NOTICE: When government or other drawings, specifications or other data are used for any purpose other than in connection with a definitely related government procurement operation, the U. S. Government thereby incurs no responsibility, nor any obligation whatsoever; and the fact that the Government may have formulated, furnished, or in any way supplied the said drawings, specifications, or other data is not to be regarded by implication or otherwise as in any manner licensing the holder or any other person or corporation, or conveying any rights or permission to manufacture, use or sell any patented invention that may in any way be related thereto.
The author describes universal magnetic logic elements as developed by him at the Otdel avtomatizatsii Instituta liteynogo proizvodstva AN SSSR (Department of Automation of the Casting Industry, AS USSR). Each element is a single-core half-cycle magnetic amplifier, with four input and three output connections. There are 7 terminals: direct, diode and repeater inputs; common lead (earth), the direct and diode outputs and the input of supply voltage phase. The above elements can easily form simple logic circuits including storage and adding circuits. The elements have toroidal, 10 x 6 x 2 mm, M1-2 type rectangular hysteresis loop ferrite cores, operating at 10 kc/s with a 10 V supply voltage. The germanium diodes used are type A95 (D9B). The control winding has 100 and the working winding 300 turns of ПЭП 0.15 (PELSh0-0.15) wire. The circuit operates satisfactorily with supply voltages varying by ±20%. One logic circuit can be loaded by up to 6 others or by one control winding of the intermediate magnetic amplifier. All components are mounted on a printed circuit board having dimensions 24 x 20 x 2 mm. The universal logic circuits described make it possible to design cheap and reliable automatic control systems for industrial processes. There are 6 figures.