NF40 NanoFoil® for Bonding Electronics Assembly

Features

- 40µm thick - optimized for bonding electronics assemblies
- Localized heat source for bonding
- Enables high strength, high conductivity bonds between most combinations of materials
- Flux-free process
- Pick & place ready

Applications

Component Mounting
Localized heating of solder minimizes exposure of components to high temperatures, giving greater flexibility for solder alloys and assembly processes.

High Brightness LED
6-10X lower thermal resistance than adhesives allows LEDs to run cooler, which increases lifetime, reduces spectral drift, and allows higher powers to be used.

Concentrated PhotoVoltaic (CPV)
Superior thermal performance compared to adhesives; simplifies assembly process.

Power Amplifers
Localized heating of solder. Suitable for PCB attach to heat spreader and power amplifier package attach.

Thermal Management
Enables solder as a thermal interface without reflow; offers higher thermal conductivity than organic thermal interface materials.

Optical Component Attach
Eliminates problems due to CTE mismatch and enables the use of higher temperature solders.

Forms of NanoFoil®

NanoFoil® is available in a range of thicknesses (40-80µm) in free-standing forms to cover any bonding geometry including:

- Sheets
- Preforms
- Tape and reel
- Waffle packs

Safety

Impact sensitivity	Passes a 2kg weight drop from 45cm on 1.6cm² (1/4 inch²) area
Autoignition temperature	200°C (392°F) with a heat rate of 200°C/min
DOT Shipping designation	CFR49 4.1: flammable solid

NF40 NanoFoil® Properties

Composition Before Reaction	Alternating layers of Ni and Al
Composition After Reaction	$Ni_{50}Al_{50}$
Foil Density	5.7-6.1 g/cm³
Minimum Dimension	1.2mm x 2.0mm
Heat of Reaction	1050-1250 J/g
Reaction Velocity	6-10 m/s
Maximum Reaction Temperature	1350°C-1500°C (2460°-2730°F)
Thermal Conductivity	35-50 W/mK
RoHS Compliant	Pb-Free

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Form No. 98560 (A4) R2

www.indium.com/nanofoil NanoFoil@indium.com

ASIA: Singapore, Cheongju: +65 6268 8678
CHINA: Suzhou, Shenzhen, Liuzhou: +86 (0)512 628 34900
EUROPE: Milton Keynes, Torino: +44 (0)1908 580400
USA: Utica, Clinton, Chicago: +1 315 853 4900

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