

ALLOY AND ARCHITECTURE DESIGN FOR HEAT-ASSISTED MAGNETIC RECORDING

ABSTRACT OF THE DISCLOSURE

A magnetic recording medium for heat-assisted magnetic recording includes a magnetic data storage layer having magnetic grains separated by grain boundary phases. The grain boundary phases have a higher thermal conductivity than a thermal conductivity of the magnetic grains. The magnetic recording medium further includes a heat sink layer and one or more intermediate layers disposed between the magnetic data storage layer and the heat sink layer. Each of the one or more intermediate layers has crystalline phase grains separated by grain boundary phases. The grain boundary phases have a higher thermal conductivity than a thermal conductivity of the crystalline phase grains. The grain boundary phases in both the magnetic data storage layer and the intermediate layers provide high thermal conductivity conduits for dissipating heat from the magnetic data storage layer to the heatsink layer.

Figure 1