



## Single and dual fundamental wideband surface mount VCOs covering 2–25 GHz

Ronny Christoffersen, Sten E. Gunnarsson, Anette Brandt,  
Christer Stojij, Martin Norling, Dan Kuylenstierna

Sivers IMA AB, Torshamnsgatan 9, 16429 Kista, Sweden.

Email: [sten.gunnarsson@siversima.com](mailto:sten.gunnarsson@siversima.com)



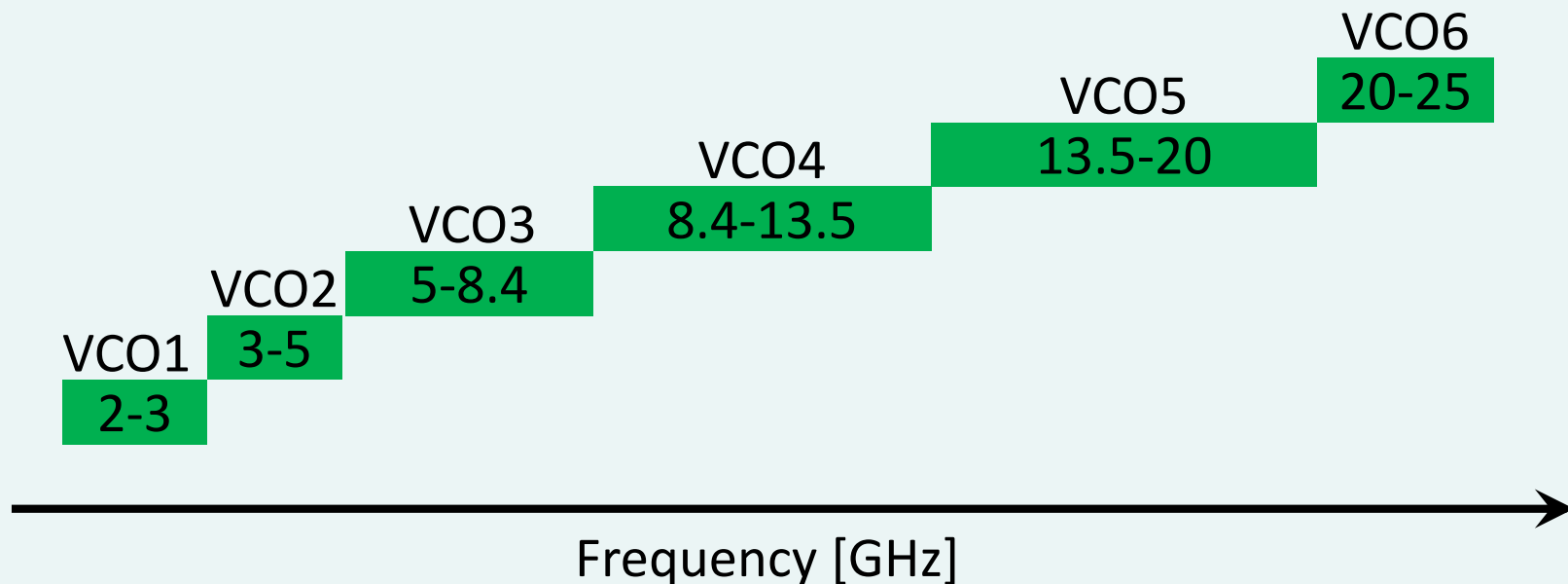
# Outline

- Introduction
- Application/Market
- Design & manufacturing
- Topology
- Results
- Future work
- Summary & Conclusion



# Introduction

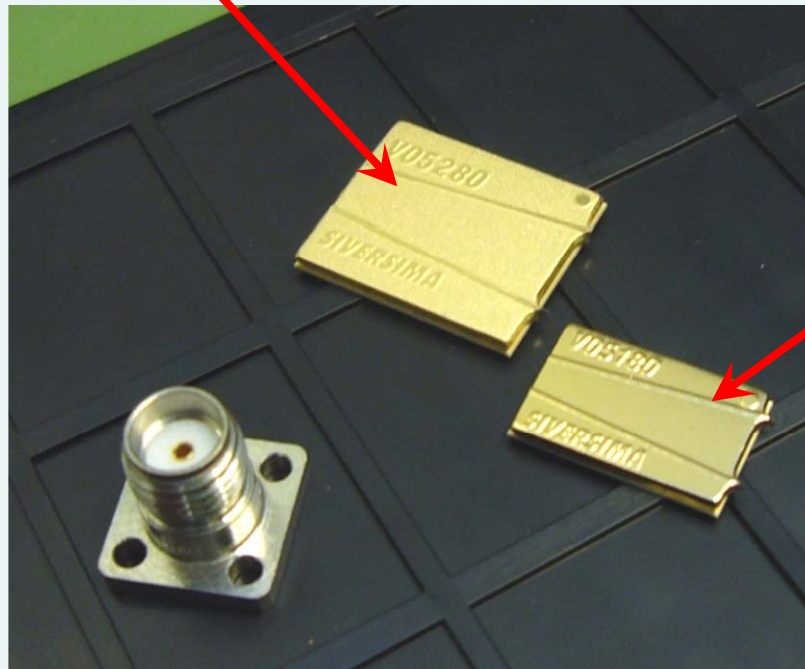
- Family of wideband surface-mounted VCOs
- Six fundamental VCOs cover 2-25 GHz (fundamental → fewer harmonics compared to push-push X2 VCOs)





# Introduction

Dual VCO package



Single VCO package

Dual VCO package – arbitrary combination of two VCOs in one package



# Application/Market

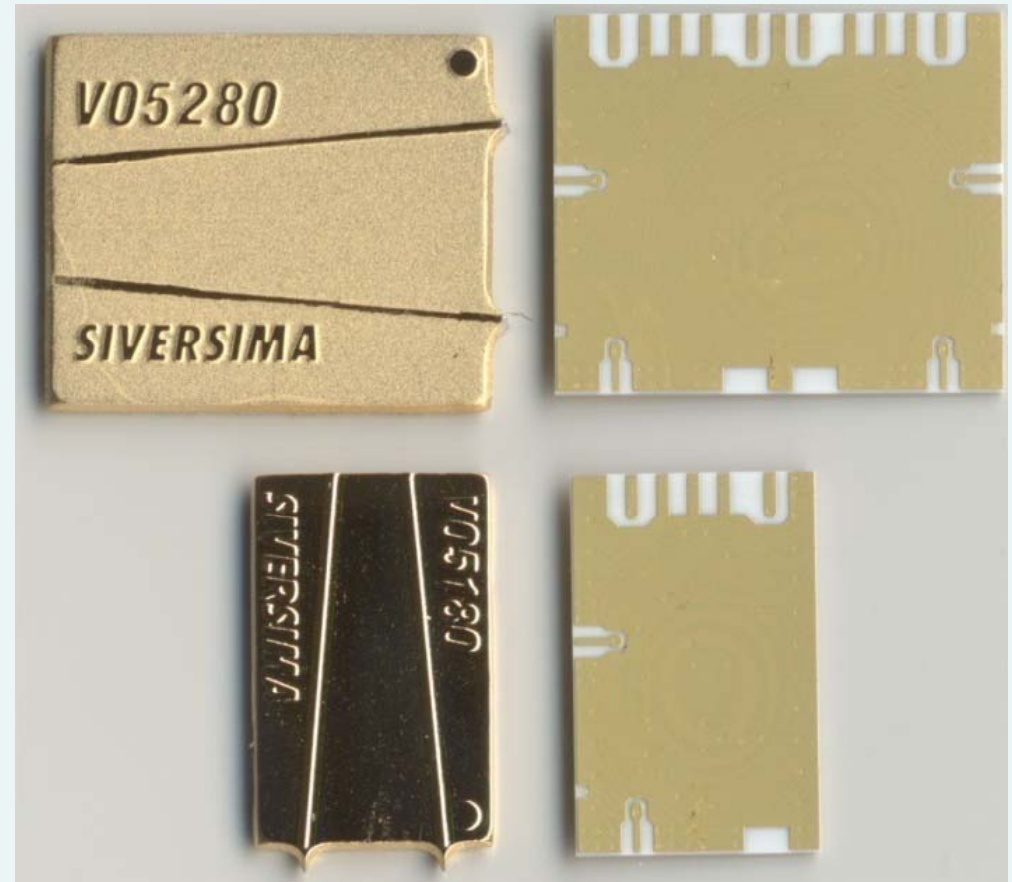
- Instrument
- Remote sensing
- ECM (Electronic CounterMeasures)
- Broadband transceivers
- Laboratory and development
- UWB (Ultra WideBand) systems





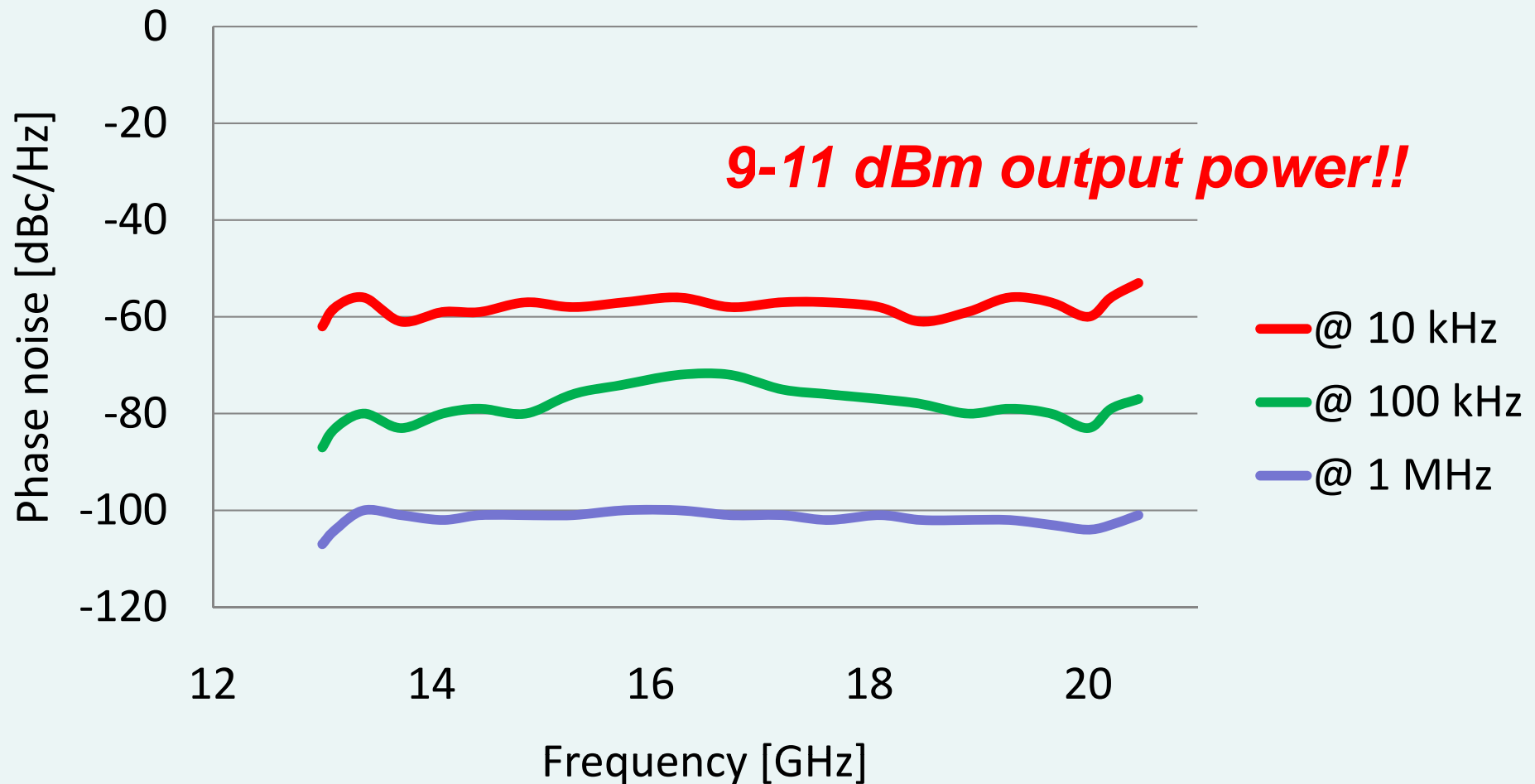
## Design & manufacturing

- Hermetically packaged  
(rugged construction)
- Alumina ( $\text{Al}_2\text{O}_3$ )  
bottomplate
- Kovar lid
- Generic footprint
- Reflow solderable  
(i.e. standardized SMD  
solder process)





## Result, 13.5 – 20 GHz VCO





## Summary & Conclusion

- A family of wideband fundamental VCOs is presented
- 2-25 GHz are covered by six models
- Available in single and dual-VCO surface-mount hermetic packages



# Acknowledgements



**GHz Centre** (hosted by Microwave Electronics Laboratory, Chalmers) in general  
and the **INTOSC** project (project leader Dan Kuylenstierna) in particular



**For the support to the GHz Centre**