



Nanoceramic MCPCB

Overview

- Composite thermal conductivity: 115 W/mK
- Low thermal resistance: 0.21 °C.cm²/W
- Nanoceramic thermal conductivity: 7.3 W/mK
- LED free solder reflow compatible
- Pb-free solder compatible (MSOT 130°C)
- ROHS compliant
- UL recognised E36153
- Flammability V-0

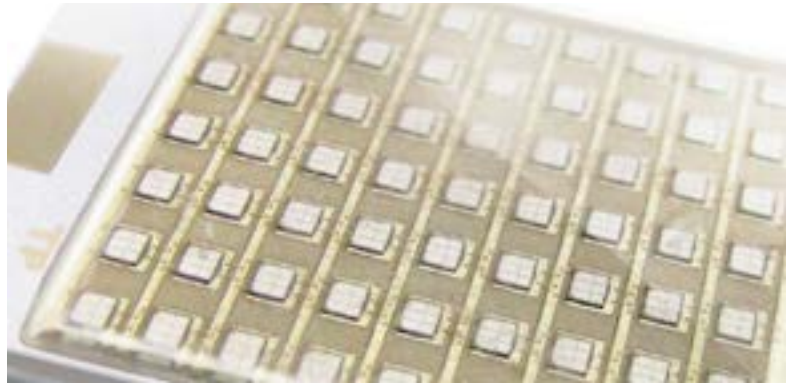
Applications

Nanotherm MCPCB is designed for LED applications where thermal management is a challenge.

- COB LED & CSP substrates
- LED modules
- UV LED modules
- High density light engines
- Industrial luminaires (i.e. High Bay)
- Horticultural light sources

Depending on the thickness of the Nanoceramic dielectric layer, withstand voltage ranges from 250 to 1,500 Vac.

Call us now for a quote:
+44 (0) 1440 765 520 or
www.camnano.com



Nanotherm MCPCB is an innovative substrate material for LED applications. Its unique construction offers the industry's highest thermal performance for a Metal Core Printed Circuit Board (MCPCB).

A patented process converts the surface of aluminium to an extremely thin ceramic dielectric layer with high thermal conductivity. The Nanoceramic dielectric thickness can be precisely controlled and applied as thin as 10µm – many times thinner than conventional dielectrics.

The combination of the thinnest dielectric layer in the industry with the highest conductivity yields the lowest thermal resistance of any MCPCB material.

- Nanotherm MCPCB enables a broad range of electronic applications where thermal challenges are created by high power and component densities.
- Nanotherm MCPCB dissipates heat generated by electronic devices much more efficiently than those with polymer based dielectrics. This gives engineers the choice to run LEDs at a lower temperature, either extending lifespan or driving the LEDs harder to increase lumen output.
- The Nanotherm substrate is based on a unique patented technology for applying ceramic dielectric material on aluminium. The dielectric is a nano-crystalline alumina ceramic that has a very low thermal resistance, excellent adhesion and can be applied in very thin layers.



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Nanotherm MCPCB Capabilities

Cambridge Nanotherm manufacture finished PCBs via a network of approved subcontractors. We offer a range of different circuitisation options to meet your requirements, from fast turnaround prototyping to low-cost mass production.

MCPCB capabilities (standard product)	
Maximum circuit dimensions	285 x 437 mm
Base metal	Aluminium 6082-T6
Base metal thickness	1.0 and 1.5 mm
Copper weight	1 and 2 oz (approx 35 and 70 µm thickness)
Minimum track and gap	150 µm (1 oz), 200 µm (2 oz)
Holes	1.0 mm Ø (1.0 mm panel) and 1.5 mm Ø (1.5 mm panel).
Hole registration	± 100 µm
Routed features	0.8 mm internal radius 2.0 mm minimum track width
Solder mask	LED white, black, green or blue
Surface finish	Immersion silver, OSP, ENIG, ENEPIG
Singulation options	Routing or v-score
UL marking	CNL dd-mmm-yy MCPCB1 V-0 
Silk screen	White, black, yellow
Makers mark	Optional with batch / date identification
Test	Open/short, withstand
Inspection	IPC-A-600H Class 2 or AABUS

Special orders: Note that the capabilities listed above are for the standard Nanotherm MCPCB product. Please contact Cambridge Nanotherm if your project doesn't exactly match as there are various options we can explore to meet most requirements.