



Thermal Load Boards

Heat sources are simulated with either chip resistors, power surface mount resistors or transistors, and/or semiconductor Thermal Test Vehicles (TTVs). The latter are sometimes available from the semiconductor manufacturer that supplies the devices that will be mounted on the final board; TEA may also be able to supply a suitable TTV. A given TLB design may incorporate any combination of these different heat sources.

Connection to the TLB is highly dependent on the Customer's specific application environment. If required, the board can be designed to plug into systems or enclosures to make use of existing power supplies. Alternatively, the board can be designed for either flying leads, TLB-mounted connectors or an edge finger extension, or any combination thereof. The latter is useful when the TLB is housed in a tight-fitting enclosure that requires minimal side wall access cutouts.

The TLB development process consists of the following steps --

- a) Project Definition – size, shape and power topology for the TLB, heat source type and power level, electrical requirements, etc.
- b) Electrical and Mechanical Location review – TEA provides electrical schematics showing heat sources and connection circuitry and board outline with heat source placement; Customer reviews and approves design and layout.
- c) TLB Design and Layout – TEA completes the board layout, working with the customer to resolve any layout issues as they come up.
- d) TLB Layout review – TEA provides layout in pdf, dxf, or Gerber format for the Customer's review and approval.
- e) TLB Board Fabrication – TEA has one of several qualified pcb fabrication facilities make the boards.
- f) TLB Component Acquisition – TEA purchases standard components and orders mechanical pieces (i.e., heat spreaders, etc.).
- g) TLB Documentation – TEA completes the assembly and application documentation.
- h) TLB Assembly – TEA generates assembly kit (including the board, components, documentation, etc.) and transports the kit to a qualified board assembly vendor.
- i) TLB Checkout and Final Test – TEA checks all aspects of the finished TLB and companion items (i.e., connectors, application documentation, etc.)
- j) TLB Delivery – TEA ships TLB and companion items.

Depending on the board size and complexity, the design review and approval process, and the delivery urgency, a custom-designed TLB can typically be delivered in 5 to 8 weeks ARO range.

The cost of TLB design, layout and fabrication is also highly dependent on board size and complexity, power dissipation levels, interface requirements, the design review and approval process, and the delivery urgency.

Thermal Load Boards are very application specific and must be designed and developed in close cooperation between the Customer and TEA. TEA would welcome the opportunity to discuss your specific requirements.