16	Yageo	RC0603FR-074K7L	Digi-Key	311-4.70KHRCT-ND	0.13	1	\$ 0.13
RES 4.7K OHM 1% 1/10W 0603	R17	Yageo	RC0603FR-074K7L	Digi-Key	311-4.70KHRCT-ND	0.13	1	\$ 0.13
RES 100 OHM 1% 1/10W 0603	R18	Yageo	RC0603FR-07100RL	Digi-Key	311-100HRCT-ND	0.13	1	\$ 0.13
RES 510 OHM 5% 1/10W 0603	R19	Yageo	RC0603JR-07510RL	Digi-Key	311-510GRCT-ND	0.13	1	\$ 0.13
SW SPST 2POS DIP 0.1A 20V	S1	CTS	219-2MST	Digi-Key	CT2192MST-ND	0.79	1	\$ 0.79
Thru Test Point	TH_TP1							
Thru Test Point	TH_TP2							
Thru Test Point	TH_TP3							
IC CURRENT SENSOR HALL EFFECT 8-SOIC	U1	Allegro MicroSystems	ACS722LLCTR-10AU-T	Digi-Key	620-1636-1-ND	7.26	1	\$ 7.26
IC DIFFERENTIAL I2C BUFFER PCA9615	U2	NXP Semiconductors	PCA9615DPJ	Digi-Key	568-11484-1-ND	3.87	1	\$ 3.87
IC ADC 12-BIT VSSOP-10	U3	Texas Instruments	ADS1015IDGSR	Digi-Key	296-41185-1-ND	3.62	1	\$ 3.62
IC REG LDO 3V 0.2A 4-TDFN	U4	Microchip	MIC94310-PYMT-TR	Digi-Key	576-4761-1-ND	0.38	1	\$ 0.38
							Total:	\$ 76.33







Electrical Rules Check Report

Class	Document	Message
		Successful Compile for MSXII_SolarSenseMaster.PrjPcb
	_	

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Design Rules Verification ReportFilename: C:\Users\peiliang.guo\uw-midsun\hardware\MSXII_SolarSenseMaster\SolarSense Warnings 0 Rule Violations 66

Warnings Total

Rule Violations	
Clearance Constraint (Gap=0.152mm) (All),(All)	0
Short-Circuit Constraint (Allowed=No) (All),(All)	0
Un-Routed Net Constraint ((All))	0
Modified Polygon (Allow modified: No), (Allow shelved: No)	0
Width Constraint (Min=0.254mm) (Max=0.4mm) (Preferred=0.4mm) (InNet('3V3'))	0
Width Constraint (Min=0.152mm) (Max=2.54mm) (Preferred=0.254mm) (All)	0
Power Plane Connect Rule(Relief Connect) (Expansion=0.508mm) (Conductor Width=0.254mm) (Air Gap=0.254mm)	0
Minimum Annular Ring (Minimum=0.15mm) (All)	0
Hole Size Constraint (Min=0.3mm) (Max=6.3mm) (All)	0
Hole To Hole Clearance (Gap=0.254mm) (All),(All)	0
Minimum Solder Mask Sliver (Gap=0.3mm) (All),(All)	36
Silk To Solder Mask (Clearance=0.178mm) (IsPad),(All)	22
Silk to Silk (Clearance=0.254mm) (All),(All)	0
Net Antennae (Tolerance=0mm) (All)	0
Board Clearance Constraint (Gap=0mm) (All)	8
Height Constraint (Min=0mm) (Max=70mm) (Prefered=12.7mm) (InComponent('K1') OR InComponent('K2'))	0
Height Constraint (Min=0mm) (Max=25.4mm) (Prefered=12.7mm) (All)	0
Total	66

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Minimum Solder Mask Sliver (Gap=0.3mm) (All),(All)
Minimum Solder Mask Sliver Constraint: (0.298mm < 0.3mm) Between Pad C10-1(20.4mm,11.475mm) on Bottom Layer And Pad
Minimum Solder Mask Sliver Constraint: (0.298mm < 0.3mm) Between Pad C11-1(23.1mm,9.275mm) on Top Layer And Pad C11-2(23.1mm,7.925mm) on
Minimum Solder Mask Sliver Constraint: (0.298mm < 0.3mm) Between Pad C3-1(18.125mm,21.469mm) on Top Layer And Pad
Minimum Solder Mask Sliver Constraint: (0.298mm < 0.3mm) Between Pad C4-1(18.125mm,23.274mm) on Top Layer And Pad
Minimum Solder Mask Sliver Constraint: (0.298mm < 0.3mm) Between Pad C5-1(14.225mm,23.274mm) on Top Layer And Pad
Minimum Solder Mask Sliver Constraint: (0.298mm < 0.3mm) Between Pad C6-1(14.225mm,21.469mm) on Top Layer And Pad
Minimum Solder Mask Sliver Constraint: (0.298mm < 0.3mm) Between Pad C7-1(62.664mm,57.075mm) on Top Layer And Pad
Minimum Solder Mask Sliver Constraint: (0.298mm < 0.3mm) Between Pad C8-1(16.725mm,11.329mm) on Top Layer And Pad
Minimum Solder Mask Sliver Constraint: (0.298mm < 0.3mm) Between Pad C9-1(25.8mm,13.375mm) on Bottom Layer And Pad C9-2(25.8mm,12.025mm)
Minimum Solder Mask Sliver Constraint: (0.105mm < 0.3mm) Between Pad P1-(4mm,22.05mm) on Multi-Layer And Pad P1-(5.5mm,22.8mm) on Top Layer
Minimum Solder Mask Sliver Constraint: (0.105mm < 0.3mm) Between Pad P1-(4mm,7.95mm) on Multi-Layer And Pad P1-(5.5mm,7.2mm) on Top Layer
Minimum Solder Mask Sliver Constraint: (0.047mm < 0.3mm) Between Pad Q1-1(40.875mm,29.95mm) on Top Layer And Pad Q1-2(40.875mm,29.3mm) or
Minimum Solder Mask Sliver Constraint: (0.047mm < 0.3mm) Between Pad Q1-2(40.875mm,29.3mm) on Top Layer And Pad Q1-3(40.875mm,28.65mm) or
Minimum Solder Mask Sliver Constraint: (0.275mm < 0.3mm) Between Pad Q1-2(40.875mm,29.3mm) on Top Layer And Pad Q1-8(41.8mm,28.56mm) on
Minimum Solder Mask Sliver Constraint: (0.047mm < 0.3mm) Between Pad Q1-3(40.875mm,28.65mm) on Top Layer And Pad Q1-7(41.8mm,29.6mm) on
Minimum Solder Mask Sliver Constraint: (0.202mm < 0.3mm) Between Pad Q1-3(40.875mm,28.65mm) on Top Layer And Pad Q1-8(41.8mm,28.56mm) on
Minimum Solder Mask Sliver Constraint: (0.047mm < 0.3mm) Between Pad Q1-4(42.725mm,28.65mm) on Top Layer And Pad Q1-5(42.725mm,29.3mm) or
Minimum Solder Mask Sliver Constraint: (0.047mm < 0.3mm) Between Pad Q1-4(42.725mm,28.65mm) on Top Layer And Pad Q1-7(41.8mm,29.6mm) on
Minimum Solder Mask Sliver Constraint: (0.202mm < 0.3mm) Between Pad Q1-4(42.725mm,28.65mm) on Top Layer And Pad Q1-8(41.8mm,28.56mm) on
Minimum Solder Mask Sliver Constraint: (0.047mm < 0.3mm) Between Pad Q1-5(42.725mm,29.3mm) on Top Layer And Pad Q1-6(42.725mm,29.95mm) or
Minimum Solder Mask Sliver Constraint: (0.275mm < 0.3mm) Between Pad Q1-5(42.725mm,29.3mm) on Top Layer And Pad Q1-8(41.8mm,28.56mm) on
Minimum Solder Mask Sliver Constraint: (0.187mm < 0.3mm) Between Pad Q1-7(41.8mm,29.6mm) on Top Layer And Pad Q1-8(41.8mm,28.56mm) on Top
Minimum Solder Mask Sliver Constraint: (0.017mm < 0.3mm) Between Pad U2-1(13.96mm,19.5mm) on Top Layer And Pad U2-2(13.96mm,19mm) on Top
Minimum Solder Mask Sliver Constraint: (0.017mm < 0.3mm) Between Pad U2-10(18.24mm,19.5mm) on Top Layer And Pad U2-9(18.24mm,19mm) on Top
Minimum Solder Mask Sliver Constraint: (0.017mm < 0.3mm) Between Pad U2-2(13.96mm,19mm) on Top Layer And Pad U2-3(13.96mm,18.5mm) on Top
Minimum Solder Mask Sliver Constraint: (0.017mm < 0.3mm) Between Pad U2-3(13.96mm,18.5mm) on Top Layer And Pad U2-4(13.96mm,18mm) on Top
Minimum Solder Mask Sliver Constraint: (0.017mm < 0.3mm) Between Pad U2-4(13.96mm,18mm) on Top Layer And Pad U2-5(13.96mm,17.5mm) on Top
Minimum Solder Mask Sliver Constraint: (0.017mm < 0.3mm) Between Pad U2-6(18.24mm,17.5mm) on Top Layer And Pad U2-7(18.24mm,18mm) on Top
Minimum Solder Mask Sliver Constraint: (0.017mm < 0.3mm) Between Pad U2-7(18.24mm,18mm) on Top Layer And Pad U2-8(18.24mm,18.5mm) on Top
Minimum Solder Mask Sliver Constraint: (0.017mm < 0.3mm) Between Pad U2-8(18.24mm,18.5mm) on Top Layer And Pad U2-9(18.24mm,19mm) on Top
Minimum Solder Mask Sliver Constraint: (0.147mm < 0.3mm) Between Pad U4-1(22.014mm,12.75mm) on Top Layer And Pad U4-2(22.014mm,12.15mm)
Minimum Solder Mask Sliver Constraint: (0.012mm < 0.3mm) Between Pad U4-1(22.014mm,12.75mm) on Top Layer And Pad U4-5(22.729mm,12.45mm)
Minimum Solder Mask Sliver Constraint: (0.012mm < 0.3mm) Between Pad U4-2(22.014mm,12.15mm) on Top Layer And Pad U4-5(22.729mm,12.45mm)
Minimum Solder Mask Sliver Constraint: (0.147mm < 0.3mm) Between Pad U4-3(23.454mm,12.15mm) on Top Layer And Pad U4-4(23.454mm,12.75mm)
Minimum Solder Mask Sliver Constraint: (0.022mm < 0.3mm) Between Pad U4-3(23.454mm,12.15mm) on Top Layer And Pad U4-5(22.729mm,12.45mm)
Minimum Solder Mask Sliver Constraint: (0.022mm < 0.3mm) Between Pad U4-4(23.454mm,12.75mm) on Top Layer And Pad U4-5(22.729mm,12.45mm)

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Silk To Solder Mask (Clearance=0.178mm) (IsPad),(All)
Silk To Solder Mask Clearance Constraint: (0.166mm < 0.178mm) Between Pad D1-1(45.869mm,33.1mm) on Top Layer And Track
Silk To Solder Mask Clearance Constraint: (0.166mm < 0.178mm) Between Pad D1-1(45.869mm,33.1mm) on Top Layer And Track
Silk To Solder Mask Clearance Constraint: (0.166mm < 0.178mm) Between Pad D1-2(49.869mm,33.1mm) on Top Layer And Track
Silk To Solder Mask Clearance Constraint: (0.166mm < 0.178mm) Between Pad D1-2(49.869mm,33.1mm) on Top Layer And Track
Silk To Solder Mask Clearance Constraint: (0.05mm < 0.178mm) Between Pad Q1-1(40.875mm,29.95mm) on Top Layer And Track
Silk To Solder Mask Clearance Constraint: (0.112mm < 0.178mm) Between Pad Q1-2(40.875mm,29.3mm) on Top Layer And Track
Silk To Solder Mask Clearance Constraint: (0.112mm < 0.178mm) Between Pad Q1-2(40.875mm,29.3mm) on Top Layer And Track
Silk To Solder Mask Clearance Constraint: (0.05mm < 0.178mm) Between Pad Q1-3(40.875mm,28.65mm) on Top Layer And Track
Silk To Solder Mask Clearance Constraint: (0.05mm < 0.178mm) Between Pad Q1-4(42.725mm,28.65mm) on Top Layer And Track
Silk To Solder Mask Clearance Constraint: (0.112mm < 0.178mm) Between Pad Q1-5(42.725mm,29.3mm) on Top Layer And Track
Silk To Solder Mask Clearance Constraint: (0.112mm < 0.178mm) Between Pad Q1-5(42.725mm,29.3mm) on Top Layer And Track
Silk To Solder Mask Clearance Constraint: (0.05mm < 0.178mm) Between Pad Q1-6(42.725mm,29.95mm) on Top Layer And Track
Silk To Solder Mask Clearance Constraint: (0.175mm < 0.178mm) Between Pad U3-1(19.4mm,7.8mm) on Top Layer And Track
Silk To Solder Mask Clearance Constraint: (0.176mm < 0.178mm) Between Pad U3-10(15mm,7.8mm) on Top Layer And Track
Silk To Solder Mask Clearance Constraint: (0.176mm < 0.178mm) Between Pad U3-2(19.4mm,8.3mm) on Top Layer And Track
Silk To Solder Mask Clearance Constraint: (0.176mm < 0.178mm) Between Pad U3-3(19.4mm,8.8mm) on Top Layer And Track
Silk To Solder Mask Clearance Constraint: (0.176mm < 0.178mm) Between Pad U3-4(19.4mm,9.3mm) on Top Layer And Track
Silk To Solder Mask Clearance Constraint: (0.176mm < 0.178mm) Between Pad U3-5(19.4mm,9.8mm) on Top Layer And Track
Silk To Solder Mask Clearance Constraint: (0.176mm < 0.178mm) Between Pad U3-6(15mm,9.8mm) on Top Layer And Track
Silk To Solder Mask Clearance Constraint: (0.176mm < 0.178mm) Between Pad U3-7(15mm,9.3mm) on Top Layer And Track
Silk To Solder Mask Clearance Constraint: (0.176mm < 0.178mm) Between Pad U3-8(15mm,8.8mm) on Top Layer And Track
Silk To Solder Mask Clearance Constraint: (0.176mm < 0.178mm) Between Pad U3-9(15mm,8.3mm) on Top Layer And Track

Board Clearance Constraint (Gap=0mm) (All) Board Outline Clearance(Outline Edge): (Collision < 0.406mm) Between Board Edge And Track (0mm,0mm)(0mm,30mm) on Top Overlay Board Outline Clearance(Outline Edge): (Collision < 0.406mm) Between Board Edge And Track (0mm,0mm)(35mm,0mm) on Top Overlay Board Outline Clearance(Outline Edge): (Collision < 0.406mm) Between Board Edge And Track (0mm,30mm)(35mm,30mm) on Top Overlay Board Outline Clearance(Outline Edge): (Collision < 0.406mm) Between Board Edge And Track (0mm,59.4mm) (30.1mm,59.4mm) on Bottom Overlay Board Outline Clearance(Outline Edge): (Collision < 0.406mm) Between Board Edge And Track (0mm,59.4mm)(30.1mm,59.4mm) on Top Overlay

Board Outline Clearance(Outline Edge): (Collision < 0.406mm) Between Board Edge And Track (34.8mm,59.4mm)(70mm,59.4mm) on Top Overlay

Board Outline Clearance(Outline Edge): (Collision < 0.406mm) Between Board Edge And Track (34.8mm,59.4mm) (70mm,59.4mm) on Bottom Overlay

Board Outline Clearance(Outline Edge): (Collision < 0.406mm) Between Board Edge And Track (35mm,0mm)(35mm,30mm) on Top Overlay

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