

INTEGRATED PIEZOELECTRIC CANTILEVER ACTUATOR AND TRANSISTOR FOR TOUCH INPUT AND HAPTIC FEEDBACK APPLICATIONS

ABSTRACT

User feedback may be generated and user input received through a single
5 semiconductor component integrated into the electronic device. The single semiconductor
component may include a piezoelectric cantilever actuator integrated with a transistor, such
as a thin-film transistor, such that the actuator is electrically isolated from the transistor but
mechanically attached to the transistor. One manner of integration is to extend a
piezoelectric thin film of the actuator into a gate electrode stack of the transistor. The
10 cantilever actuator may be controlled to provide haptic feedback. Separate from, and
possibly simultaneously with the control of the cantilever actuator, user input may be
received through the transistor integrated with the cantilever actuator.

[Figure.1]