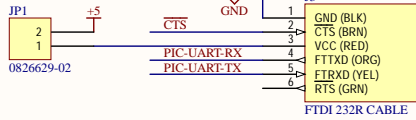
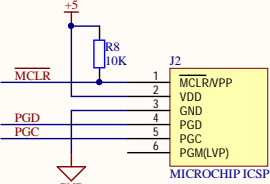


JUMPER JP1  
OPTIONAL 5V POWER FROM USB IF  
USING OUTWITH KEITHLEY DMM



FTDI TTL-232R-5V  
FARNELL #2419945  
FOR DEBUG OR SERIAL CONTROL IF  
USING OUTWITH KEITHLEY DMM  
(NOT YET IMPLEMENTED)



PICKIT ICSP SIL HEADER

This card has been made switchable 10 or 20 channels because some units may only support 10 channel cards. Also, it saves cost if all you need is 10 channels, not only on the SSRs but the Phoenix screw terminal blocks J4 and J6.

Note that the channel numbers for 10 channel mode are on the underside of the board. If building a 10 channel card, you might want to put labels on the topside to avoid confusion.

DMM6500/6510 support 10 and 20 channel cards. K2000 DMM supports 10 and 20 channel scan cards (on latest firmware at least). Others in 2000 series: unknown.

This card has been tested in K2000 and DMM6500. When making 4W resistance measurements using DMM6500, there is a PIC MCU firmware gotcha to be aware of: When switching between 2W and 4W on the SAME channel, you will get incorrect reading. When changing channels, it works fine. There is a note about it in the firmware, it might get fixed some day.

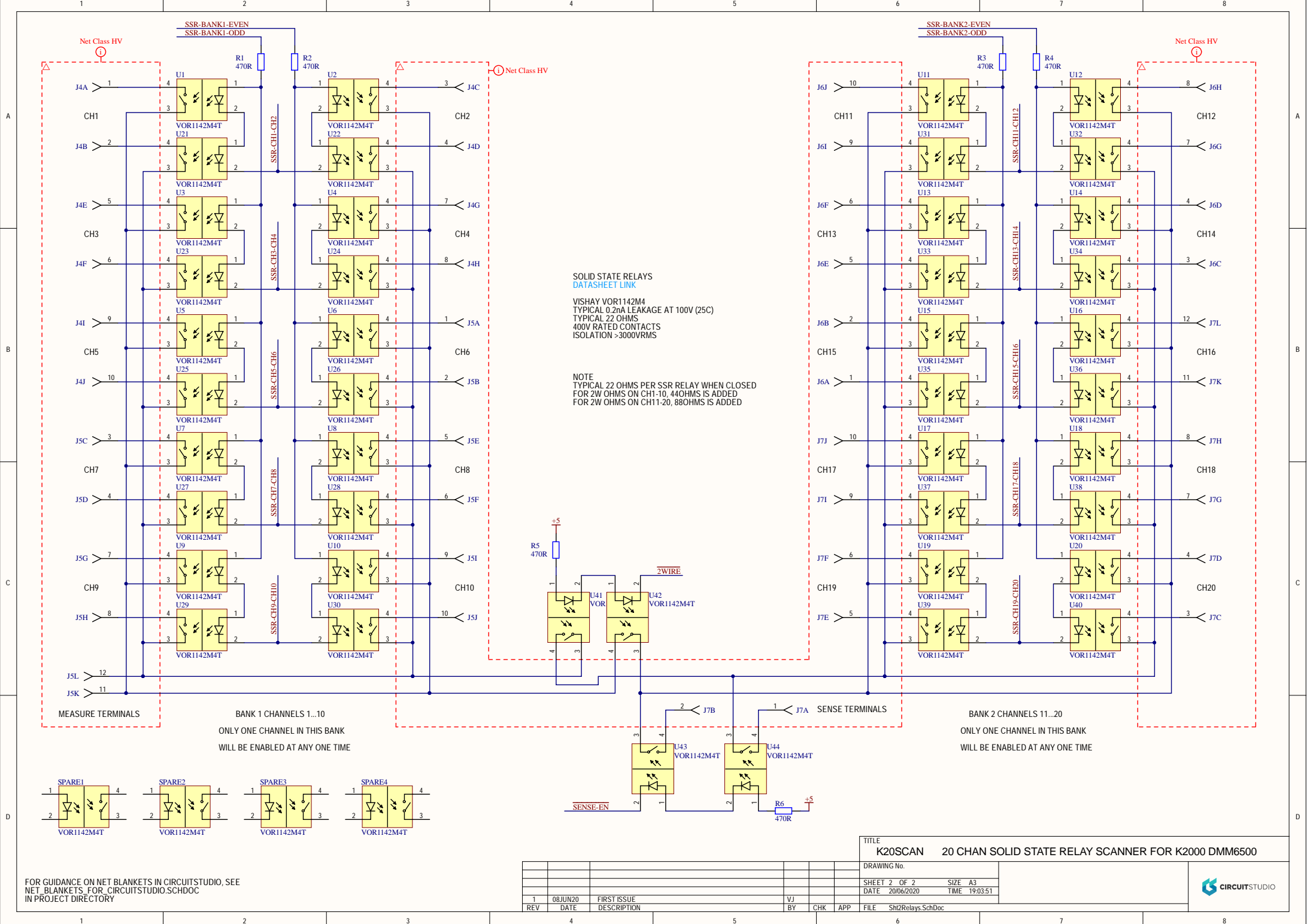
**System Reset**

**DMM6500**  
System RESET line stays low for around 3.5 seconds after 5V rail powers up, then goes to 5V. SPI clock line is low during reset and idles low during operation.

**K2000**  
System RESET line stays low for around 0.25 seconds after 5V rail powers up, then goes to 5V. SPI clock line is low during RESET but then goes high (5V) at the same time as RESET (within 2ms anyway). The SPI clock line then idles high during operation (opposite to DMM6500 where it idles low).

				TITLE K20SCAN 20 CHAN SOLID STATE RELAY SCANNER FOR K2000 DMM6500			
				DRAWING No.			
				SHEET 1 OF 2 SIZE A3			
				DATE 20/06/2020 TIME 19:03:50			
1	08JUN20	FIRST ISSUE		VJ			
REV	DATE	DESCRIPTION		BY	CHK	APP	FILE
							Sh1TDigital.SchDoc







NOTES:

1. TYPE OF BOARD: 2-LAYER PCB

## VISIBLE LAYERS

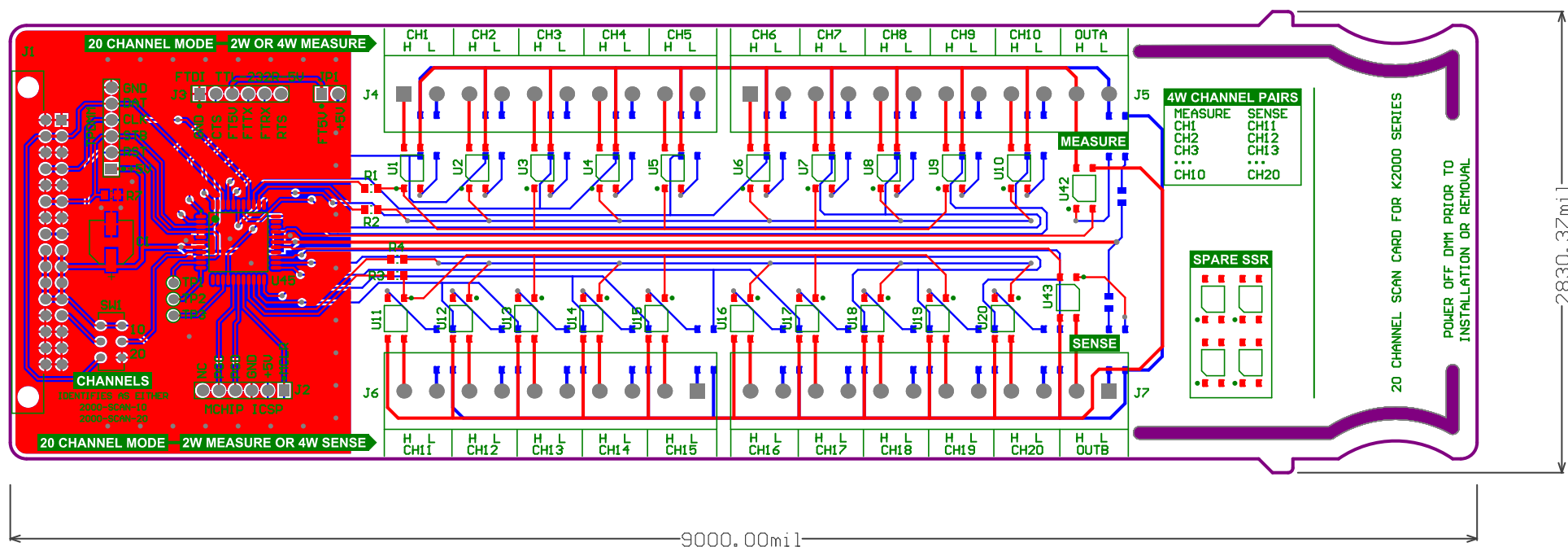
## Top Overlay

Top Layer

Bottom Layer

## Outline

## Multi-Layer



1	06JUN20	FIRST ATTEMPT	UJ		
REV	DATE	DESCRIPTION	BY	CHK	APP

DWG

00000

TITLE
-------

K20SCAN 20 CHAN SOLID STATE RELAY SCANNER FOR K2000 DMM6500  
 FILENAME: K20SCANR1.CSPcbDoc

NOTES

NOT TO SCALE



NOTES:  
1. TYPE OF BOARD: 2-LAYER PCB

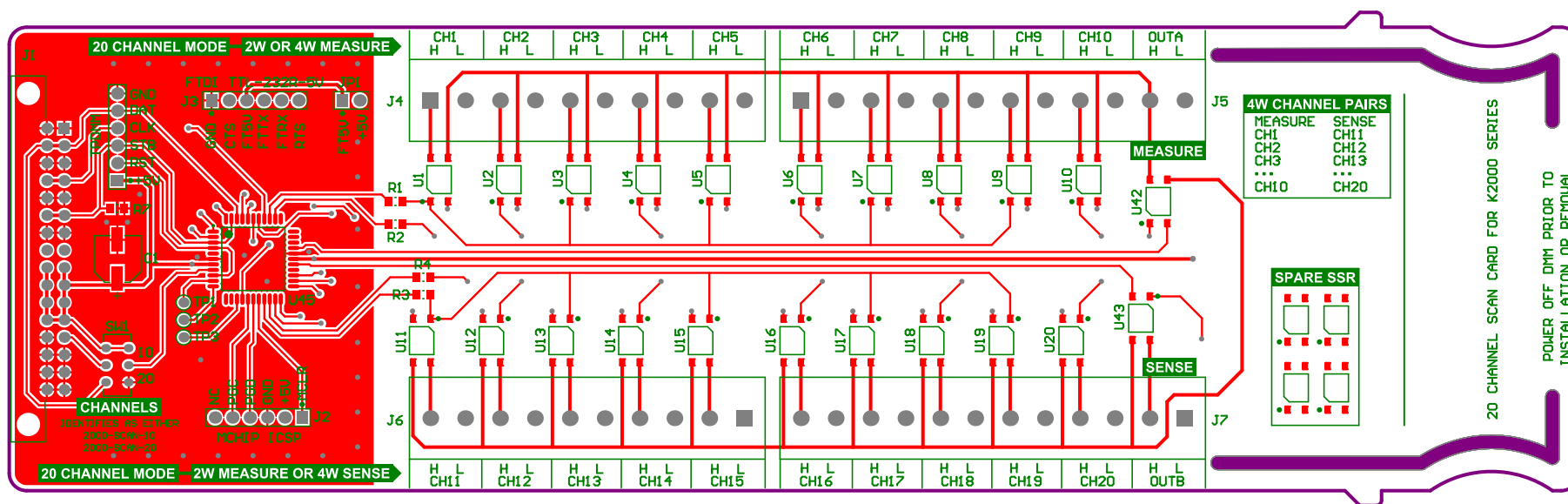
## VISIBLE LAYERS

## Top Overlay

## Top Layer

## Outline

### Multi-Layer



1	08JUN20	FIRST ATTEMPT	UJ		
REV	DATE	DESCRIPTION	BY	CHK	APP

DWG	00000	TITLE K20SCAN 20 CHAN SOLID STATE RELAY SCANNER FOR K2000 DMM6500 FILENAME: K20SCANr1.CSPcbDoc
NOTES		
	NOT TO SCALE	



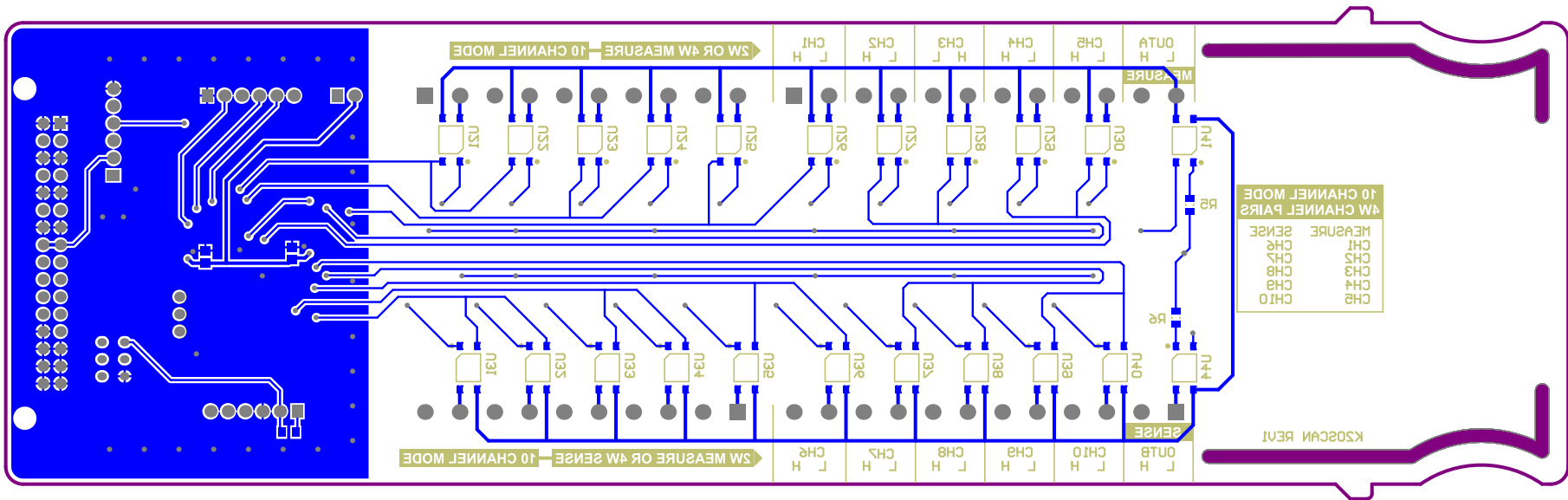
VISIBLE LAYERS

Bottom Layer

Bottom Overlay

Outline  
Multi-Layer

NOTES:  
1. TYPE OF BOARD: 2-LAYER PCB



1	08JUN20	FIRST ATTEMPT	UJ		
REV	DATE	DESCRIPTION	BY	CHK	APP

DWG	00000	TITLE K20SCAN 20 CHAN SOLID STATE RELAY SCANNER FOR K2000 DMM6500 FILENAME: K20SCANR1.CSPcbDoc
NOTES		
NOT TO SCALE		



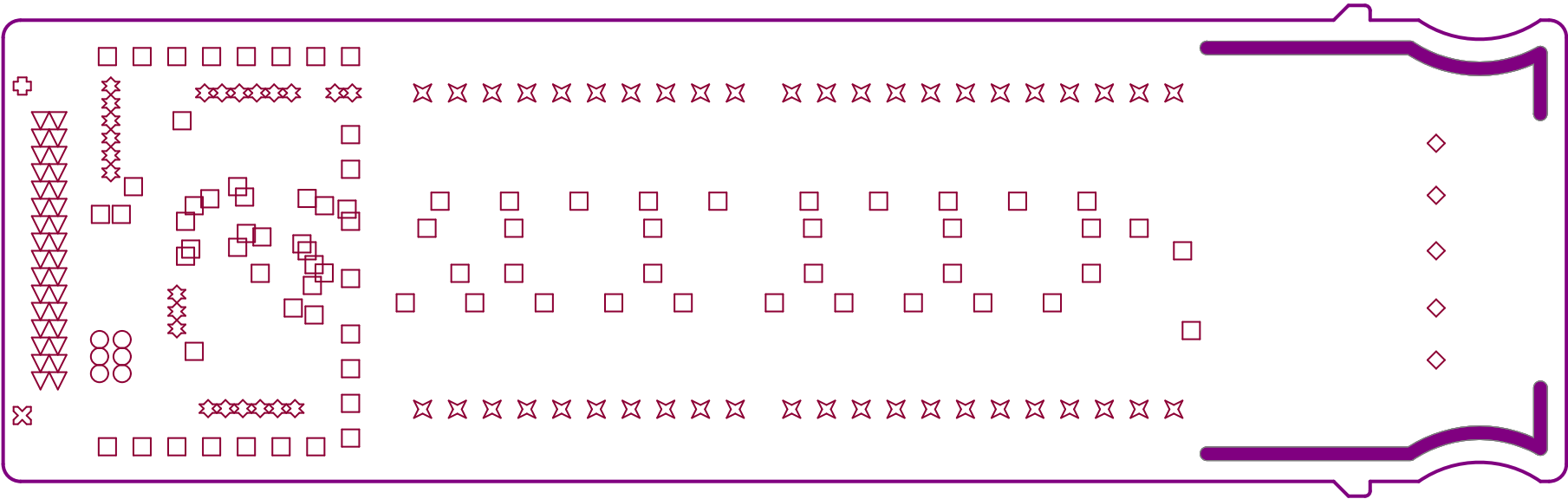
VISIBLE LAYERS

Outline

Drill Drawing

NOTES:  
1. TYPE OF BOARD: 2-LAYER PCB

Symbol	Hit Count	Finished Hole Size	Plated	Hole Type
⌘	1	110.24mil (2.800mm)	NPTH	Round
⊕	1	110.24mil (2.800mm)	PTH	Round
◇	5	125.98mil (3.200mm)	NPTH	Round
○	6	31.50mil (0.800mm)	PTH	Round
✱	23	39.37mil (1.000mm)	PTH	Round
▽	32	35.43mil (0.900mm)	PTH	Round
⌘	44	51.18mil (1.300mm)	PTH	Round
□	84	16.00mil (0.406mm)	PTH	Round
196 Total				



1	08JUN20	FIRST ATTEMPT	UJ		
REV	DATE	DESCRIPTION	BY	CHK	APP

DWG	00000	TITLE	K20SCAN 20 CHAN SOLID STATE RELAY SCANNER FOR K2000 DMM6500
		FILENAME:	K20SCANR1.CSPcbDoc
NOTES			
			NOT TO SCALE

