

(19) United States

(12) Patent Application Publication (10) Pub. No.: US 2024/0213189 A1 SUGIYAMA et al.

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

(54) **POWER AMPLIFICATION** HIGH-FREQUENCY CIRCUIT DEVICE

(71) Applicant: Mitsubishi Electric Corporation,

Tokyo (JP)

(72) Inventors: Yuta SUGIYAMA, Tokyo (JP);

Takeshi OSHIMA, Tokyo (JP); Hidenori ISHIBASHI, Tokyo (JP); Miki KAGANO, Tokyo (JP); Hidenori

YUKAWA, Tokyo (JP)

(73) Assignee: Mitsubishi Electric Corporation,

Tokyo (JP)

(21) Appl. No.: 18/595,729

(22) Filed: Mar. 5, 2024

Related U.S. Application Data

(63) Continuation of application No. PCT/JP2021/ 041449, filed on Nov. 11, 2021.

Publication Classification

(51)	Int. Cl.	
	H01L 23/66	(2006.01)
	H01L 23/00	(2006.01)
	H01L 23/498	(2006.01)
	H01L 23/552	(2006.01)
	H03F 3/213	(2006.01)

(52) U.S. Cl.

CPC H01L 23/66 (2013.01); H01L 23/49838 (2013.01); H01L 23/552 (2013.01); H01L 24/16 (2013.01); H01L 24/32 (2013.01); H03F 3/213 (2013.01); H01L 2223/6627 (2013.01); H01L 2223/6655 (2013.01); H01L 2224/16146 (2013.01); H01L 2224/16155 (2013.01); H01L 2224/32146 (2013.01); H01L 2224/32175 (2013.01); H01L 2924/014 (2013.01); H01L 2924/1421 (2013.01); H01L 2924/1423 (2013.01); H03F 2200/451 (2013.01)

ABSTRACT (57)

A power amplification high-frequency circuit device includes: an input conversion pin; an output conversion pin; a high-frequency amplifier having an input terminal and an output terminal; a waveguide tube in which an input waveguide tube and an output waveguide tube face each other with a short wall interposed between the input waveguide tube and the output waveguide tube, an upper wall of the input waveguide tube has an input pin insertion hole into which the input conversion pin is inserted while being electrically insulated, an upper wall of the output waveguide tube has an output pin insertion hole into which the output conversion pin is inserted while being electrically insulated, an upper wall has a storage portion having a flat bottom surface, and the high-frequency amplifier is stored in the storage portion with a bottom surface thereof being in close contact with the bottom surface of the storage portion.

