

THERMAL SOLUTIONS

HEAT PIPES

Introduction:

Heat pipes are one of the most effective means of moving heat from one location to another, much like a freeway system is the fastest way to move from one location to another.

General Description:

A heat pipe is a closed loop system consisting of a vacuum tight containment unit, internal wick structure and working fluid (see image below). One end is located at the heat source which is called the evaporator (CPU in below diagram). The working fluid, usually deionized water, heats to a gas and rapidly moves away from the heat source to the opposite...cooler end of the heat pipe called the condenser, where the gas condenses back to a liquid form. This liquid works its way through the wick until it reaches the evaporator side and again turns to gas repeating this cycle.

This Cycle, or phase change process continues as long as there remains a large enough heat differential between the evaporator portion and the condenser.

Heat pipes have become a very inexpensive way to transport heat within small spaces and the ability of a sintered heat pipe to flatten and bend makes it ideal in the electronics industry.

