



US 20220385233A1

(19) **United States**(12) **Patent Application Publication****Huang et al.**(10) **Pub. No.: US 2022/0385233 A1**(43) **Pub. Date:****Dec. 1, 2022**(54) **ONE-COIL MULTI-CORE
INDUCTOR-CAPACITOR OSCILLATOR**(52) **U.S. Cl.**CPC **H03B 5/08** (2013.01); **H01F 27/2823**
(2013.01); **H01F 27/40** (2013.01); **H03B**
2200/009 (2013.01)(71) Applicant: **MEDIATEK INC.**, Hsin-Chu (TW)(72) Inventors: **Hao-Wei Huang**, Hsinchu City (TW);
Song-Yu Yang, Hsinchu City (TW);
Ang-Sheng Lin, Hsinchu City (TW);
Yi-Chien Tsai, Hsinchu City (TW)

(57)

ABSTRACT(73) Assignee: **MEDIATEK INC.**, Hsin-Chu (TW)(21) Appl. No.: **17/730,221**(22) Filed: **Apr. 27, 2022****Related U.S. Application Data**(60) Provisional application No. 63/192,613, filed on May
25, 2021.**Publication Classification**(51) **Int. Cl.****H03B 5/08** (2006.01)
H01F 27/28 (2006.01)
H01F 27/40 (2006.01)

A one-coil multi-core inductor-capacitor (LC) oscillator is provided. The one-coil multi-core LC oscillator includes a main coil and at least one mode suppression device. The main coil includes an outer wire and a central wire, wherein the outer wire is coupled to a first core circuit and a second core circuit, and the central wire is coupled between a first node and a second node of the outer wire. More particularly, an outer loop formed by the outer wire corresponds to a first mode of the one-coil multi-core LC oscillator, and inner loops formed by the outer wire and the central wire correspond to a second mode of the one-coil multi-core LC oscillator, where the at least one mode suppression device is configured to suppress one of the first mode and the second mode.

