Abstract

SLOPED TRENCH ETCHING PROCESS

Method and apparatus for etching a tapered trench in a layer of material with a highly controllable wall profile. The layer of material has a mask adjacent a surface thereof having an opening which defines a location on the layer of material at which the trench is to be formed. Vertical etch process steps and opening enlarging process steps are then performed in an alternating manner until the trench has been etched to a desired depth. The method permits very deep tapered trenches of up to 80-100um or more to be formed in a silicon substrate or other layer of material in a highly controllable manner. The method can be incorporated into processes for manufacturing numerous devices including MEMS devices and high power RF devices such as LDMOS and VDMOS devices.

(Figure 8)