

Title (en)
HIGH FREQUENCY SELECTIVITY FILTER FOR MICROWAVE SIGNALS

Title (de)
HOCHFREQUENZSELEKTIVITÄTSFILTER FÜR MIKROWELLENSIGNALE

Title (fr)
FILTRE DE SÉLECTIVITÉ HAUTE FRÉQUENCE POUR SIGNAUX MICRO-ONDES

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Application
EP 18826107 A 20181129

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Abstract (en)
[origin: WO2019106596A1] The invention concerns a microwave filter (2), that comprises: a first folded circuit (21) including a plurality of first rectangular waveguide resonators (211,212,213) connected in cascade by means of first line couplings (214,215) in rectangular waveguide technology; and a second folded circuit (22) including a plurality of second rectangular waveguide resonators (221,222,223) connected in cascade by means of second line couplings (224,225) in rectangular waveguide technology. The first and second folded circuits (21,22) are designed for operating with a TE₁₀N resonant mode and are transversally coupled on a coupling plane (PC) that is perpendicular to a transversal plane (PT) crossing all the first and second rectangular waveguide resonators (211,212,213,221,222,223). Each first rectangular waveguide resonator (211,212,213) is separated from a respective second rectangular waveguide resonator (221,222,223) by means of a respective metal or metallized wall lying on the coupling plane (PC). Moreover, each first rectangular waveguide resonator (211,212,213) is transversally coupled to said respective second rectangular waveguide resonator (221,222,223) by means of: a respective positive transversal coupling including a respective single slot (23,25) made through said respective metal/metallized wall and centered with respect to the transversal plane (PT); or a respective negative transversal coupling including a respective pair of slots (24) made through said respective wall and symmetrically spaced apart from the transversal plane (PT) by a predefined distance. For each positive transversal coupling, each of the first (211,213) and second (221,223) rectangular waveguide resonators transversally coupled by means of the respective single slot (23,25) is crossed by the transversal plane (PT) at a respective resonator section where magnetic field component coupled by said respective single slot (23,25) is maximum. For each negative transversal coupling, each of the first (212) and second (222) rectangular waveguide resonators transversally coupled by means of the respective pair of slots (24) is crossed by the transversal plane (PT) at a respective resonator section where magnetic field component coupled by said respective pair of slots (24) is null.

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