Novel Concepts, Inc.

Microelectronic Thermal Management

ThinSink™

Credit Card v2 Evaluation Unit

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Novel Concepts, Inc. has developed and has patents pending for the world's thinnest forced convection (fan cooled) heat sink dubbed **ThinSink™**. Thinner than a credit card, this low profile ThinSink has a volumetric cooling efficiency up to 25 times greater than today's best microprocessor heat sinks, which means it cools 25 times more heat per cubic centimeter.

Developed to fit inside small electronic devices such as notebooks, monitors, and tablets; ThinSink efficiently cools integrated circuits, semiconductors, LED's and other microelectronic heat generating devices. The ThinSink technology may be fabricated in almost any shape, or size, and may be incorporated within existing structures such as circuit boards, or enclosures.

ThinSink's smooth fan surface requires very little electrical power. A credit card sized ThinSink (85mm by 55mm by 0.75mm), using a 40mm diameter smooth fan, spinning at 6,000 RPM, consumes only 0.031 watts of electricity (up to 2 days on a AAA battery).

Even with its low power consumption, this same credit card sized ThinSink has an amazing thermal performance of 2.73°C/W (degrees Centigrade per watt), at a fan speed of 6,000 RPM.

ThinSink is also extremely quiet, due to its thin smooth fan surface, which eliminates the pulsating sound and vibration caused by traditional fan blades. At 6,000 RPM, this credit card sized ThinSink has a sound output less than 34 dBA (quieter than a soft whisper at one meter distance).

Since ThinSink is thin and flat, it's also very lightweight. An aluminum credit card sized ThinSink weighs only 20.1 grams, including motor and motor frame, and only occupies 5.4 cubic centimeters of space.

Additionally, ThinSink may be very cost effective. Excluding the motor, ThinSink has only two thin flat parts, which can be stamped or molded from metal or plastic.

ThinSink™ (based on credit card sized cooler - 85mm x 55mm x 0.75mm)							
Fan Speed (rpm)	Fan Voltage (volt)	Fan Power (watt)	Thermal Resistance (°C/W)	Volumetric Thermal Efficiency (W/°C/cc)	Sound (dBA)	Mass (gram)	Volume
2,000	2.0	0.005	4.36	0.042	24		
4,000	4.0	0.015	3.28	0.056	30	20.1	5.4
6,000	6.0	0.031	2.73	0.068	34		
8,000	8.0	0.058	2.39	0.077	37		
10,000	10.0	0.101	2.15	0.086	39		

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