



US 20240213878A1

(19) **United States**

(12) **Patent Application Publication**  
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(10) **Pub. No.: US 2024/0213878 A1**

(43) **Pub. Date: Jun. 27, 2024**

(54) **STARTUP DETECTION FOR PARALLEL  
POWER CONVERTERS**

**Publication Classification**

(51) **Int. Cl.**  
**H02M 3/07** (2006.01)

(52) **U.S. Cl.**  
**CPC** ..... **H02M 3/073** (2013.01); **H02M 3/077**  
(2021.05)

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(21) Appl. No.: **18/543,943**

(22) Filed: **Dec. 18, 2023**

**Related U.S. Application Data**

(63) Continuation of application No. 17/901,479, filed on  
Sep. 1, 2022, now Pat. No. 11,855,532, which is a  
continuation of application No. PCT/US2021/  
020468, filed on Mar. 2, 2021, which is a continuation  
of application No. 16/807,753, filed on Mar. 3, 2020,  
now Pat. No. 10,992,226.

(57) **ABSTRACT**

Circuits/methods for controlling the startup of multiple parallel power converters that avoid inrush current or switch overstress in an added power converter or a power converter having fault conditions. Embodiments include node status detectors coupled to nodes within parallel-connected power converters to monitor voltage/current and configured in some embodiments to work in parallel with an output status detector measuring the startup output voltage of a power converter. With charge pump-based power converters, the node status detectors ensure that the power converter pump capacitors are charged while the output capacitor is charged as well. For such embodiments, a soft-start period of startup may be considered finished if both the shared output capacitors and the power converter pump capacitors are charged to target values. Embodiments may also be used for fault detection during steady-state operation.

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