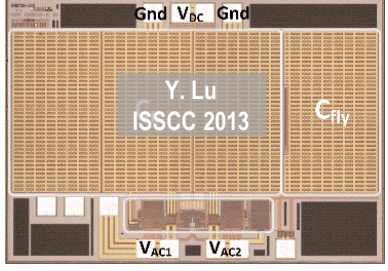
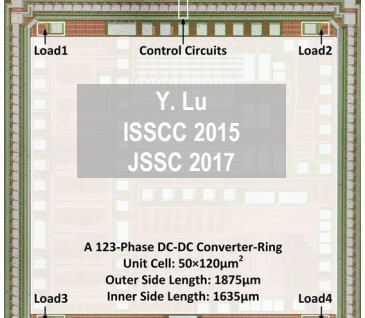
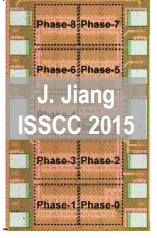

Y. Lu
VLSI 2011

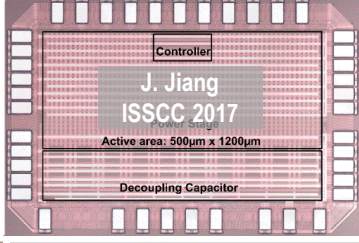

Y. Lu
TBCAS 2014


Gnd
V_{DC}
Gnd
Y. Lu
ISSCC 2013
C_{fly}
V_{AC1}
V_{AC2}

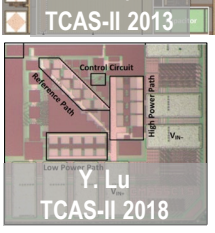

Y. Lu
ISSCC 2014
TCAS-I 2015

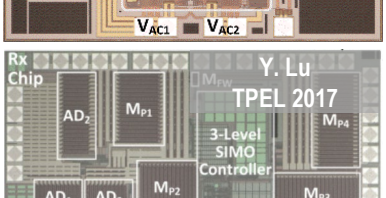

Load1
Control Circuits
Load2
Y. Lu
ISSCC 2015
JSSC 2017
A 123-Phase DC-DC Converter-Ring
Unit Cell: 50×120μm²
Outer Side Length: 1875μm
Inner Side Length: 1635μm
Load3
Load4

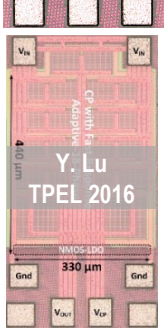

Phase-8
Phase-7
Phase-6
Phase-5
J. Jiang
ISSCC 2015
Phase-3
Phase-2
Phase-1
Phase-0

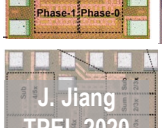

Controller
J. Jiang
ISSCC 2017
Active area: 500μm x 1200μm
Decoupling Capacitor


Y. Lu
TCAS-II 2013


Control Circuit
Reference Path
High Power Path
Low Power Path
Y. Lu
TCAS-II 2018

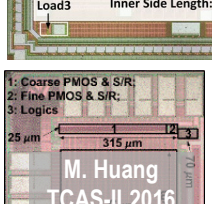

Rx Chip
Y. Lu
TPEL 2017
3-Level SIMO Controller
AD_2
AD_1
AD_3
M_{P1}
M_{P2}
M_{P3}
M_{P4}


Y. Lu
TPEL 2016
330 μm

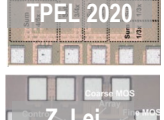

J. Jiang
TPEL 2020


J. Jiang
JSSC 2017
Digital


X. Li
TCAS-II 2020

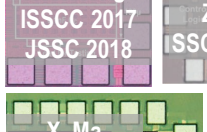

1: Coarse PMOS & S/R;
2: Fine PMOS & S/R;
3: Logics
25 μm
315 μm
M. Huang
TCAS-II 2016
310 μm


M. Huang
ISSCC 2017
JSSC 2018

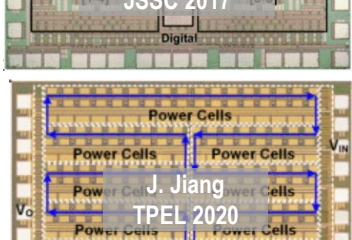

Z. Lei
ISSC-L 2018

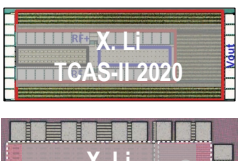

V_{AC2} / V_{X2}
GND
M. Huang
ISSCC 2017
TPEL 2019
V_{BAT}
GND

M. Huang
TPEL 2019

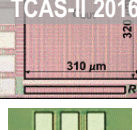

X. Ma
ISSCC 2018
TCAS-I 2020


X. Ma
TCAS-II
2020

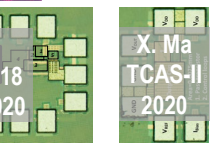

Power Cells
J. Jiang
TPEL 2020
Output DeCap
Input DeCap


X. Li
A-SSCC 2019
JSSC 2020


190 μm
G. Cai
TPEL 2021


Y. Huang
ISCAS 2018

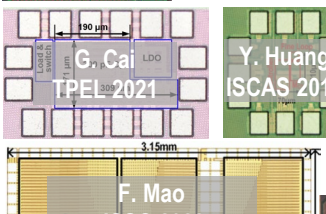

M. Huang
CICC 2019
JSSC 2020


Y. Huang
TCAS-I 2018


J. Lin
TCAS-II
2019

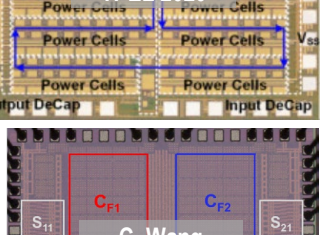
J. Lin
OJ-CAS
2020

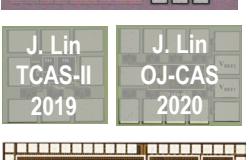

V_{BAT}
V_{BAT}
2.6 mm
1.4 mm
F. Mao
ISSCC 2018
JSSC 2019
GND
GND

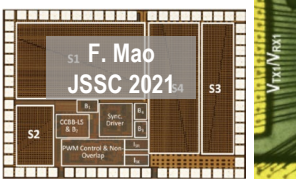

3.15mm
F. Mao
JSSC 2022
2.22mm
Bootstrap
TRX Controller


G. Cai
TCAS-I 2019

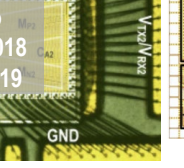

C. Wang
TCAS-II 2021

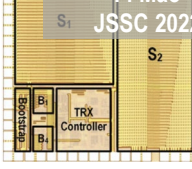

C_{F1}
C_{F2}
C. Wang
TPEL 2021
Control Loop

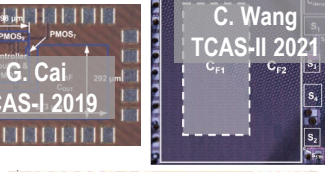

F. Mao
JSSC 2021


PWM and Deadtime Controller
ZVS controller and GaN driver
X. Ma
ISSCC 2022
JSSC 2023


J. Lin
TPEL 2021
Controller


J. Lin
JSSC 2021
HV Controller
LV Controller


X Bai
JSSC 2023
Controller


MP1
MN2
Z. Lin
CICC 2022
JSSC 2023
MP2
MN1

1.7mm
1.6mm
G. Cai
ISSCC 2022
JSSC 2023
LDO &SC

C. Huang
JSSC 2024

F. Mao
ISSCC 2024

C. Wang
TCAS-I 2022

C. Wang
TCAS-I 2022

F. Mao
TCAS-I 2023
PPCB
SC-OPDC
PWM Ctrl

M. Huang
ISSCC 2020
JSSC 2020

T. Hu
ISSCC 2022
JSSC 2023
700pF
700pF

J. Huang
TCAS-I 2022
Control
LDO

Y Jiang
TCAS-II 2023
Level shifters
Control

T. Hu
ISSCC 2023
JSSC 2023

G. Cai
ISSCC 2023
TCAS-I 2025

625μm
1600μm
X. Mao
CICC 2021
JSSC 2022
Test Load
V_{OUT} Decap
100μm LDO Controller
V_{IN} Decap
248μm

GND
V_{IN}
V_{SW1}
V_{OUT}
W. Zeng
ISSCC 2023
JSSC 2025
V_{SW3}
V_{SW2}
GND

X. Mao
TCAS-I 2023

J. Huang
CICC 2023
JSSC 2025

X. Mao
TCAS-I 2022

X. Mao
TCAS-II 2023

X. Mao
JSSC 2024

Silicon Cap
Packaged Laser Diode
Z. Tong
JSSC 2024

S. Zhao
JSSC 2024
Controller

S. Zhao
ISSCC 2024
JSSC 2025
Controller

Z. Tong
ISSCC 2023
JSSC 2025
Reconfigurable
Control Stage

Fourth stage SC
Third stage SC
Second stage SC
MOS of Boost
S. Han
ISSCC 2024
JSSC 2025
Fifth stage SC
First stage SC
Feedback Control

F. Song
ISSCC 2025
JSSC 2025
Controller

T. Hu
TPEL
2021

Q. Chen
TCAS-I
2024

Q. Chen
JSSC 2026

J. Huang
CICC 2024
JSSC 2026

Drivers
Y Jiang
JSSC 2025
Drivers
Controller

W. Yang
ISSCC 2025
JSSC 2025
bootstrap
Driver

Core 1 → 27
Core 1
Y. Wang
ISSCC 2023
JSSC 2025
Core 28 → 30
Ctrl
Core 31 → 33

Y. Wang
ISSCC 2024
JSSC 2026
Core 1
Other blocks:100*300 μm²

Z. Tong
ISSCC 2025

Y. Jiang
ISCAS 2023
TCAS-I 2024
VR
SC$_{ARY}$
VR

Y. Jiang
ISSCC 2025
Drivers
Control
Drivers

Programmable On-Die Load
X. Mao
CICC 2024

Z. Zhu
ISSCC 2026
Control Block

Phase D

Phase C
J. Yang
CICC 2024
JSSC 2026
Phase A
Controller

CTL1
BT&LS
J. Huang
ISSCC 2025
CTL2

Z. Yu
CICC 2026

T. Hu
ISSCC 2024
JSSC 2025
Oscillator
Rectifier
Shunt Regulator
0.9mm × 2.2mm
1.2mm × 2.2mm

C_{IN}
Z. Yu
ISSCC 2026
CTL

Control Circuit
Driver
Y. Li
TCAS-I 2024

K. Cui
ISSCC 2026
Power Stage
Controller

W. Yang
CICC 2026

S. Han
CICC 2025
JSSC 2026
1.36mm

1st SSC
2nd SSC
3rd SSC
4th SSC
5th SSC
6th SSC
7th
8th
9th
10th

J. Huang
CICC 2026
BT&LS
CTL

Z. Song
CICC 2026

S. Han
CICC 2026
Bootstrap & Driver
Control

Cell1
Cell3
Conversion Cell2
Conversion Cell4
Control Block
Z. Tong
VLSI 2026

Dickson SC Phase2
Dickson SC Phase3