

# KENWOOD TS-2000 TCXO Module

Edi Gora, YO3HCV – Feb. 2008

The TCXO module from Kenwood TS-2000 looks like in image bellow. Originally code is T1820, custom made by KDC. Unfortunately it doesn't have voltage control feature (VC-TCXO) so nominal frequency adjustment it's possible only by changing the trimmer.



High stability it's achieved only due to accurate compensations between components, eg. series-parallel capacitors with different thermal coefficients, two thermistors in compensation network, etc.

Oscillator is working with a double NPN transistor made by Rohm called EM5X. Package for this transistor is EMT6 and SMD marking code is X5.

More info can be found at Rohm website:

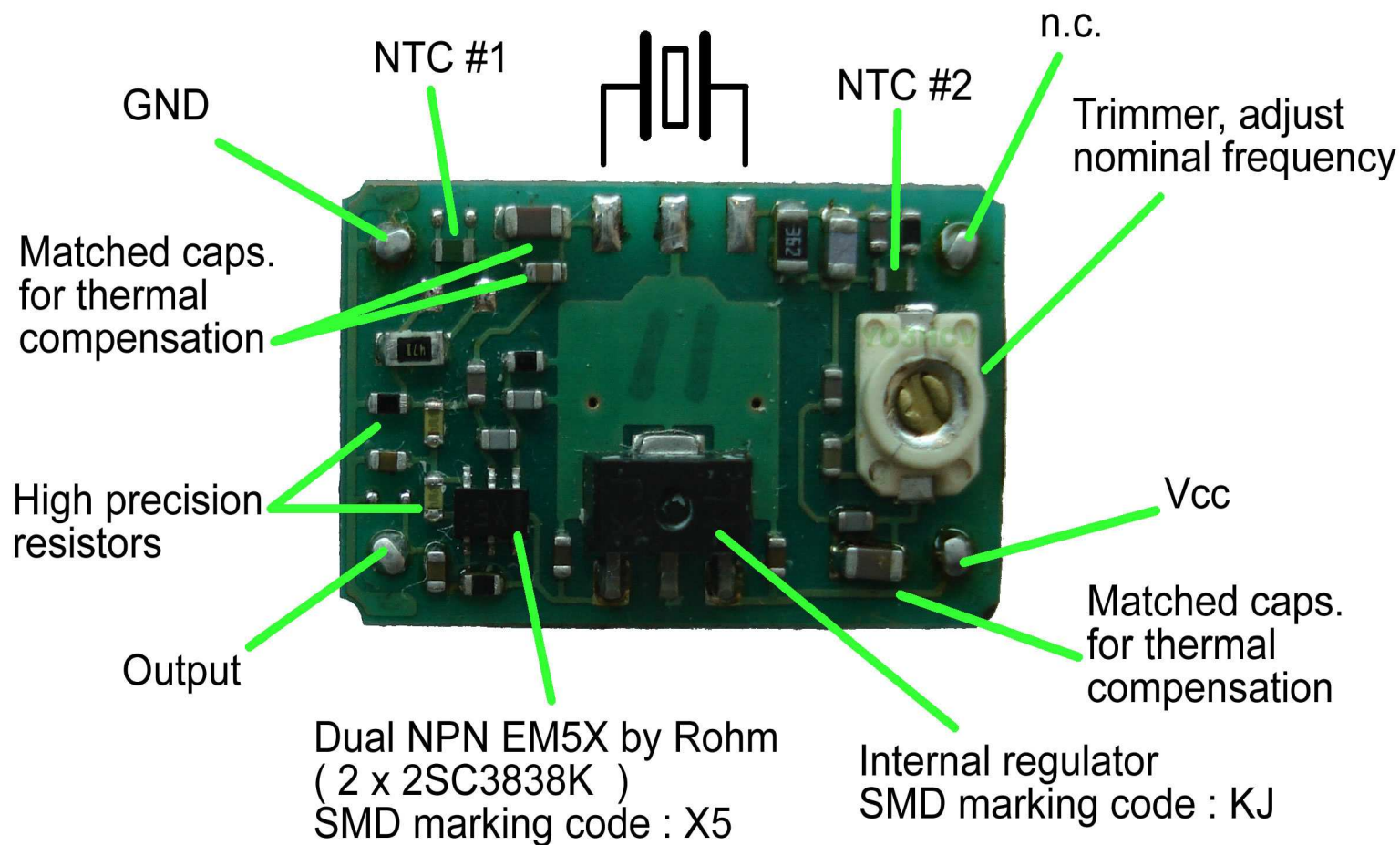
[http://www.rohm.com/products/discrete/transistor/complex\\_bip-bip/emx5.html](http://www.rohm.com/products/discrete/transistor/complex_bip-bip/emx5.html)

<http://www.rohm.com/products/databook/tr/pdf/emx5.pdf>

There is also a on-board power regulator in SOT-89 package, SMD marked KJ, most likely a ordinarily LDO regulator 5V or 3.3V or similar. For those who are interested in this TCXO schematic, I attach bellow extracted from PCB with mention that not all components was well measured, just for guidance only.

73' from Edi, YO3HCV

## Kenwood TS-2000 TCXO 15.600 MHz Unit



# KENWOOD TS-2000 TCXO 15.600 MHz module Y03HCV

