



## Case Study

# Hard drive manufacturer requires cooling of two adjacent read/write chips on circuit board

### THE CHALLENGE

A computer hard drive manufacturer needs to cool the case temperature of two read/write chips adjacent to one another, to assure over 500k hour MTBF (mean time between failure).

### DESIGN REQUIREMENTS

- Low headroom of ~50 mils above surface of two components
- Two read/write chips surrounding by heat sensitive components
- Wide height tolerance between surfaces of adjacent components (+/- .020in)
- Minimal airflow
- Solution must pose no danger of electrical shorts
- Economical and cost effective

### KEY CUSTOMER REQUIREMENTS

- Complex mechanical constraints
- Low airflow
- Heat sensitive components
- Low cost yet high performance

### CONCLUSION

The Parker Chomerics T-WING™ solved the hard drive heat problem, a problem exacerbated by a complex set of mechanical constraints, including low headroom, neighboring heat sensitive components, limited airflow, and varying component heights. Designers were impressed by the simplicity, cost, and performance of the T-WING™ heat spreaders.

### THE SOLUTION

Parker Chomerics proposed a custom T-WING™ heat spreader, approximately 1.5in x 4in, to be directly mounted onto the hot components using a high temperature silicone pressure sensitive adhesive (PSA). Initial test results indicated a 17°C drop in case temperature, with no adverse effects to the neighboring components.

The flexibility of the T-WING™ allowed the firm attachment to multiple chip surfaces with varying heights. Low headroom was not an issue as the overall part thickness was less than 14 mils. This solution proved to be ideal from both a performance and cost standpoint.

