



US 20220399859A1

(19) **United States**(12) **Patent Application Publication**  
**Cooney et al.**(10) **Pub. No.: US 2022/0399859 A1**(43) **Pub. Date: Dec. 15, 2022**(54) **SYSTEMS AND METHODS FOR DRIVING  
SEMICONDUCTOR DEVICES AND SENSING  
DEVICE PARAMETERS***H03M 1/46* (2006.01)*H03M 1/12* (2006.01)(52) **U.S. Cl.**CPC ..... *H03F 3/195* (2013.01); *H03F 3/45475*  
(2013.01); *H03M 1/462* (2013.01); *H03M*  
*1/1245* (2013.01); *H03F 2200/451* (2013.01);  
*H03F 2200/462* (2013.01); *H03F 2200/372*  
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Manhattan Beach, CA (US)(21) Appl. No.: **17/839,306**

(57)

**ABSTRACT**(22) Filed: **Jun. 13, 2022****Related U.S. Application Data**(60) Provisional application No. 63/210,482, filed on Jun.  
14, 2021.**Publication Classification**(51) **Int. Cl.***H03F 3/195* (2006.01)*H03F 3/45* (2006.01)

An application specific integrated circuit (ASIC) can drive semiconductor devices, such as, radio frequency amplifiers, switches, etc. The ASIC can include a supply and reference voltage generation circuit, a digital core, a clock generator, a plurality of analog-to-digital converters, low and high-speed communications interfaces, drain and gate sensing circuits (that can include one or more current sense amplifiers), and a gate driver circuit. The ASIC can be a low voltage semiconductor integrated circuit.

