A-Core Container

Inverter high frequency and mixing

Overview

What is a high frequency inverter?

I. INTRODUCTION Many applications – ranging from industrial plasma generation to wireless power transfer – require inverters (or power amplifiers) that can deliver power at high frequency (HF, 3-30 MHz).

Can inverters provide efficient delivery of high-frequency power into variable load impedances?

VI. CONCLUSION This paper introduces an inverter architecture and associated control approach for providing efficient delivery of high-frequency power into variable load impedances while maintaining resistive/inductive loading of the constituent inverters for ZVS soft switching.

Why are HF inverters so expensive?

Abstract—Efficient generation and delivery of high-frequency (HF, 3-30 MHz) power into variable load impedances is difficult, resulting in HF inverter (or power amplifier) systems that are bulky, expensive and inefficient.

Which type of inverter is suitable for HF operation?

In practice, one can utilize any type inverter suitable for HF operation under resistive/inductive loading; amplitude control of the individual inverters can be realized through any suitable means (e.g., supply voltage modulation, phase-shift or outphasing control, pulse-width modulation, etc.).

How does load variation affect inverter performance?

Loading variation can directly limit the achievable operating range and efficiency of an inverter system (e.g.,), and these constraints become increasingly severe as frequency and power rating increase. This work was supported by the MIT Center for Integrated Circuits and Systems.

How do HF inverters work?

Inverter designs at HF generally utilize fundamental-frequency inductive loading of the inverter transistor(s) to achieve the zero-voltage switching transitions necessary for high efficiency.

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