Tech Info Doc: FD-SIGEN-0517 PIC18F25K22 and Si5351 1MHZ to 160MHZ VFO

Si5351 Based 1 to 160MHZ Signal Generator:

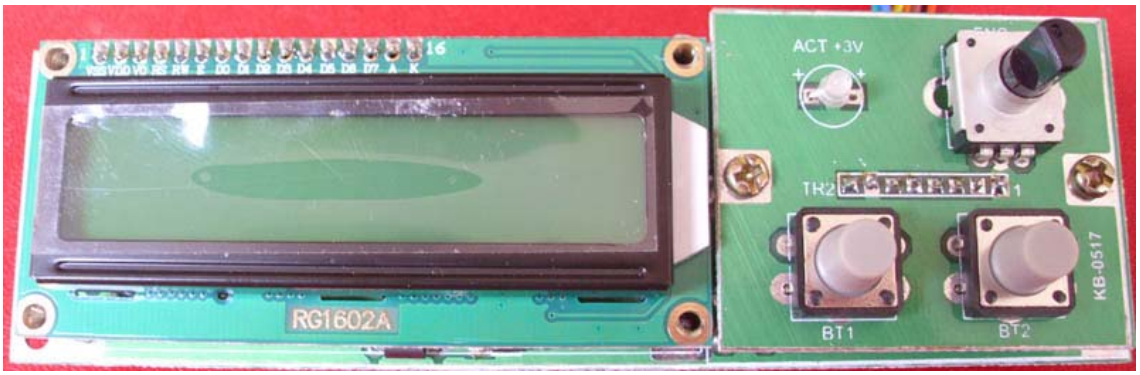
SIGEN-0517 is a dual signal generator with following useful features:

1. **Si5351 Signal Generator at 25MHZ**
2. **Two Independent signal generation from 1 to 160MHZ**
3. **Encoder for tuning, 1HZ to 1MHZ Steps Configurable.**
4. **Two Button Simple Menu Operation (User + Config)**
5. **IF OFFSET, Plus or Minus Values**
6. **Signal CLK0 is displayed on LCD**
7. **Second Signal (CLK1) from 1 to 160MHZ for 2nd IF etc.**
8. **Variable tuning steps from 1HZ to 1MHZ**
9. **2 X 16 LCD**
10. **Uses PIC18F25K22 Micro Processor**
11. **Receiver S Meter Option at PIC PIN2**
12. **Auto LCD Back Light OFF to save power**
13. **Small Size: 14CM X 4CM Glass epoxy PCBs**
14. **Internal 3.3V regulator and PCA9306 I2C Chip**
15. **Works on 5V DC**
16. **SMA Connectors for signal output**

Applications:

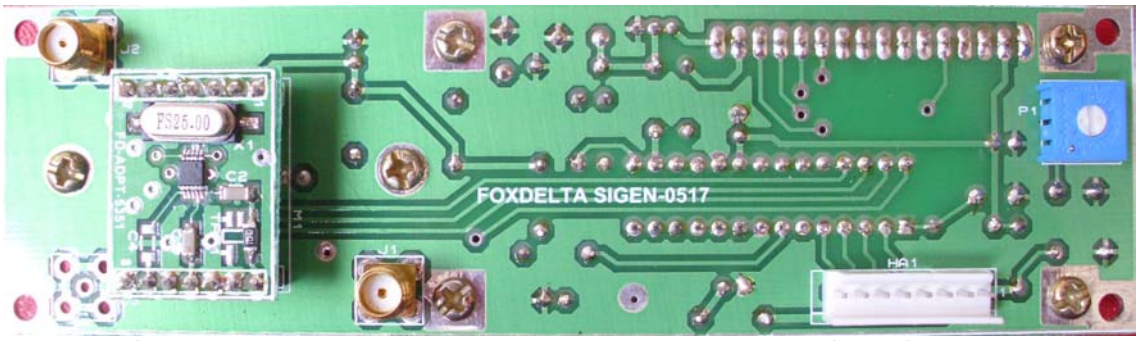
HF/VHF Receivers, Transmitters, Signal Generator

Completed SIGEN-0517



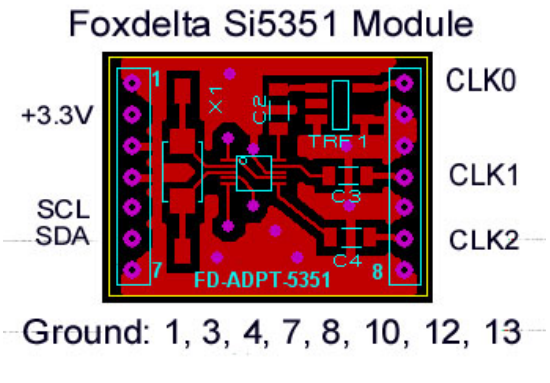
2 X 16 LCD KB/ENCODER

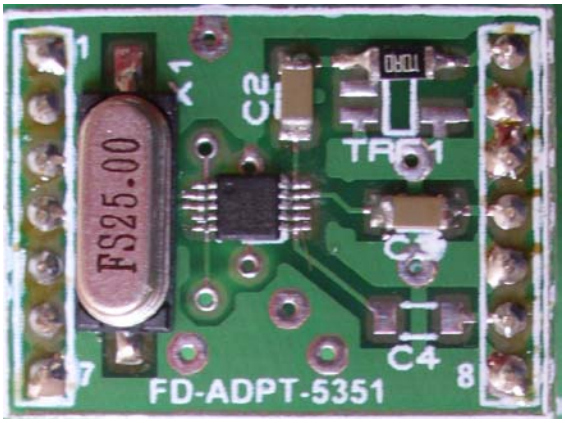
Back Side View:



Si5351 SIL8 Connector

M1: Si5351 Module: Module PIN OUT:



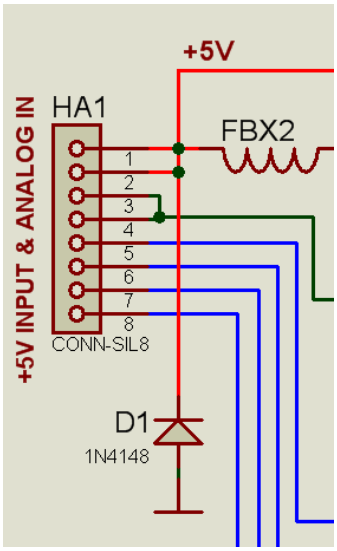


TRF1 is a 10 ohms resistor for this project

FD-SIGEN-0517 Si5351 VFO Parts List:

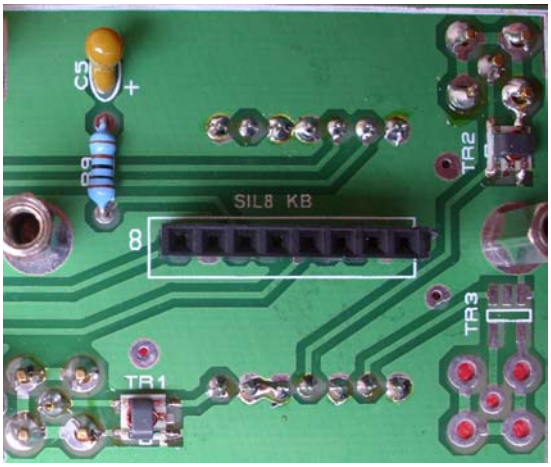
Quantity	Part ID	Part Details
1	U1	PIC18F25K22 Pre-programmed
1	PCB	FD-SIGEN-0517 DSPTH PCB
1	M1	Si5351 Module (Assembled + Tested) without TRF1
1	U2*	PCA9306
1	U3*	AMS1117-3.3V
1	Q1	2N7000 TO92
3	FBX1, 2, 3	Ferrite Bead RFCs
1	D1	Diode 1N4148
2	TR1, 2	1:1 Transformers
1	SIL8	Header Male/ Female for KB
1	KB PCB	PCB KB-0517
1	EC1	Encoder EC12 Type
1	P1	10K Preset Bourns (LCD Contrast)
2	BT1/2	12mm Push Buttons
1	LED	Dual LED CC (Common Cathode)
1	LCD Headers	16PIN Male/Female Headers.
1	LCD	2X16 LCD with BL (Green or Blue)
2	J1, 2	SMA Connectors
Capacitors:		
5	C1, 2, 5, 6, 7,	1uF Tantalum
4	C3, 4, 8, 9,	0.1uF Poly
Resistors:		
2	R2, 9	1K
1	R3	22 ohms
4	R1, 4, 6, 7,	10K
1	R5	100K
1	R8	180K

SIL 8 Connector:



SIL 8 Connector	Wire Color
1. +5V	Black
2. +5V	Brown
3. GROUND	RED
4. GROUND	Orange
5. S Meter Input	Yellow
6. Analog IN	Green
7. Analog IN	Dark Blue
8. Analog IN	Violet

Under the Keyboard:



TR1 and TR2 are 1:1 Transformers and they are Pre-Soldered on PCB.

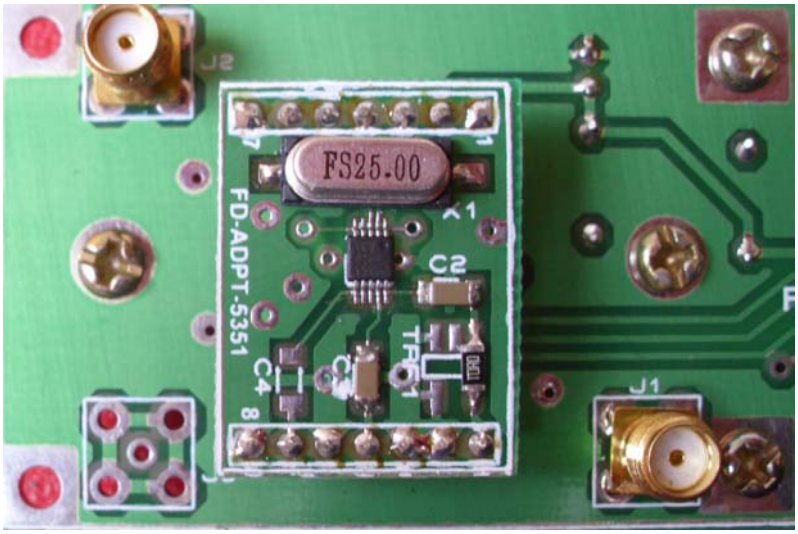
Keyboard PCB:

ENC is an Alps EC12 type mechanical Encoder.

BT1 and BT2 are menu buttons

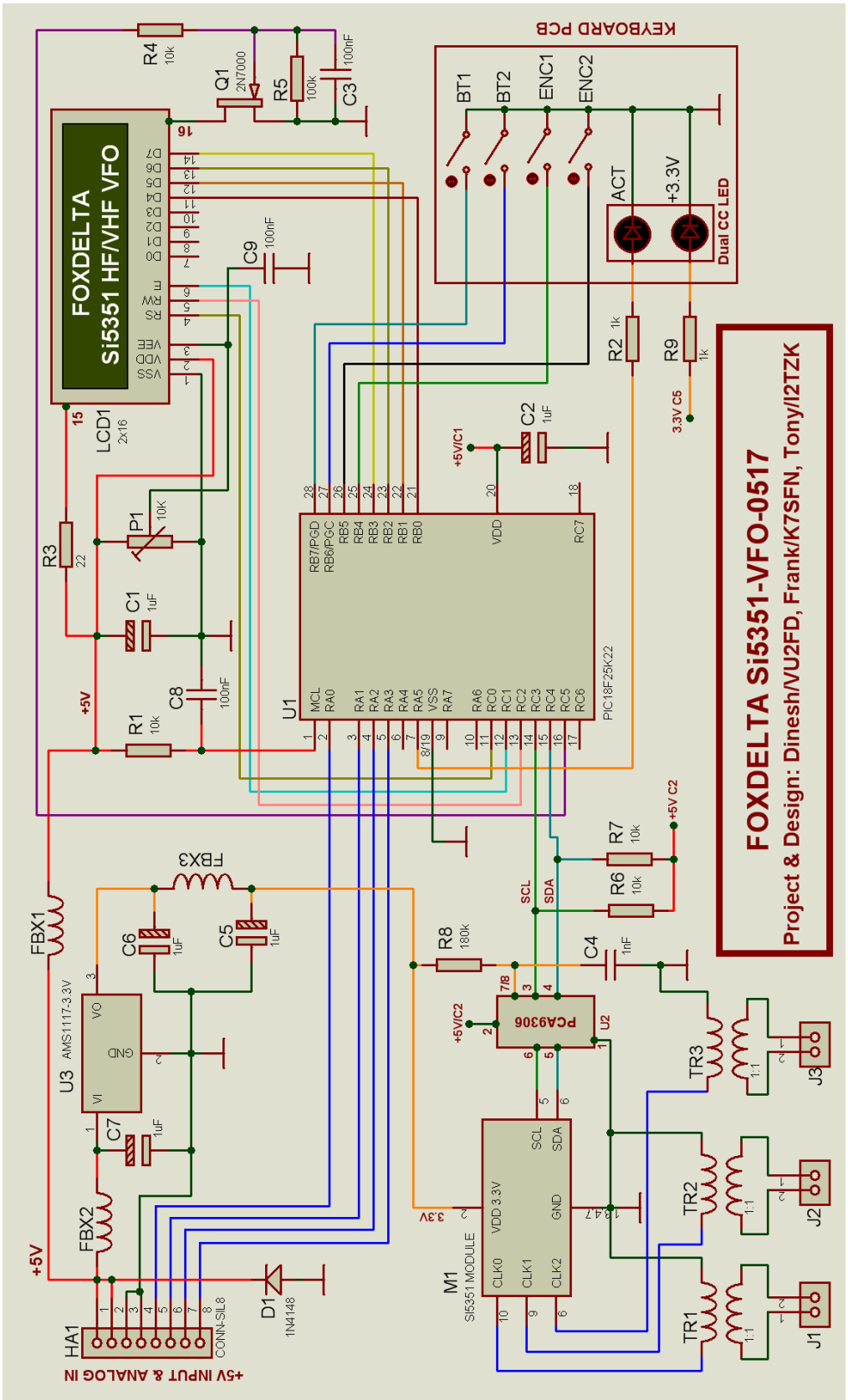
LED is a Dual LED. One color shows presence of 3.3V (To Si5351 Module) and another indicates activity of "Save" function of Config.

Si5251 Module on Main Board:

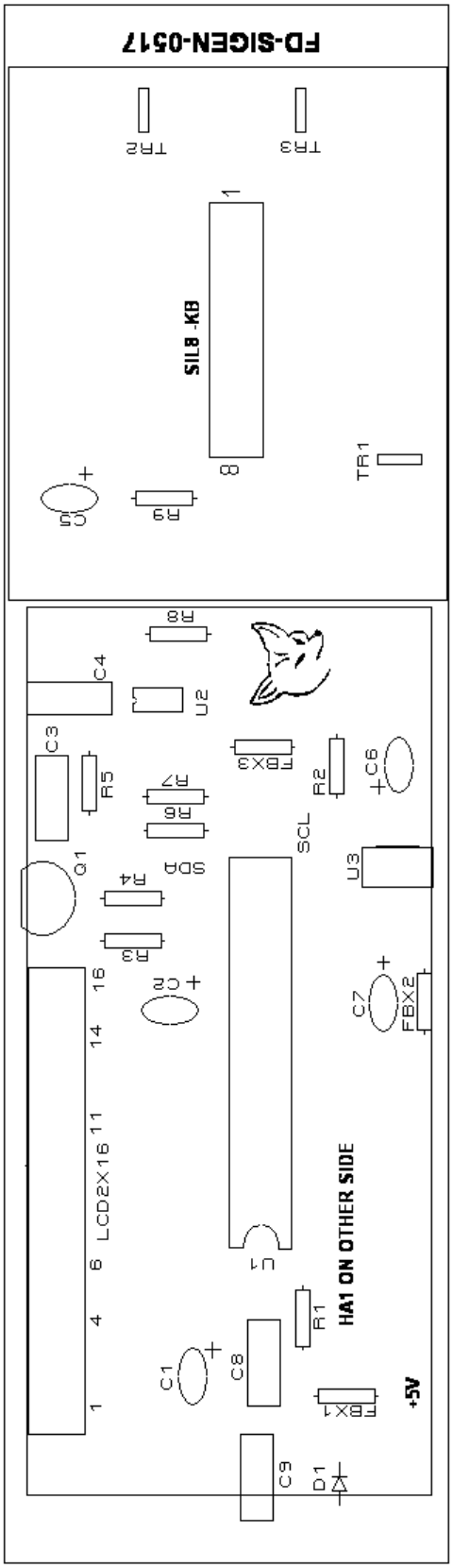


TR3, J3 and C4 are not used in this project.

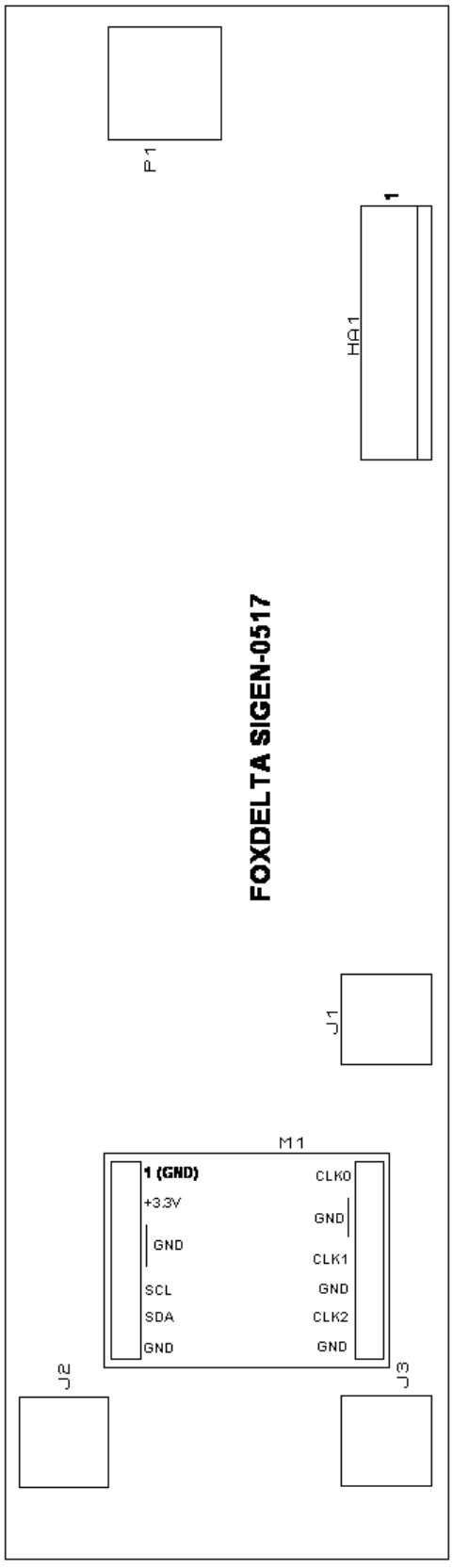
FD-SIGEN-0517 Si5351 HF/VHF VFO Schematic:



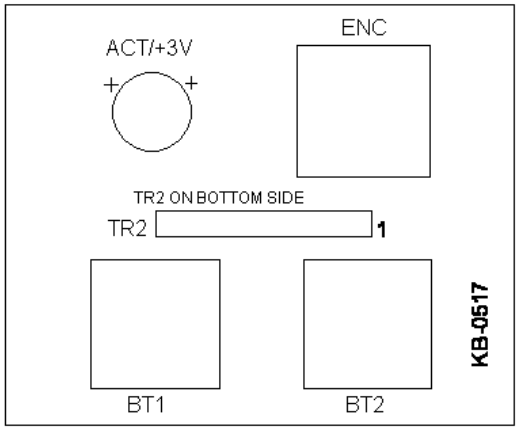
FD-SIGEN - 0517 SILK TOP



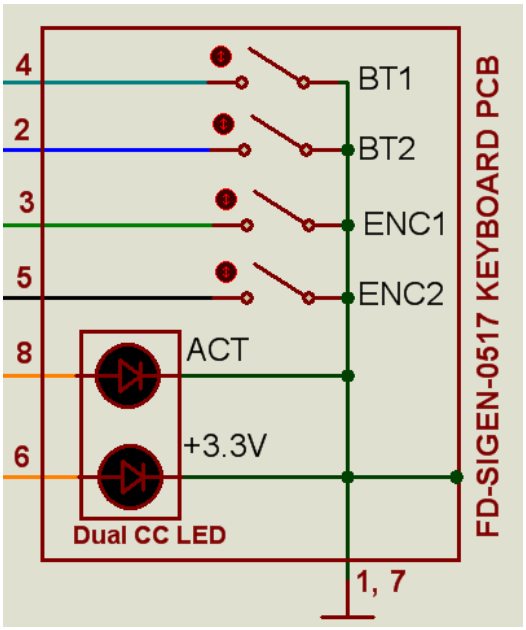
BTTOM SIDE SILK:



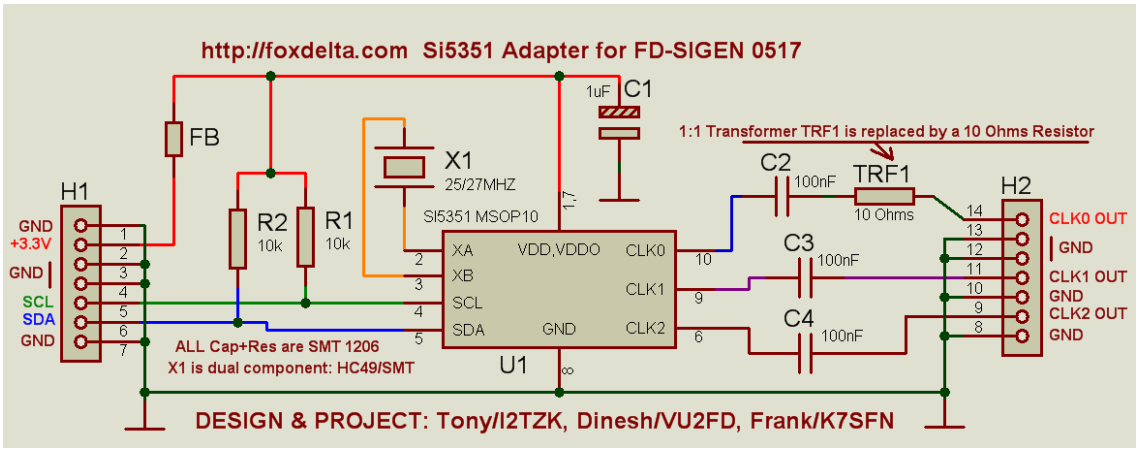
SILK KEYBOARD PCB:



Keyboard Schematic:



M1 Module Schematic:



Above module is supplied assembled and tested. C4 is not used in this project.

73s / Tony / I2TZK, Frank / K7SFN , Dinesh / VU2FD
18th July 2017

For more details, please visit Project Page: http://www.foxdelta.com