

# Research on the Analytical Method of Contact Vibration Performance of Reed Relay

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*Abstract*—Inherent frequency and vibration limit acceleration are the two major parameters that determine the performance of reed relay contact under mechanical environment. Based on the theory of materials mechanics and vibration mechanics, the mathematical model of reed's vibration mode is presented in this paper. By using classical analytic approach and finite element method, the failure criterion of reed relay in vibration is given; the vibration mode of reed system is analyzed and the transient process of the displacement of reed contact is simulated. The vibration performance of reed contact under the condition of sinusoidal actuating vibration with high frequency is provided and analyzed. The discussion of the effect of reed contact dimensional parameters on inherent frequency and vibration performance is emphasized.

*Key Words*- vibration mode; vibration performance; reed relay; contact