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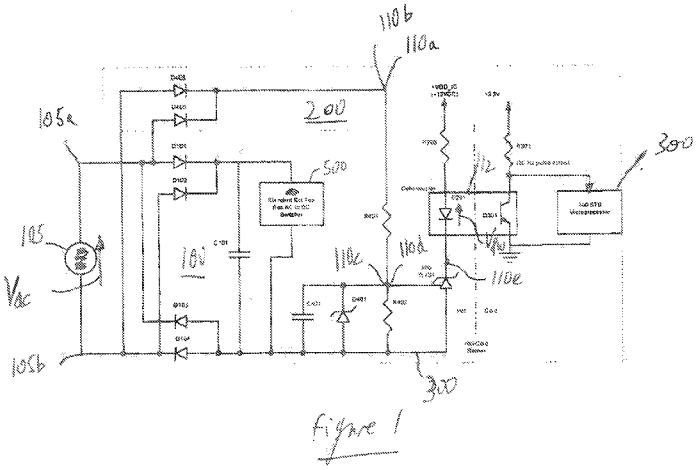


figure 1

(57) **Abstract**: Early power failure (EPF) detection circuit applies a rectified, unfiltered periodic waveform, at the frequency of the mains supply voltage to a threshold detector. During each cycle of the periodic waveform, the threshold detector produces a pulse voltage having a leading edge when the periodic waveform begins to exceed a threshold level associated with the threshold detector and a trailing edge when the periodic waveform ceases to exceed the threshold voltage. A microprocessor measures the length of the interval between the leading and trailing edges for indirectly measuring the magnitude (for example, RMS or peak) of the mains supply voltage. When the indirectly measured magnitude decreases below a minimum permissible, second threshold magnitude, a controlled power shutdown of the apparatus is initiated, such as by, for example, programs interrupt routine in the microprocessor.

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