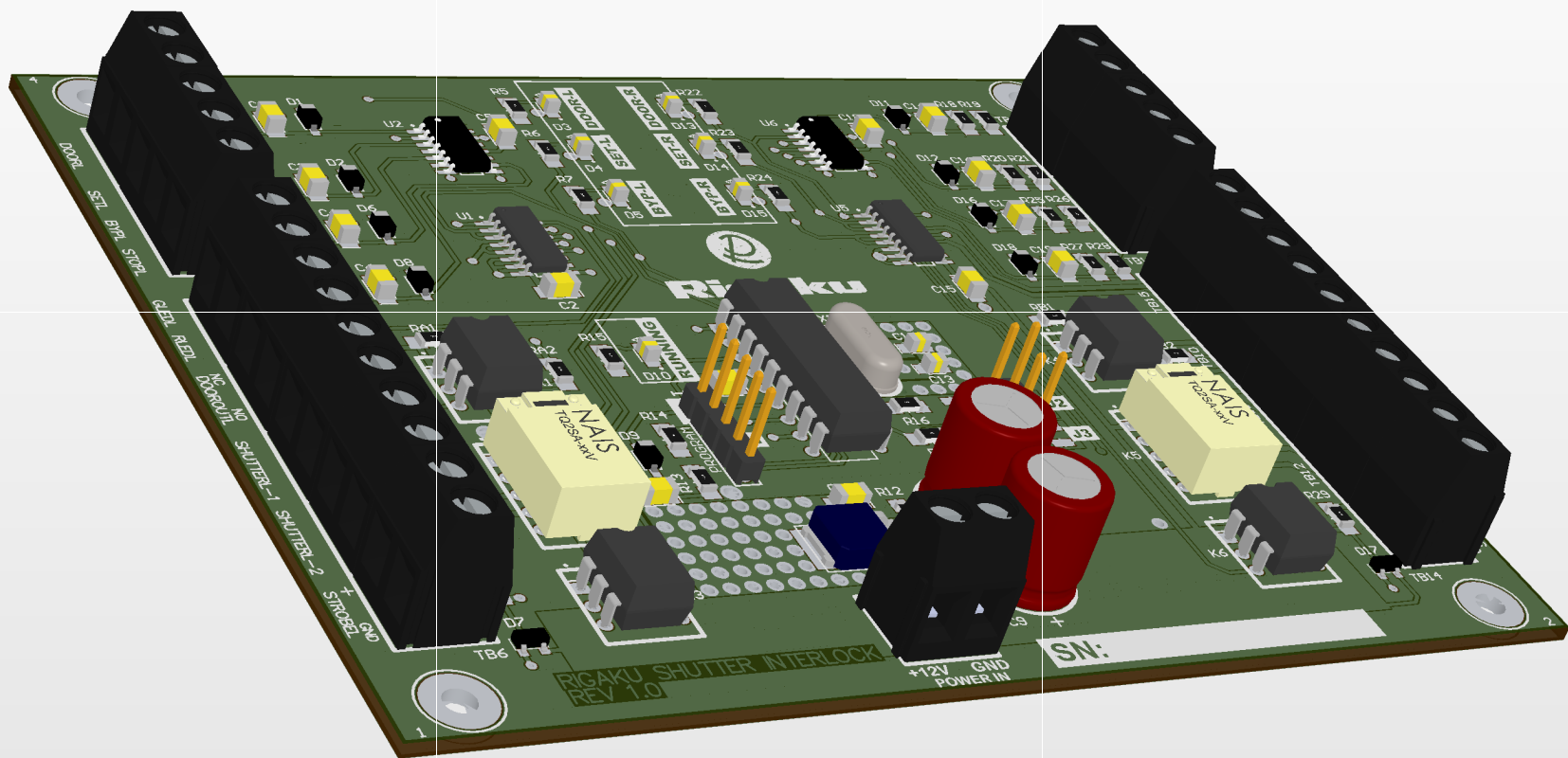
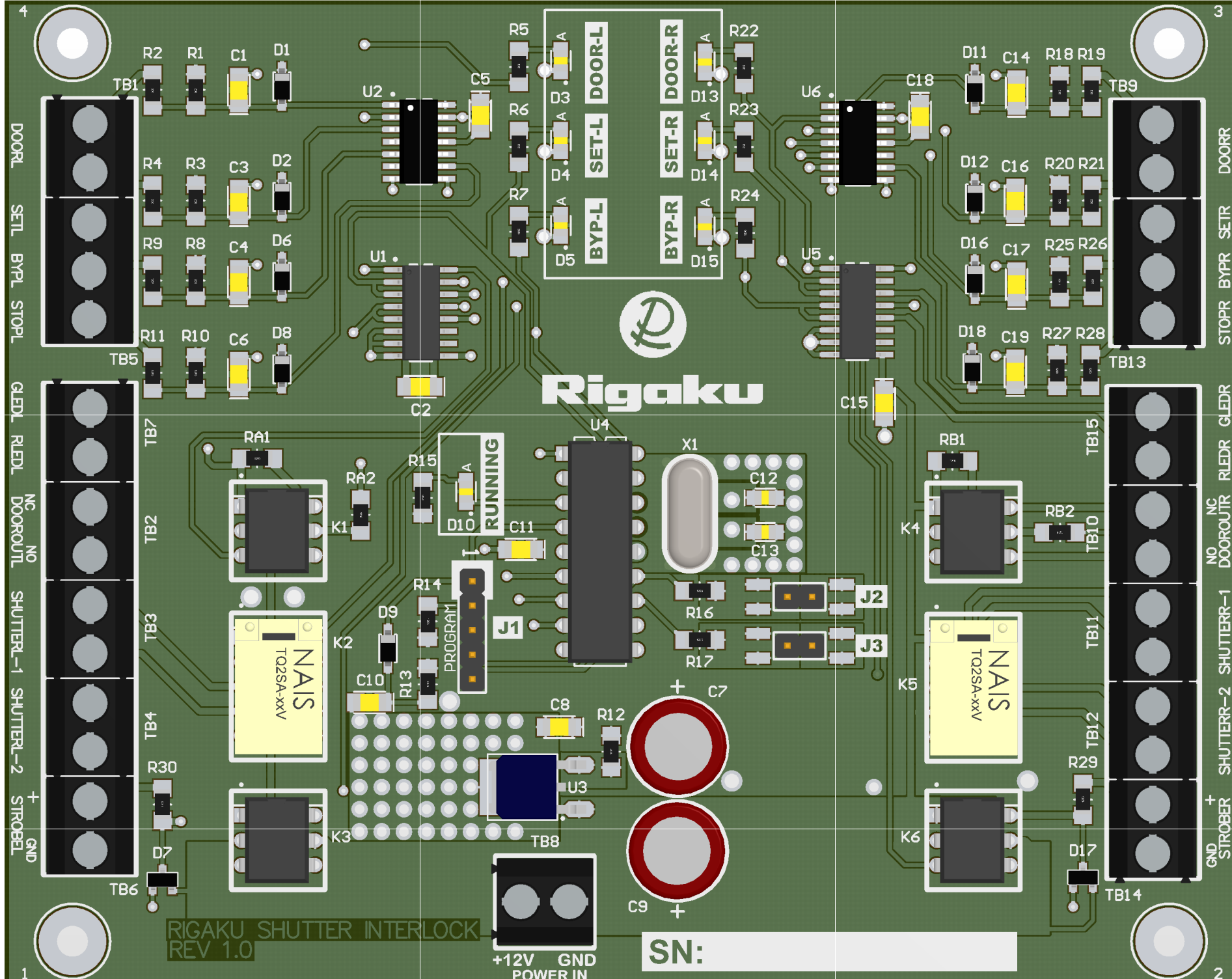


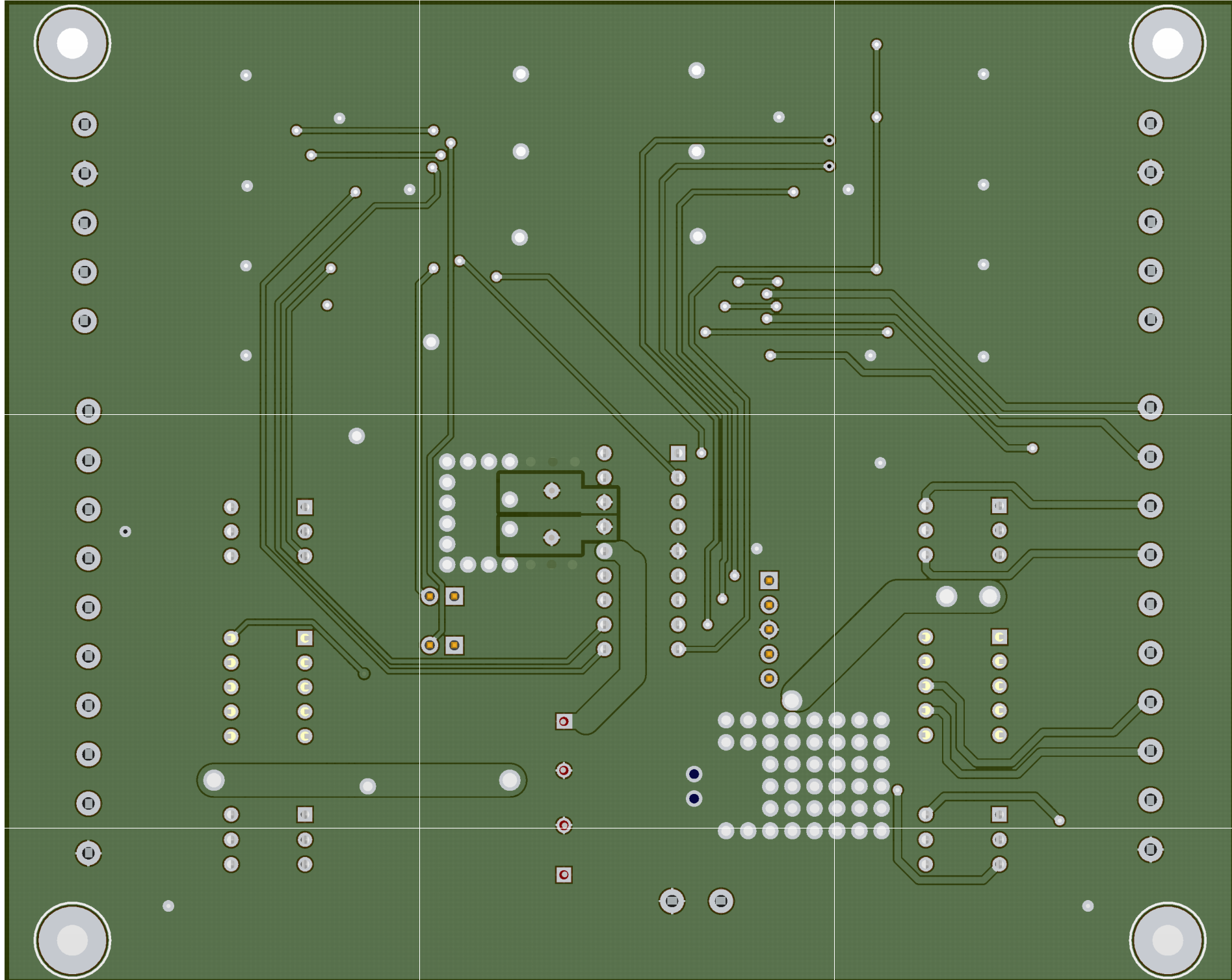




RIGAKU SHUTTER INTERLOCK
REV 1.0

+12V GND
POWER IN

SN:



1. SOLDER: Sn 96.5 - Ag 3.5
2. SPRAY CTSR-12 CONFORMAL-COAT TOP & BOTTOM
PRIOR TO MOUNTING PCBA
THICKNESS = 0.05-0.21 mm [0.00197-0.00827 in]

Layer Stack Up Detail for: LETTER 4 - LAYER.PcbDoc				
Layer Name	Berber Document	Copper Thickness	Dielectric Material	Dielectric Type
Top Solder Mask	(.GTS)		Solder Resist	
Top Layer	(.GTL)	2.8mil		
Mid-Layer 1	(.G1)	1.4mil	POLYIMIDE (IPC 4101/41)	PrePreg
Mid-Layer 2	(.G2)	1.4mil	POLYIMIDE (IPC 4101/41)	Core
Bottom Layer	(.GBL)	2.8mil	POLYIMIDE (IPC 4101/41)	PrePreg
Bottom Solder Mask	(.GBS)		Solder Resist	

1. MATERIAL: POLYIMIDE WOVEN E-GLASS (IPC 4101/41)
2. COPPER: 2 OZ EXTERNAL, 1 OZ INTERNAL
Copper foils are all 1 ounce with the outer layers plated up to 2 oz.

4. PCB THICKNESS: .062 IN +/- 10%
5. HOLE TOLERANCE: +/- 5 MILS
6. SOLDER MASK COLOR: RED
7. SILKSCREEN COLOR: WHITE
8. INSPECTION STANDARDS: IPC-6012 CLASS 3

X DEGREE = +/- 1 DEGREE

G1, G2, etc	Mid-layer 1, 2, etc
GB1	Bottom Layer
GB0	Bottom Overlay
GBP	Bottom Paste Mask
GBS	Bottom Solder Mask
GD1, GD2, etc	Drill Drawing
GG1, GG2, etc	Drill Guide
GKO	Keep Out Layer (PCB OUTLINE)
GM1, GM2, etc	Mechanical Layer 1, 2, etc
GP1, GP2, etc	Internal Plane Layer 1, 2, etc
GPA	Pad Master Top
GPT	Pad Master Bottom
GTL	Top Layer
GTO	Top Overlay
GTP	Top Paste Mask
GTS	Top Solder Mask
GP01, GP2, etc	Gerber Panels
APR	Aperture File (RS274X)
APT	Aperture File (RS274X not used)
DRR	DRILL REPORT
DRL	DRILL FILE (BINARY)



01	NA	ORIGINAL	MM/DD/YYYY
REV	ECO	PURPOSE	DATE

Do not disclose, use, or reproduce without written approval from:

Christipher Barnes
103 Prairie Dawn Cir
The Woodlands, TX 77385

PCB, FUNCTION

8.5XII

ALTUM DESIGNER VERSION:
9.4.0.20159

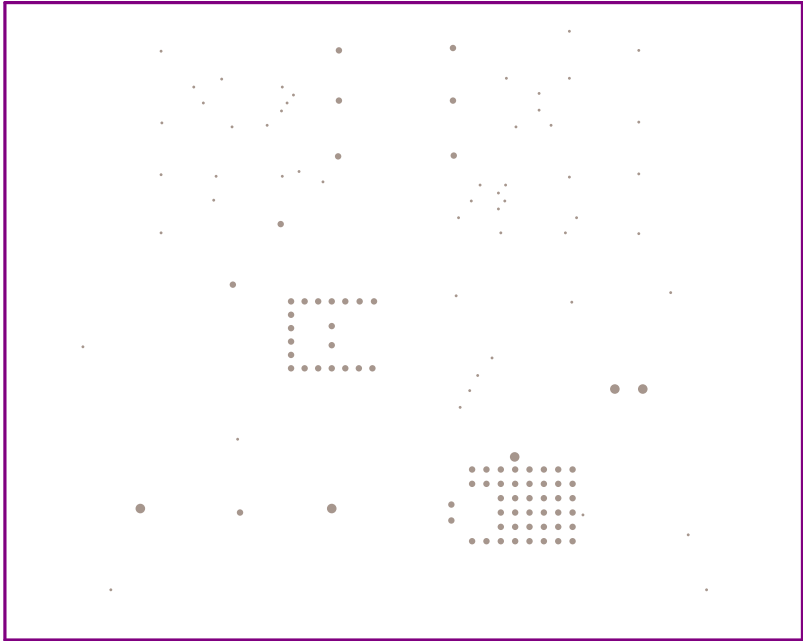
PRINTED:
1/29/2011

6:54:42 AM

PRINT SCALE:
SCALE: 1.00

CHRIS.BARNES@TERRAVICI.COM
713-975-4220

- PCBA ASSEMBLY NOTES:
- 1. SOLDER: Sn 96.5 - Ag 3.5
 - 2. SPRAY CTSR-12 CONFORMAL-COAT TOP & BOTTOM PRIOR TO MOUNTING PCBA
THICKNESS = 0.05-0.21 mm [0.00197-0.00827 in]
 - 3. DO NOT INSTALL COMPONENTS CROSSED OUT WITH A BRIGHT GREEN "X" (THEY ARE ALSO EXCLUDED FROM THE BOM)
 - 4. ASSEMBLY STANDARDS: IPC-A-610D



*** Mechanical 6 is used for Bottom Assembly notes

	PRINT: Bottom Assembly Drawing	FILE NAME: ETS Shutter Interlock.PcbDoc
PRINT SCALE: SCALE: 1.00	PRINTED: 1/29/2011 6:54:43 AM	ALTUM DESIGNER VERSION: 9.4.0.20159

Bill of Materials

PCBA, SHUTTER INTERLOCK

Source Data From: ETS Shutter Interlock.PrjPcb

Project: ETS Shutter Interlock.PrjPcb

Variant: Rev 1 of Shutter Interlock

Christipher Barnes
103 PRAIRIE DAWN CIR
THE WOODLANDS, TX 77385

Creation Date: 1/29/2011 6:55:11 AM
Print Date: 29-Jan-11 6:55:32 AM
Engineer: Abcde Fghijklm
PCB Designer: Chris Barnes

	Designator	Quantity	Manufacturer	Manufacturer Part Number	Description 1	SheetNumber	Comment	Footprint
1	D1, D2, D6, D8, D9, D11, D12, D16, D18	9	DIODES INC.	1N4148W-7-F	DIODES INC. - 1N4148W-7-F - DIODE, SWITCH, 100V, 0.4W, SOD123	3, 5, 6		SOD123_PAT
2	J2, J3	2	CTS Electrocomponents	204-212ST	SWITCH DIP DPST 2POS SMT	4		1X2 TH HEADER
3	J1	1	SAMTEC	SL-106-T-12	SAMTEC - SL-106-T-12 - BOARD-BOARD CONNECTOR SOCKET, 6WAY, 1ROW	3		1X5 TH HEADER
4	D7, D17	2	Diodes Inc	BAV199-7-F	DIODE SWITCH DUAL 85V SOT23-3	5, 6		SOT-23
5	C12, C13	2	KEMET	C0805C120J5GACTU	KEMET - C0805C120J5GACTU - CAPACITOR CERAMIC 12PF, 50V, C0G, 0805	4		CC0805
6	C1, C2, C3, C4, C5, C6, C8, C10, C11, C14, C15, C16, C17, C18, C19	15	KEMET	C1206C104J5RACTU	KEMET - C1206C104J5RACTU - CAPACITOR CERAMIC 0.1UF, 50V, X7R, 1206	2, 3, 4, 5, 6		C1206
7	C7, C9	2	Panasonic - ECG	EEU-FC1H101	CAP 100UF 50V ELECT FC RADIAL	2		CAP200RP_CAP200RP(PRIMARY)
8	X1	1	Citizen Finetech Miyota	HC49US-4.000MABJ-UB	CRYSTAL 4.000 MHZ 18PF HC49/US	4		HCM49 XTAL
9	D3, D4, D5, D10, D13, D14, D15	7	Kingbright Corp	APHCM2012SYCK-F01	LED 2X1.25MM LOPRO 590NM YLW SMD	4, 5, 6		D-0805 - LED
10	U3	1	ON Semiconductor	MC78M05CDTG	IC REG LDO 500MA 5V DPAK-3	2		DPAK
11	TB1, TB2, TB3, TB4, TB6, TB7, TB8, TB9, TB10, TB11, TB12, TB14, TB15	13	Weidmuller	1716020000	CONN TERM BLOCK PCB 5.08MM 2POS	2, 5, 6		MKDS5.08X2
12	TB5, TB13	2	Weidmuller	1716030000	CONN TERM BLOCK PCB 5.08MM 3POS	5, 6		MKDS5.08X3
13	U4	1	Microchip Technology	PIC16F648A-I/P	IC MCU FLASH 4KX14 EEPROM 18DIP	4		DIP18
14	R1, R3, R8, R10, R16, R17, R18, R20, R25, R27	10	Panasonic - ECG	ERJ-8GEYJ103V	RES 10K OHM 1/4W 5% 1206 SMD	4, 5, 6		PAD1206
15	R12	1	Panasonic - ECG	ERJ-8GEYJ1R0V	RESISTOR 1.0 OHM 1/4W 5% 1206	2		PAD1206
16	R14, R29, R30, RA1, RB1	5	Panasonic - ECG	ERJ-8GEYJ100V	RES 10 OHM 1/4W 5% 1206 SMD	3, 5, 6		PAD1206
17	R2, R4, R9, R11, R19, R21, R26, R28	8	Panasonic - ECG	ERJ-8GEYJ102V	RES 1.0K OHM 1/4W 5% 1206 SMD	5, 6		PAD1206
18	R5, R6, R7, R13, R15, R22, R23, R24	8	Panasonic - ECG	ERJ-8GEYJ202V	RES 2.0K OHM 1/4W 5% 1206 SMD	3, 4, 5, 6		PAD1206
19	U2, U6	2	Texas Instruments	CD74HC14M96	IC HEX INV SCHMITT TRIG 14-SOIC	5, 6		SO14
20	K1, K3, K4, K6	4	Panasonic Electric Works	TK1-12V	RELAY LOW PROFILE 2A 12VDC PCMNT	5, 6		DIP6
21	K2, K5	2	PANASONIC EW	TQ2-12V	PANASONIC EW - TQ2-12V - SIGNAL RELAY, DPDT, 12VDC, 1A, THD	5, 6		TQ2-12V
22	U1, U5	2	TEXAS INSTRUMENTS	ULN2003ADR	TEXAS INSTRUMENTS - ULN2003ADR - DARLINGTON TRANSISTOR ARRAY, NPN, 7, 50V, SOIC	5, 6		SO-G16/C5.2

Component Count: 100

Notes: