Abstract: Liquid crystal flow model is a coupling between orientation (director field) of liquid crystal molecules and a flow field. The model is also related to a phase field model of multiphase flows and to microfluidics device. It is crucial to preserve the energy laws of the hydrodynamical system in numerical simulation of liquid crystal flows, especially when orientation singularities are involved. We shall use a C0 finite element method which is simpler than existing C1 element methods and mixed element formulation. Through a reformulation the energy law can be achieved by the C0 finite element method. A discrete energy law is achieved for an explicit-implicit time discretization and a special treatment of the nonlinear phase change term. Apparently the discrete energy law is an approximation of the continuous energy law. A characteristic finite element method combined with a few fixed point iterations automatically separates the flow and director equations and thus reduces the size of the stiffness matrix and at the same time keeps the stiffness matrix time independent. The latter avoids solving a linear system at every time step and largely reduces the computational time, especially when direct linear system solvers are used. We will consider both smaller and larger liquid crystal molecule cases. A number of examples are computed to demonstrate the algorithm.