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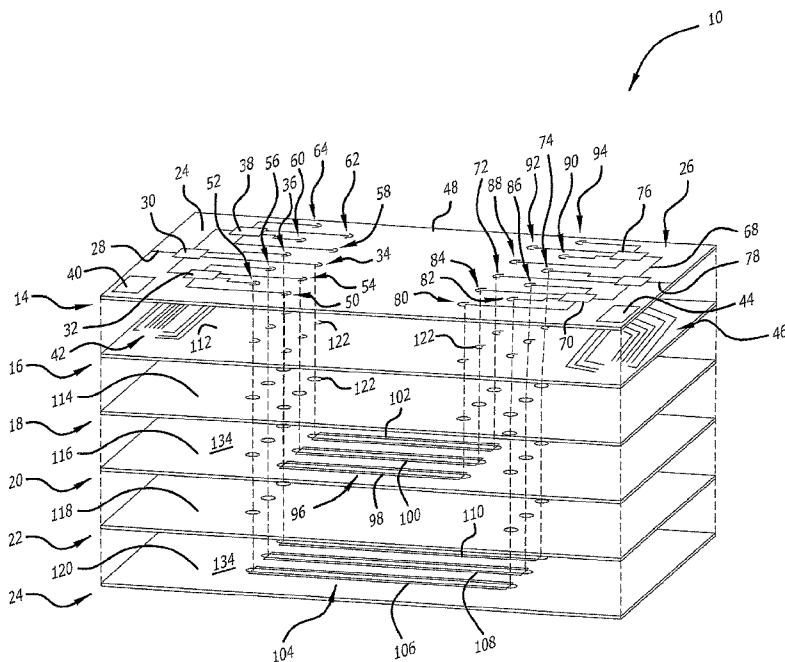
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(54) Title: COMPACT MULTILAYER CIRCUIT



(57) Abstract: A compact multilayer signal processing system (10). In the illustrative embodiment, the system (10) is adapted for use with microwave signals. The system (10) includes a first mechanism (24) for receiving an input signal and selectively routing the input signal onto a first signal path. A second mechanism (50-56, 34, 36, 58-64) routes the input signal along the first signal path through one or more layers (16-22) to a first circuit component (96). The first circuit component (96) outputs an adjusted signal in response to receipt of the input signal. A third mechanism (26, 80-86, 72, 74, 88-94) directs the adjusted signal to the output (78) of the system (10). In a specific embodiment, the one or more layers (16-22) include one or more groundplane layers (18, 20). The first mechanism (24) includes an input switching network (24) in communication with a controller (40). The switching network (24) is positioned on a switching layer (14) and

communicates with one or more controllers (40, 44) to facilitate selectively switching the input signal onto one of plural input signal paths. The second mechanism (50-56, 34, 36, 58-64) further includes a first input waveguide (50, 54, 34, 58, 62) that extends from the input switching network (24) vertically through at least one horizontal groundplane layer (18) and to an input end of the first circuit component (96). The third mechanism (26, 80-86, 72, 74, 88-94) includes a first output waveguide (80, 84, 72, 88, 92) extending from an output end of the first circuit component (96), vertically through at least one horizontal groundplane layer (18), and to an output switching network (26) disposed on the switching layer (14).

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