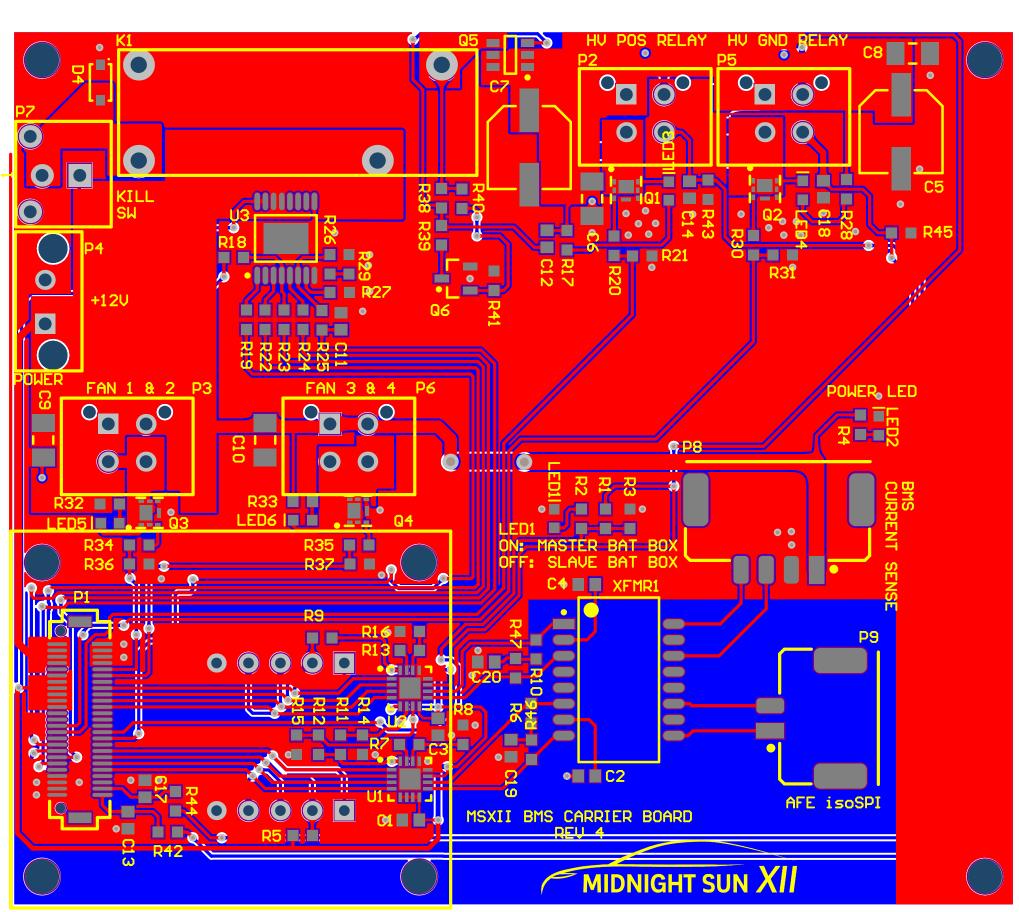
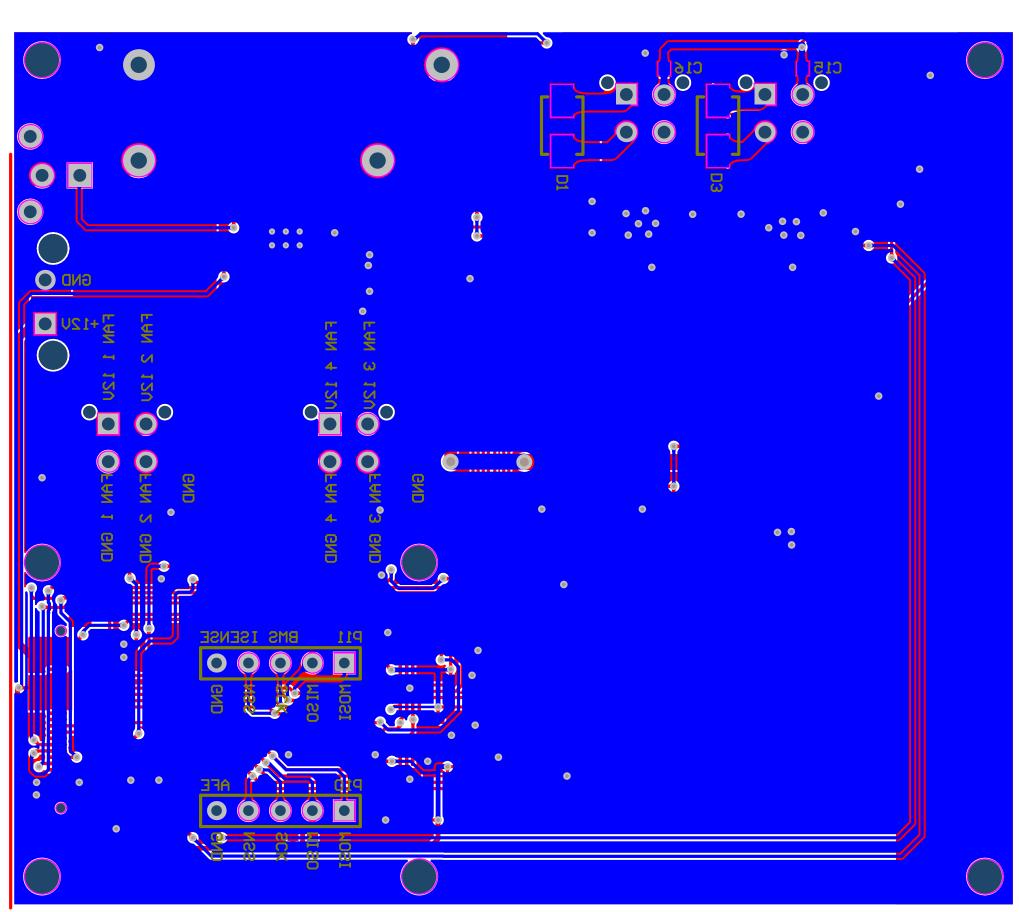


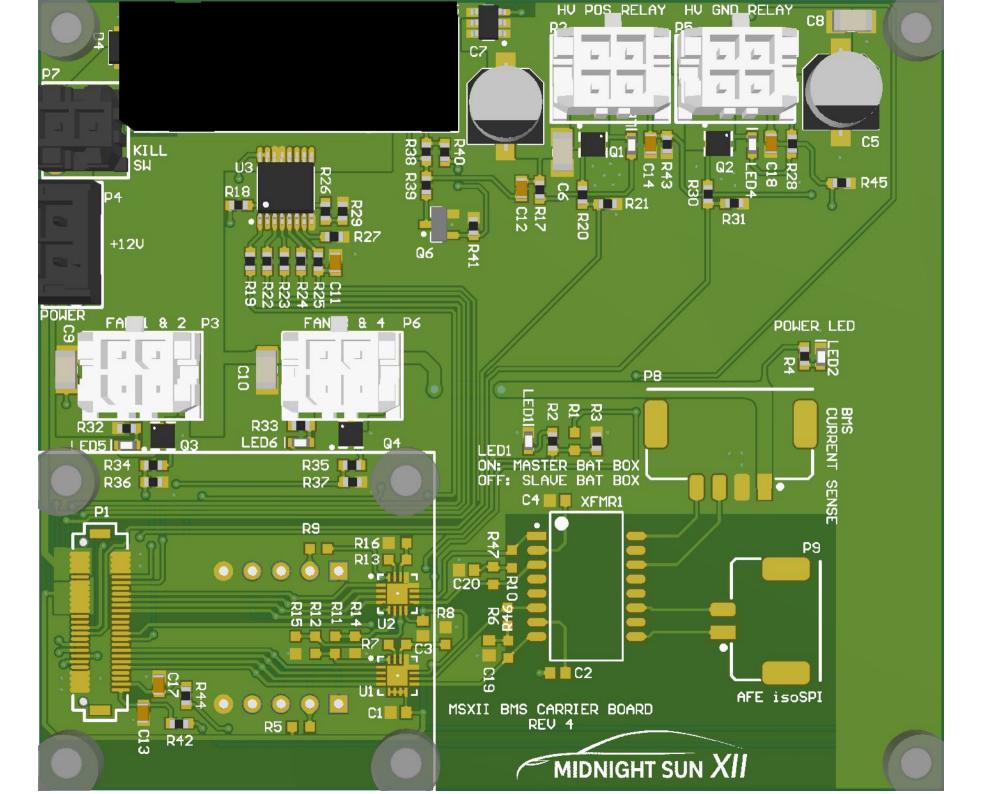
Bill of Materials					
Project:	BMS_Carrier_Board.PrjPcb				
Revision:	4.1				
Project Lead:	Aashmika Mali & Liam Haw kins				
Generated On:	2019-05-23 7:36 PM				
Production Quantity:	1				
Currency	CAD				
Total Parts Count:	70				



LibRef	Designator	Manufacturer 1	Manufacturer Part Number 1	Supplier 1	Supplier Part Number 1	Supplier Unit Price 1	Quantity	Suppli	er Subtotal 1
C AP ALUM47UF 20% 35V SMD	C5, C7	Panasonic	EEE1VA470WP	Digi-Key	PCE3961CT-ND	0.55286	2	\$	1.11
C AP CER 2.2UF 100V ±20% X7R 1206	C6, C8, C9, C10	Murata	GRM31CR72A225MA73L	Digi-Key	490-12773-1-ND		4		
C AP CER 0.1UF 50V 10% X7R 0603	C11, C13, C17	Kyocera AVX	06035C-104KAT2A	Digi-Key	478-5052-1-ND	0.21575	3	\$	0.65
CAP CER 100PF50V C0G/NP0 0603	C12	Kyocera AVX	06035A101FAT2A	Digi-Key	478-6202-1-ND	0.25621	1	\$	0.26
CAP CER 10nF 50V 5% X7R 0603	C14, C15, C16, C18	KEMET	C0603C103J5JACTU	Digi-Key	399-13384-1-ND	0.48544	4	\$	1.94
DIODE SCHOTTKY 60V 3A SMA	D1, D3	Diodes	B360A-13-F	Digi-Key	B360A-FDICT-ND	0.51241	2	\$	1.02
DIODEGENPURP100V 300MA SOD123	D4	Diodes Zetex	1N4148WQ-7-F	Digi-Key	1N4148WQ-7-FDICT-ND	0.26969	1	\$	0.27
RELAY SPST 12V 8A OMRON	K1	Omron	G6RN-1ADC12	Digi-Key	Z2346-ND	5.49	1	\$	5.49
LEDREDCLEAR 2V 0603	LED1	Wurth Electronics	150060RS75000	Digi-Key	732-4978-1-ND	0.18878	1	\$	0.19
LEDGREENCLEAR 2V 0603	LED2	Wurth Electronics	150060VS75000	Digi-Key	732-4980-1-ND	0.18878	1	\$	0.19
LEDYELLOWCLEAR 2.1V 0603	LED3, LED4, LED5, LED6	Wurth Electronics	150060YS75000	Digi-Key	732-4981-1-ND	0.18878	4	\$	0.76
CONN 50POS Bergstak Plug 0.02"	P1	Amphenol FCI	10132797-055100LF	Digi-Key	609-5226-1-ND	1.89	1	\$	1.89
CONN 4POS MICRO-FIT3mm	P2, P3, P5, P6	Molex	43045-0427	Digi-Key	WM10667-ND	1.81	4	\$	7.23
CONN 2POS ULTRA-FIT 0.138"	P4	Molex	1722861302	Digi-Key	WM11673-ND	1.97	1	\$	1.97
CONN 2POS MICRO-FIT3mm	P7	Molex	43045-0227	Digi-Key	WM10657-ND	1.13	1	\$	1.13
MOSFETN-CH 30V 8.7A 2.1W 6-PQFN (2x2)	Q1, Q2, Q3, Q4	Infineon	IRLHS6342TRPBF	Digi-Key	RLHS6342TRPBFCT-NI	0.90346	4	\$	3.61
MOSFETP-CH30V 4A 1.6W SOT-23-6	Q5	STMicroelectronics	STT4P3LLH6	Digi-Key	497-15521-1-ND	0.87649	1	\$	0.88
MOSFET N-CH 60V 310MA SOT23	Q6	Diodes	DMN65D8L-7	Digi-Key	DMN65D8L-7DICT-ND		1		
R E S 604 OHM 1% 1/10W 0603	R2	Yageo	RC0603FR-07604RL	Digi-Key	311-604HRCT-ND	0.13485	1	\$	0.13
RES 0.0 OHM1/4W 0603	R3, R40	Vishay Dale	CRCW06030000Z0EAHP	Digi-Key	541-0.0SBCT-ND	0.22924	2	\$	0.46
R ES 4.7K OHM1% 1/10W 0603	, R18, R19, R22, R23, R24, R25, R27, R28, R	Yageo Phycomp	RC0603FR-074K7L	Digi-Key	311-4.70KHRCT-ND	0.03236	12	\$	0.39
R ES 22.1 OHM1% 1/10W 0603	R20, R30, R34, R35	Yageo	RC0603FR-0722R1L	Digi-Key	311-22.1HRCT-ND	0.13485	4	\$	0.54
R ES 10K OHM1% 1/10W 0603	R21, R31, R36, R37, R41, R43, R45	Yageo Phycomp	RC0603FR-0710KL	Digi-Key	311-10.0KHRCT-ND	0.13485	7	\$	0.94
R ES 3.3K OHM1% 1/4W 0603	R26	Panasonic	ERJPA3F3301V	Digi-Key	P3.3KBYCT-ND	0.21575	1	\$	0.22
R E S 2 K O H M 1 % 1 / 1 0 W 0 6 0 3	R29	Yageo	RC0603FR-072KL	Digi-Key	311-2.00KHRCT-ND	0.13485	1	\$	0.13
R ES 200 OHM 1% 1/2W 0805	R38	Panasonic	ERJP06F2000V	Digi-Key	P16064CT-ND	0.26969	1	\$	0.27
RES1KOHM5%1/10W0603	R39, R42, R44	Yageo	RC0603JR-071KL	Digi-Key	311-1.0KGRCT-ND	0.13485	3	\$	0.40
ICHSD Dual-Channel 40V 1KOhm	U3	Texas Instruments	TPS2H000BQPWPRQ1	Digi-Key	PS2H000BQPWPRQ1-N	D	1		
		<u> </u>					Total:	\$	32.06







## **Electrical Rules Check Report**

Class	Document	Message
Warning	BMS Carrier - Firmware Contactor	Global Power-Object 3V3 at 2600mil,5100milhas been reduced to local level by presence of
_	Control.SchDoc	port at 2800mil,4500mil
Warning	Controller_Board_Interface.SchDoc	Net 3V3 has no driving source (Pin C1-1,Pin C3-1,Pin C15-1,Pin C16-1,Pin P1-40,Pin
		P1-41,Pin P1-42,Pin P1-43,Pin P1-44,Pin P1-45,Pin P2-3,Pin P5-3,Pin R1-1,Pin R5-1,Pin
		R9-1,Pin R11-1,Pin R12-1,Pin R18-2,Pin U1-5,Pin U1-6,Pin U1-7,Pin U1-8,Pin U1-11,Pin
Error	BMS Carrier - Connectors.SchDoc	U1.16 Pin U2.5 Pin U2.8 Pin U2.11 Pin U2.16) Net 12V_CONTACTOR_COIL_SW contains multiple Input Ports (Port
		12V CONTACTOR COIL SW.Port 12V CONTACTOR COIL SW)
Error	BMS Carrier - Battery Relay	Net 12V_CONTACTOR_COIL_SW contains multiple Input Ports (Port
	Controls.SchDoc	12V_CONTACTOR_COIL_SW,Port 12V_CONTACTOR_COIL_SW,Port
		HV_GND_RELAY_12V_SW,Port HV_PWR_RELAY_12V_SW)
Error	BMS Carrier - Battery Relay	Net 12V_CONTACTOR_COIL_SW contains multiple Input Ports (Port
	Controls.SchDoc	HV_GND_RELAY_12V_SW,Port HV_PWR_RELAY_12V_SW)
Error	BMS Carrier - Battery Relay	Net NetD1_1 contains multiple Input Ports (Port HV_PWR_RELAY_GND,Port
	Controls.SchDoc	HV PWR RELAY GND)
Error	BMS Carrier - Battery Relay	Net NetD3_1 contains multiple Input Ports (Port HV_GND_RELAY_GND,Port
	Controls.SchDoc	HV_GND_RELAY_GND)
Error	BMS Carrier - Fan Controls.SchDoc	Net NetLED5_2 contains multiple Input Ports (Port FAN_1_GND,Port FAN_1_GND)
Error	BMS Carrier - Fan Controls.SchDoc	Net NetLED6_2 contains multiple Input Ports (Port FAN_2_GND,Port FAN_2_GND)
Error	BMS Carrier - Fan Controls.SchDoc	Net PA9_FAN_2_PWM contains multiple Input Ports (Port PA9_FAN_2_PWM,Port
		PA9 FAN 2 PWM)
Error	BMS Carrier - Fan Controls.SchDoc	Net PA10_FAN_1_PWM contains multiple Input Ports (Port PA10_FAN_1_PWM,Port
10.	0 1 11 12 11 1 1 1 1 1	PA10 FAN 1 PWM)
Warning	Controller_Board_Interface.SchDoc	Net PB0_MOSFET_SOFT_START_INPUT has no driving source (Pin P1-17)
Error	BMS Carrier - AFE Interface.SchDoc	Net PB0_MOSFET_SOFT_START_INPUT has only one pin (Pin P1-17)
Warning	BMS Carrier - Battery Relay	Unconnected line (4850mil,2100mil) To (4950mil,2100mil)
	Controls.SchDoc	

**Design Rules Verification Report**Filename : C:\Users\Liam\Documents\UWaterloo\Midnight Sun\Hardware Repository\hardwar

Warnings 0 Rule Violations 99

## Warnings Total 0

Rule Violations	
Clearance Constraint (Gap=0.152mm) (All),(All)	0
7 1 77 17 1	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=0.203mm) (Max=2.54mm) (Preferred=0.203mm) (All)	0
Power Plane Connect Rule(Direct Connect )(Expansion=0.508mm) (Conductor Width=0.254mm) (Air Gap=0.254mm)	0
Hole Size Constraint (Min=0.025mm) (Max=5.08mm) (All)	0
Hole To Hole Clearance (Gap=0.254mm) (All),(All)	0
Minimum Solder Mask Sliver (Gap=0.254mm) (All),(All)	99
Silk To Solder Mask (Clearance=0.254mm) (Disabled)(IsPad),(All)	0
Silk to Silk (Clearance=0.254mm) (Disabled)(All),(All)	0
Net Antennae (Tolerance=0mm) (All)	0
Height Constraint (Min=0mm) (Max=25.4mm) (Prefered=12.7mm) (All)	0
Total	99

Minimum Solder Mask Sliver (Gap=0.254mm) (All),(All)
Minimum Solder Mask Sliver Constraint: (0.244mm < 0.254mm) Between Pad C13-1(9.324mm, 7.675mm) on Top Layer And Pad C17-1(10.7mm, 8.825mm)
Minimum Solder Mask Sliver Constraint: (0.254mm) Between Pad P1-(4mm, 22.05mm) on Multi-Layer And Pad P1-(5.5mm, 22.8mm) on Top
Minimum Solder Mask Sliver Constraint: (0.105mm < 0.254mm) 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 < 0.254mm) Between Pad Q1-1(48.025mm,57.8mm) on Top Layer And Pad Q1-2(48.025mm,57.15mm)
Minimum Solder Mask Sliver Constraint: (0.047mm < 0.254mm) Between Pad Q1-2(48.025mm,57.15mm) on Top Layer And Pad Q1-3(48.025mm,56.5mm)
Minimum Solder Mask Sliver Constraint: (0.047mm < 0.254mm) Between Pad Q1-3(48.025mm,56.5mm) on Top Layer And Pad Q1-7(48.95mm,57.45mm)
Minimum Solder Mask Sliver Constraint: (0.202mm < 0.254mm) Between Pad Q1-3(48.025mm,56.5mm) on Top Layer And Pad Q1-8(48.95mm,56.41mm)
Minimum Solder Mask Sliver Constraint: (0.2021film < 0.254film) Between Pad Q1-5(49.875mm,56.5mm) on Top Layer And Pad Q1-5(49.875mm,57.15mm)  Minimum Solder Mask Sliver Constraint: (0.047mm < 0.254mm) Between Pad Q1-4(49.875mm,56.5mm) on Top Layer And Pad Q1-5(49.875mm,57.15mm)
Minimum Solder Mask Sliver Constraint: (0.047mm < 0.254mm) Between Pad Q1-4(49.875mm,56.5mm) on Top Layer And Pad Q1-7(48.95mm,57.45mm)  Minimum Solder Mask Sliver Constraint: (0.047mm < 0.254mm) Between Pad Q1-4(49.875mm,56.5mm) on Top Layer And Pad Q1-7(48.95mm,57.45mm)
Minimum Solder Mask Sliver Constraint: (0.202mm < 0.254mm) Between Pad Q1-4(49.875mm,56.5mm) on Top Layer And Pad Q1-8(48.95mm,56.41mm)  Minimum Solder Mask Sliver Constraint: (0.202mm < 0.254mm) Between Pad Q1-4(49.875mm,56.5mm) on Top Layer And Pad Q1-8(48.95mm,56.41mm)
Minimum Solder Mask Sliver Constraint: (0.047mm < 0.254mm) Between Pad Q1-5(49.875mm,57.15mm) on Top Layer And Pad Q1-6(49.875mm,57.8mm)
Minimum Solder Mask Sliver Constraint: (0.187mm < 0.254mm) Between Pad Q1-7(48.95mm,57.45mm) on Top Layer And Pad Q1-8(48.95mm,56.41mm)
Minimum Solder Mask Sliver Constraint: (0.047mm < 0.254mm) Between Pad Q2-1(59.075mm,57.884mm) on Top Layer And Pad
Minimum Solder Mask Sliver Constraint: (0.047mm < 0.254mm) Between Pad Q2-2(59.075mm,57.234mm) on Top Layer And Pad
Minimum Solder Mask Sliver Constraint: (0.047mm < 0.254mm) Between Pad Q2-3(59.075mm,56.584mm) on Top Layer And Pad Q2-7(60mm,57.534mm)
Minimum Solder Mask Sliver Constraint: (0.202mm < 0.254mm) Between Pad Q2-3(59.075mm,56.584mm) on Top Layer And Pad Q2-8(60mm,56.494mm)
Minimum Solder Mask Sliver Constraint: (0.047mm < 0.254mm) Between Pad Q2-4(60.925mm,56.584mm) on Top Layer And Pad
Minimum Solder Mask Sliver Constraint: (0.047mm < 0.254mm) Between Pad Q2-4(60.925mm,56.584mm) on Top Layer And Pad Q2-7(60mm,57.534mm)
Minimum Solder Mask Sliver Constraint: (0.202mm < 0.254mm) Between Pad Q2-4(60.925mm,56.584mm) on Top Layer And Pad Q2-8(60mm,56.494mm)
Minimum Solder Mask Sliver Constraint: (0.047mm < 0.254mm) Between Pad Q2-5(60.925mm,57.234mm) on Top Layer And Pad
Minimum Solder Mask Sliver Constraint: (0.187mm < 0.254mm) Between Pad Q2-7(60mm,57.534mm) on Top Layer And Pad Q2-8(60mm,56.494mm) on
Minimum Solder Mask Sliver Constraint: (0.047mm < 0.254mm) Between Pad Q3-1(10.4mm,30.525mm) on Top Layer And Pad Q3-2(11.05mm,30.525mm)
Minimum Solder Mask Sliver Constraint: (0.047mm < 0.254mm) Between Pad Q3-2(11.05mm,30.525mm) on Top Layer And Pad Q3-3(11.7mm,30.525mm)
Minimum Solder Mask Sliver Constraint: (0.047mm < 0.254mm) Between Pad Q3-3(11.7mm,30.525mm) on Top Layer And Pad Q3-7(10.75mm,31.45mm)
Minimum Solder Mask Sliver Constraint: (0.202mm < 0.254mm) Between Pad Q3-3(11.7mm,30.525mm) on Top Layer And Pad Q3-8(11.79mm,31.45mm)
Minimum Solder Mask Sliver Constraint: (0.047mm < 0.254mm) Between Pad Q3-4(11.7mm,32.375mm) on Top Layer And Pad Q3-5(11.05mm,32.375mm)
Minimum Solder Mask Sliver Constraint: (0.047mm < 0.254mm) Between Pad Q3-4(11.7mm,32.375mm) on Top Layer And Pad Q3-7(10.75mm,31.45mm)
Minimum Solder Mask Sliver Constraint: (0.202mm < 0.254mm) Between Pad Q3-4(11.7mm,32.375mm) on Top Layer And Pad Q3-8(11.79mm,31.45mm)
Minimum Solder Mask Sliver Constraint: (0.047mm < 0.254mm) Between Pad Q3-5(11.05mm,32.375mm) on Top Layer And Pad Q3-6(10.4mm,32.375mm)
Minimum Solder Mask Sliver Constraint: (0.187mm < 0.254mm) Between Pad Q3-7(10.75mm,31.45mm) on Top Layer And Pad Q3-8(11.79mm,31.45mm)
Minimum Solder Mask Sliver Constraint: (0.047mm < 0.254mm) Between Pad Q4-1(26.975mm,30.695mm) on Top Layer And Pad
Minimum Solder Mask Sliver Constraint: (0.047mm < 0.254mm) Between Pad Q4-2(27.625mm,30.695mm) on Top Layer And Pad
Minimum Solder Mask Sliver Constraint: (0.047mm < 0.254mm) Between Pad Q4-3(28.275mm,30.695mm) on Top Layer And Pad
Minimum Solder Mask Sliver Constraint: (0.202mm < 0.254mm) Between Pad Q4-3(28.275mm,30.695mm) on Top Layer And Pad
Minimum Solder Mask Sliver Constraint: (0.047mm < 0.254mm) Between Pad Q4-4(28.275mm,32.545mm) on Top Layer And Pad
Minimum Solder Mask Sliver Constraint: (0.047mm < 0.254mm) Between Pad Q4-4(28.275mm, 32.545mm) on Top Layer And Pad
Minimum Solder Mask Sliver Constraint: (0.202mm < 0.254mm) Between Pad Q4-4(28.275mm, 32.545mm) on Top Layer And Pad
Minimum Solder Mask Sliver Constraint: (0.047mm < 0.254mm) Between Pad Q4-5(27.625mm, 32.545mm) on Top Layer And Pad
Minimum Solder Mask Sliver Constraint: (0.187mm < 0.254mm) Between Pad Q4-7(27.325mm,31.62mm) on Top Layer And Pad
Minimum Solder Mask Sliver Constraint: (0.198mm < 0.254mm) Between Pad Q5-1(41.115mm,66.966mm) on Top Layer And Pad
Minimum Solder Mask Sliver Constraint: (0.198mm < 0.254mm) Between Pad Q5-2(41.115mm,67.916mm) on Top Layer And Pad
Minimum Solder Mask Sliver Constraint: (0.198mm < 0.254mm) Between Pad Q5-4(38.385mm,68.866mm) on Top Layer And Pad
Minimum Solder Mask Sliver Constraint: (0.198mm < 0.254mm) Between Pad Q5-5(38.385mm,67.916mm) on Top Layer And Pad
Minimum Solder Mask Sliver Constraint: (0.022mm < 0.254mm) Between Pad U1-1(30.325mm,11mm) on Top Layer And Pad U1-17(31.75mm,10.25mm)
Minimum Solder Mask Sliver Constraint: (0.047mm < 0.254mm) Between Pad U1-1(30.325mm,11mm) on Top Layer And Pad U1-2(30.325mm,10.5mm) on
Minimum Solder Mask Sliver Constraint: (0.047mm < 0.254mm) Between Pad U1-10(33.175mm,10mm) on Top Layer And Pad U1-11(33.175mm,10.5mm)
Minimum Solder Mask Sliver Constraint: (0.022mm < 0.254mm) Between Pad U1-10(33.175mm,10mm) on Top Layer And Pad U1-17(31.75mm,10.25mm)
Minimum Solder Mask Sliver Constraint: (0.047mm < 0.254mm) Between Pad U1-10(33.175mm,10mm) on Top Layer And Pad U1-9(33.175mm,9.5mm) on
Minimum Solder Mask Sliver Constraint: (0.047mm < 0.254mm) Between Pad U1-11(33.175mm,10.5mm) on Top Layer And Pad U1-12(33.175mm,11mm)
Minimum Solder Mask Sliver Constraint: (0.022mm < 0.254mm) Between Pad U1-11(33.175mm,10.5mm) on Top Layer And Pad
Minimum Solder Mask Sliver Constraint: (0.022mm < 0.254mm) Between Pad U1-12(33.175mm,11mm) on Top Layer And Pad U1-17(31.75mm,10.25mm)
Minimum Solder Mask Sliver Constraint: (0.047mm < 0.254mm) Between Pad U1-13(32.5mm,11.675mm) on Top Layer And Pad U1-14(32mm,11.675mm)
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Thursday 23 May 2019 7:36:17 PN: Page 2 of 3

Minimum Solder Mask Sliver (Gap=0.254mm) (All),(All)
Minimum Solder Mask Sliver Constraint: (0.022mm < 0.254mm) Between Pad U1-13(32.5mm,11.675mm) on Top Layer And Pad
Minimum Solder Mask Sliver Constraint: (0.047mm < 0.254mm) Between Pad U1-14(32mm,11.675mm) on Top Layer And Pad U1-15(31.5mm,11.675mm)
Minimum Solder Mask Sliver Constraint: (0.022mm < 0.254mm) Between Pad U1-14(32mm,11.675mm) on Top Layer And Pad U1-17(31.75mm,10.25mm)
Minimum Solder Mask Sliver Constraint: (0.047mm < 0.254mm) Between Pad U1-15(31.5mm, 11.675mm) on Top Layer And Pad U1-16(31mm, 11.675mm)
Minimum Solder Mask Sliver Constraint: (0.022mm < 0.254mm) Between Pad U1-15(31.5mm, 11.675mm) on Top Layer And Pad
Minimum Solder Mask Sliver Constraint: (0.022mm < 0.254mm) Between Pad U1-16(31mm,11.675mm) on Top Layer And Pad U1-17(31.75mm,10.25mm)
Minimum Solder Mask Sliver Constraint: (0.022mm < 0.254mm) Between Pad U1-17(31.75mm,10.25mm) on Top Layer And Pad U1-2(30.325mm,10.5mm)
Minimum Solder Mask Sliver Constraint: (0.022mm < 0.254mm) Between Pad U1-17(31.75mm,10.25mm) on Top Layer And Pad U1-3(30.325mm,10mm)
Minimum Solder Mask Sliver Constraint: (0.022mm < 0.254mm) Between Pad U1-17(31.75mm,10.25mm) on Top Layer And Pad U1-4(30.325mm,9.5mm)
Minimum Solder Mask Sliver Constraint: (0.022mm < 0.254mm) Between Pad U1-17(31.75mm,10.25mm) on Top Layer And Pad U1-5(31mm,8.825mm) on
Minimum Solder Mask Sliver Constraint: (0.022mm < 0.254mm) Between Pad U1-17(31.75mm,10.25mm) on Top Layer And Pad U1-6(31.5mm,8.825mm)
Minimum Solder Mask Sliver Constraint: (0.022mm < 0.254mm) Between Pad U1-17(31.75mm,10.25mm) on Top Layer And Pad U1-7(32mm,8.825mm) on
Minimum Solder Mask Sliver Constraint: (0.022mm < 0.254mm) Between Pad U1-17(31.75mm,10.25mm) on Top Layer And Pad U1-8(32.5mm,8.825mm)
Minimum Solder Mask Sliver Constraint: (0.022mm < 0.254mm) Between Pad U1-17(31.75mm,10.25mm) on Top Layer And Pad U1-9(33.175mm,9.5mm)
Minimum Solder Mask Sliver Constraint: (0.047mm < 0.254mm) Between Pad U1-2(30.325mm,10.5mm) on Top Layer And Pad U1-3(30.325mm,10mm) on
Minimum Solder Mask Sliver Constraint: (0.047mm < 0.254mm) Between Pad U1-3(30.325mm,10mm) on Top Layer And Pad U1-4(30.325mm,9.5mm) on
Minimum Solder Mask Sliver Constraint: (0.047mm < 0.254mm) Between Pad U1-5(31mm,8.825mm) on Top Layer And Pad U1-6(31.5mm,8.825mm) on
Minimum Solder Mask Sliver Constraint: (0.047mm < 0.254mm) Between Pad U1-6(31.5mm,8.825mm) on Top Layer And Pad U1-7(32mm,8.825mm) on
Minimum Solder Mask Sliver Constraint: (0.047mm < 0.254mm) Between Pad U1-7(32mm,8.825mm) on Top Layer And Pad U1-8(32.5mm,8.825mm) on
Minimum Solder Mask Sliver Constraint: (0.022mm < 0.254mm) Between Pad U2-1(30.325mm,18.25mm) on Top Layer And Pad U2-17(31.75mm,17.5mm)
Minimum Solder Mask Sliver Constraint: (0.047mm < 0.254mm) Between Pad U2-1(30.325mm,18.25mm) on Top Layer And Pad
Minimum Solder Mask Sliver Constraint: (0.047mm < 0.254mm) Between Pad U2-10(33.175mm,17.25mm) on Top Layer And Pad
Minimum Solder Mask Sliver Constraint: (0.022mm < 0.254mm) Between Pad U2-10(33.175mm,17.25mm) on Top Layer And Pad
Minimum Solder Mask Sliver Constraint: (0.047mm < 0.254mm) Between Pad U2-10(33.175mm,17.25mm) on Top Layer And Pad
Minimum Solder Mask Sliver Constraint: (0.047mm < 0.254mm) Between Pad U2-11(33.175mm,17.75mm) on Top Layer And Pad
Minimum Solder Mask Sliver Constraint: (0.022mm < 0.254mm) Between Pad U2-11(33.175mm,17.75mm) on Top Layer And Pad
Minimum Solder Mask Sliver Constraint: (0.022mm < 0.254mm) Between Pad U2-12(33.175mm,18.25mm) on Top Layer And Pad
Minimum Solder Mask Sliver Constraint: (0.047mm < 0.254mm) Between Pad U2-13(32.5mm, 18.925mm) on Top Layer And Pad U2-14(32mm, 18.925mm)
Minimum Solder Mask Sliver Constraint: (0.022mm < 0.254mm) Between Pad U2-13(32.5mm, 18.925mm) on Top Layer And Pad U2-17(31.75mm, 17.5mm)
Minimum Solder Mask Sliver Constraint: (0.047mm < 0.254mm) Between Pad U2-14(32mm,18.925mm) on Top Layer And Pad U2-15(31.5mm,18.925mm)
Minimum Solder Mask Sliver Constraint: (0.022mm < 0.254mm) Between Pad U2-14(32mm,18.925mm) on Top Layer And Pad U2-17(31.75mm,17.5mm)
Minimum Solder Mask Sliver Constraint: (0.047mm < 0.254mm) Between Pad U2-15(31.5mm, 18.925mm) on Top Layer And Pad U2-16(31mm, 18.925mm)
Minimum Solder Mask Sliver Constraint: (0.022mm < 0.254mm) Between Pad U2-15(31.5mm, 18.925mm) on Top Layer And Pad U2-17(31.75mm, 17.5mm)
Minimum Solder Mask Sliver Constraint: (0.022mm < 0.254mm) Between Pad U2-16(31mm,18.925mm) on Top Layer And Pad U2-17(31.75mm,17.5mm)
Minimum Solder Mask Sliver Constraint: (0.022mm < 0.254mm) Between Pad U2-17(31.75mm,17.5mm) on Top Layer And Pad U2-2(30.325mm,17.75mm)
Minimum Solder Mask Sliver Constraint: (0.022mm < 0.254mm) Between Pad U2-17(31.75mm,17.5mm) on Top Layer And Pad U2-3(30.325mm,17.25mm)
Minimum Solder Mask Sliver Constraint: (0.022mm < 0.254mm) Between Pad U2-17(31.75mm,17.5mm) on Top Layer And Pad U2-4(30.325mm,16.75mm)
Minimum Solder Mask Sliver Constraint: (0.022mm < 0.254mm) Between Pad U2-17(31.75mm,17.5mm) on Top Layer And Pad U2-5(31mm,16.075mm) on
Minimum Solder Mask Sliver Constraint: (0.022mm < 0.254mm) Between Pad U2-17(31.75mm,17.5mm) on Top Layer And Pad U2-6(31.5mm,16.075mm)
Minimum Solder Mask Sliver Constraint: (0.022mm < 0.254mm) Between Pad U2-17(31.75mm,17.5mm) on Top Layer And Pad U2-7(32mm,16.075mm) on
Minimum Solder Mask Sliver Constraint: (0.022mm < 0.254mm) Between Pad U2-17(31.75mm,17.5mm) on Top Layer And Pad U2-8(32.5mm,16.075mm)
Minimum Solder Mask Sliver Constraint: (0.022mm < 0.254mm) Between Pad U2-17(31.75mm,17.5mm) on Top Layer And Pad U2-9(33.175mm,16.75mm)
Minimum Solder Mask Sliver Constraint: (0.047mm < 0.254mm) Between Pad U2-2(30.325mm,17.75mm) on Top Layer And Pad
Minimum Solder Mask Sliver Constraint: (0.047mm < 0.254mm) Between Pad U2-3(30.325mm,17.25mm) on Top Layer And Pad
Minimum Solder Mask Sliver Constraint: (0.047mm < 0.254mm) Between Pad U2-5(31mm, 16.075mm) on Top Layer And Pad U2-6(31.5mm, 16.075mm) on
Minimum Solder Mask Sliver Constraint: (0.047mm < 0.254mm) Between Pad U2-6(31.5mm,16.075mm) on Top Layer And Pad U2-7(32mm,16.075mm) on Minimum Solder Mask Sliver Constraint: (0.047mm < 0.254mm) Between Pad U2-7(32mm,16.075mm) on Top Layer And Pad U2-8(32.5mm,16.075mm) on
ENTIRIBITION SOLUCI INTERNATION CONSTRAINT: (U.U47111111 < U.254111111) Between Pau U2-7(3211111, 10.U7511111) ON TOP Layer And Pau U2-8(32.5mm, 16.U75mm) On

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