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(54) Title: DETERMINING CRITICAL PARAMETERS USING A HIGH-DIMENSIONAL VARIABLE SELECTION MODEL

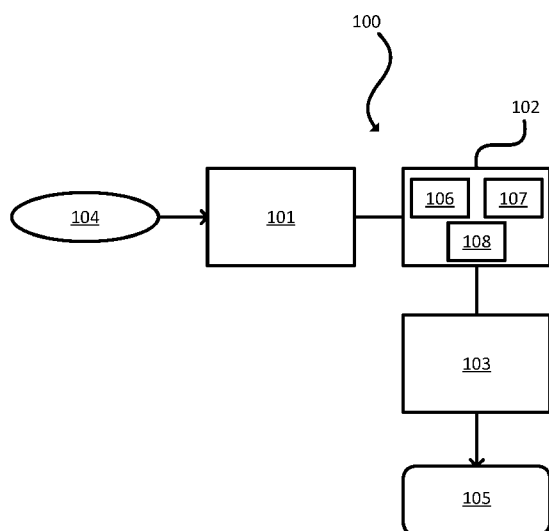


FIG. 1

(57) Abstract: A high-dimensional variable selection unit determines a list of critical parameters from sensor data and parametric tool measurements from a semiconductor manufacturing tool, such as a semiconductor inspection tool or other types of semiconductor manufacturing tools. The high-dimensional variable selection model can be, for example, elastic net, forward-stagewise regression, or least angle regression. The list of critical parameters may be used to design a next generation semiconductor manufacturing tool, to bring the semiconductor manufacturing tool back to a normal status, to match a semiconductor manufacturing tool's results with that of another semiconductor manufacturing tool, or to develop a specification for the semiconductor manufacturing tool.



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