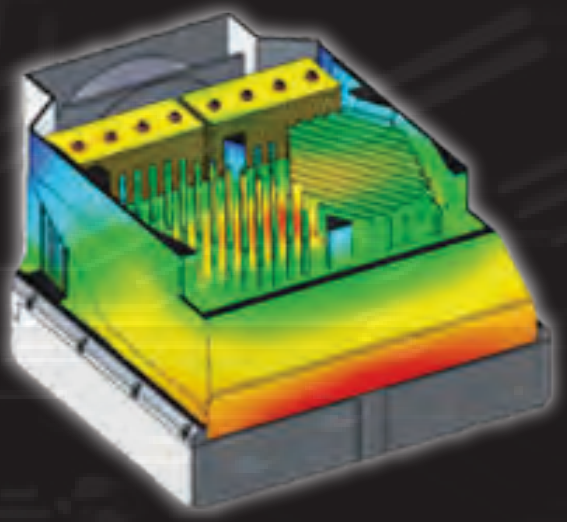
ElectroThermal Design

Industrial enclosures for high-power electronics

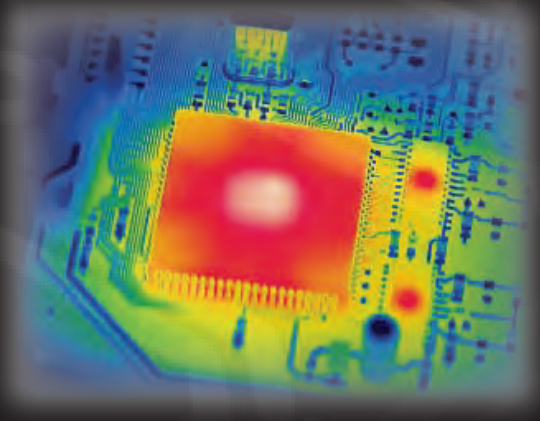
Thermal Analysis



Enclosure Design

Cooling Solutions

Experimental Validation



Thermal Analysis

Take the guesswork out of thermal management.
ETD generates highly accurate thermodynamic simulations, for invaluable insight into the thermal efficacy of your design.

Simulation

No matter what stage of the design process you find yourself in, we can help you figure out if your product is thermally viable.

Drawing off of over 8 years of experience creating thermodynamic simulations for electronics cooling, ETD has boiled the process down to a science. We typically achieve an accuracy within +/- 10%

We first create a simulation-friendly model of your design. With customer input, we then thoroughly define all variables impacting thermal performance such as:

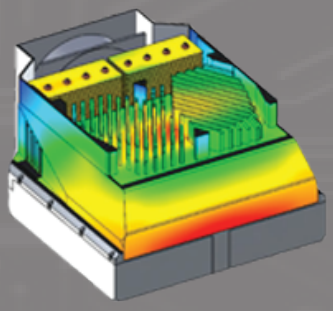
- > Initial conditions
- > Heat dissipation
- > Thermal interfaces
- > Cooling systems etc.

After completion, ETD breaks down the results of the simulation via an easy to consume, intuitive report.

SOLIDWORKS FLOW SIMULATION

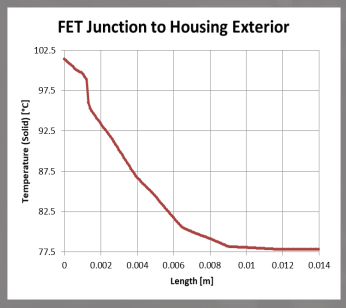
Deliverables

What you can expect to see in an ETD thermal analysis report



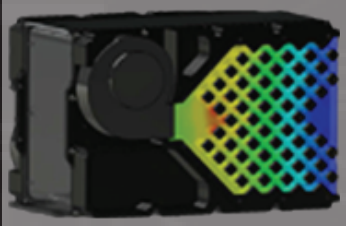
Thermal Profile

An all-encompassing 3D heat map revealing temperature data throughout your design.



Component Analysis

Constructing a higher resolution picture of thermal performance in vital components. FETs, chips, caps, etc.



Flow Characteristics

A comprehensive summary of the fluid dynamics underpinning the design. Air flow trajectories, pressure gradients, etc.

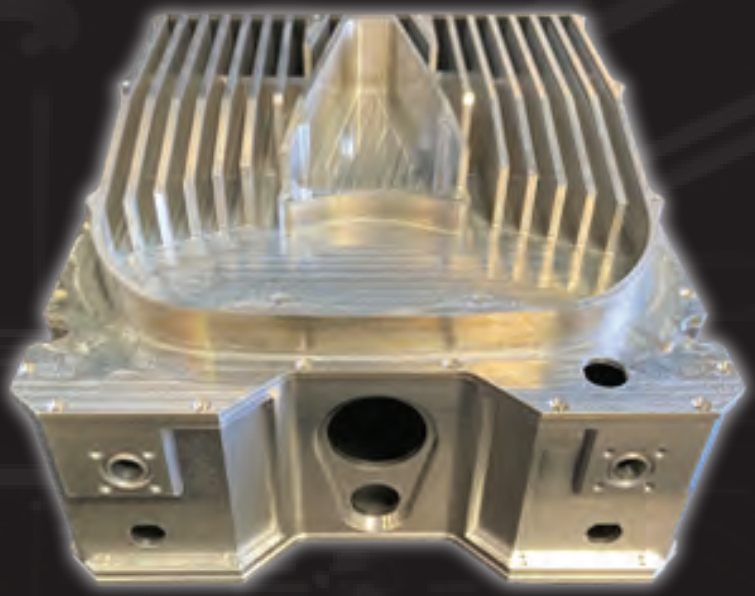
Transient Explorer

Time a major factor? Our transient analysis is capable of providing temperature vs time data down to the second.

ETD

Enclosure Design

Orderly electromechanical layouts. Compact yet rugged housings.
ETD's custom enclosures are tailor made to fit any application.



Cooling Solutions

Innovative cooling solutions for high-power products.

Natural Convection

Free Air Cooling

Forced Convection

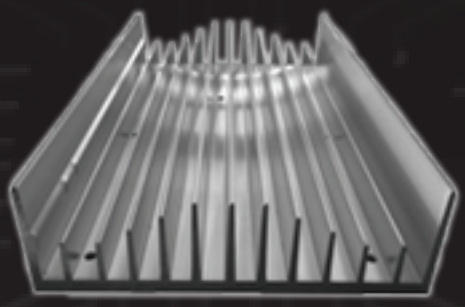
Embedded Fans

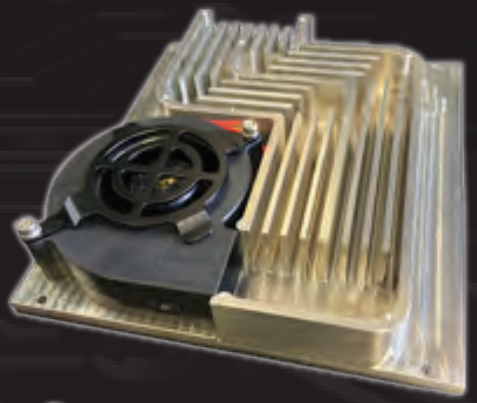
Heat Pipes

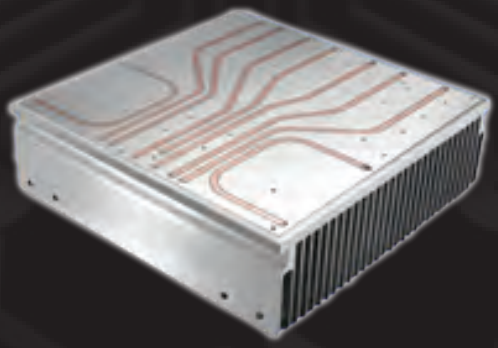
High Thermal Conductivity

Liquid Cooling

Water lines







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Experimental Validation

Know without a shadow of a doubt that your product is operating within safe temperatures. ETD offers on-site thermal validation and/or burn-ins.

Bench Top Setup

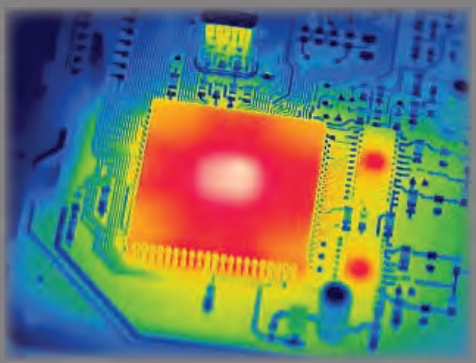
Versatile test setup that can be deployed at virtually any location.

Thermocouples

An array of thermocouples placed at points of interest within the test unit comprise the second source of thermal data.

Thermal Imaging

ETD uses the FLIR A500, a top of the line thermal camera as the first of two sources of thermal data.



FLIR

Validation

During a thermal validation test high/full power is applied to the test unit. Two seperate streams of data are captured and recorded (thermal imaging + thermocouples). The two sources of data combine to create a multi-variate temperature data set. This means you can have absolute confidnce that the results are comprehensive and conclusive.

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