Thermal Conductive Sheet - Carbon Fiber Type

Quickly dissipates heat to the heat sink to protect the device from overheating

Product Name

EX series

Features

- Exceptional thermal conductivity (up to 40 W/mk) in thickness direction due to its unique asymmetric structure.

- Dexerials' proprietary carbon fiber orientation technology contributes to high flexibility while maintaining excellent thermal conductivity.

Under development

- EX20000CX: Can be as thin as 0.1mm
- EX10000K3: High thermal conductivity with added noise suppression function
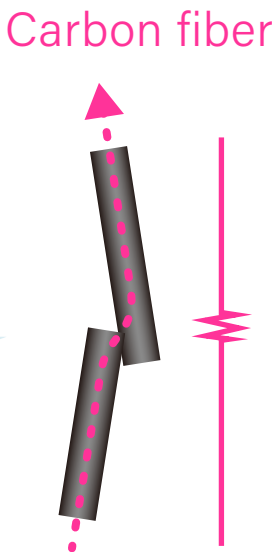
Structure

Thermal conductive sheet with vertically aligned high density carbon fiber fillers. The product is very flexible due to its unique asymmetric structure while attaining high thermal conductivity in thickness direction.
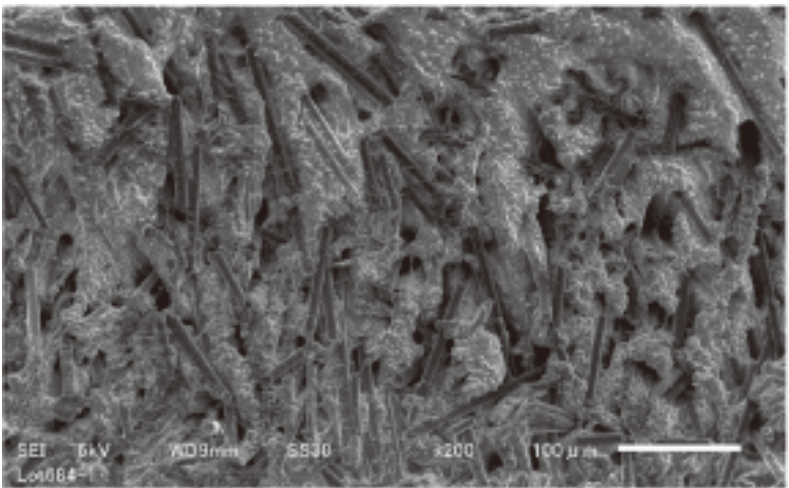
Carbon Fiber Sheet
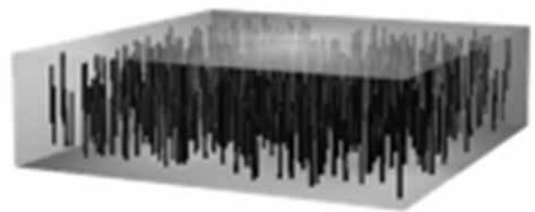
Carbon fiber

Thermal conductivity of carbon fiber
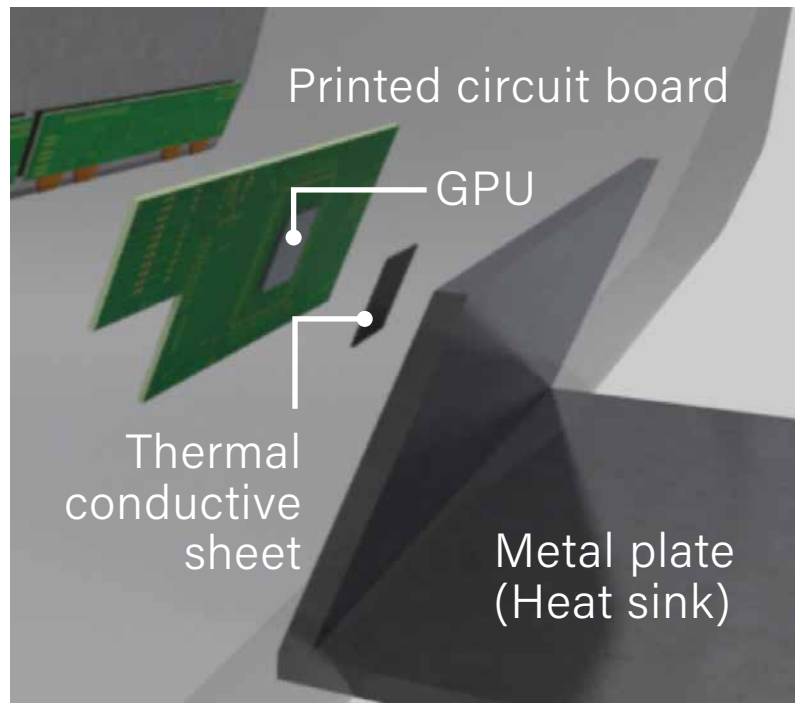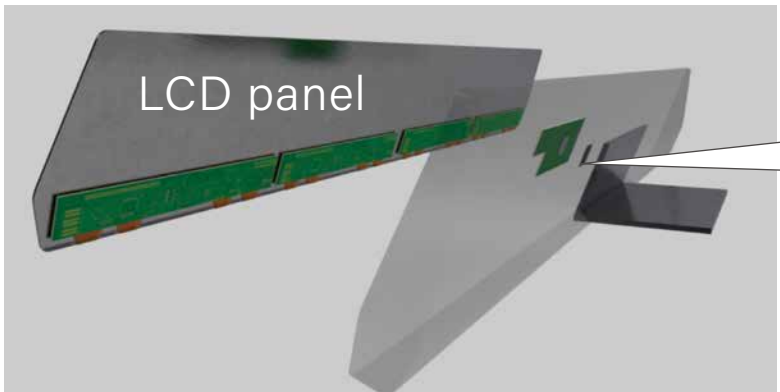**900** W/m·K

[Sectional view]   SEM* image
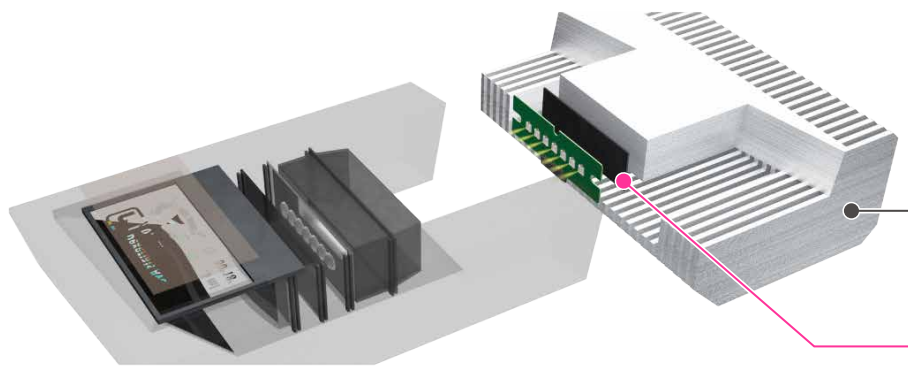
*Scanning Electron Microscope

Application

Suitable for instrument cluster, center information displays, head-up displays, sensing cameras, batteries, head lights
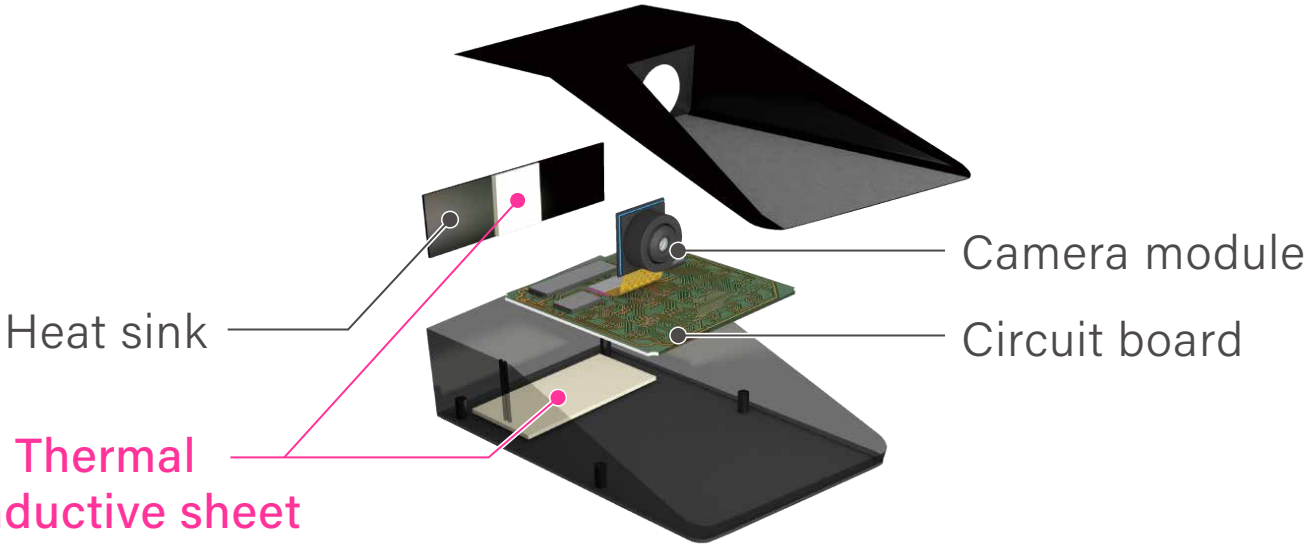
Instrument cluster

LCD panel

Printed circuit board

GPU

Thermal conductive sheet

Metal plate (Heat sink)

Head-up Display (light source unit)

Sensing Camera

Heat sink

Thermal conductive sheet

Camera module

Circuit board

Specifications

Item name		Thermal conductivity[1]	Hardness[2]	Thickness[3][4]	Resin binder	Flame retardance
		W/m·K	Shore OO	mm		
EX20000CX	Under-development	38	< 85	0.1	Silicone	-
EX20000NC1	Under-development	20	40 - 60	1.0 - 3.0		UL94 V-1 (1.0 - 1.5mm) UV94 V-0 (1.5 - 3.0mm)
Noise Suppression EX10000K3	Under-development	20	40 - 60	0.5 - 3.0		-
EX20000C4S		40	70 - 80	0.3 - 0.5		UL94 V - 0
EX20000C9		40	50 - 60	0.5 - 3.0		UL94 V - 0
EX20000C9S		35	20 - 35	1.5 - 3.0		UL94 V - 0 (1.5mm~)
EX10000F7		30	50 - 60	0.4 - 3.0		UL94 V - 0
EX10000NC1		10	40 - 50	1.0 - 3.0		UL94 V-1 (1.0 - 1.5mm) UV94 V-0 (1.5 - 3.0mm)

*1：Value shown does not include influences caused by the interfacial thermal resistance. Thermal resistance is calculated based on the following formula.

$$R_{di} = \frac{d_i}{K_{bulk}} + R_{surface}$$

R_{di} ：Thermal resistance with different thickness [Km²/W]

d_i ：Each sheet thickness [m]

K_{bulk} ：Bulk thermal conductivity [W/m·K]

$R_{surface}$ ：Thermal contact resistance [Km²/W]

*2：Hardness is measured by stacking the sheets to thickness of 10mm and over.

*3：Represented is the thickness of the thermal conductive sheet, excluding release liner.

*4：Customized thickness and product size will be available upon request.

*5：Calculated from the thermal resistance.
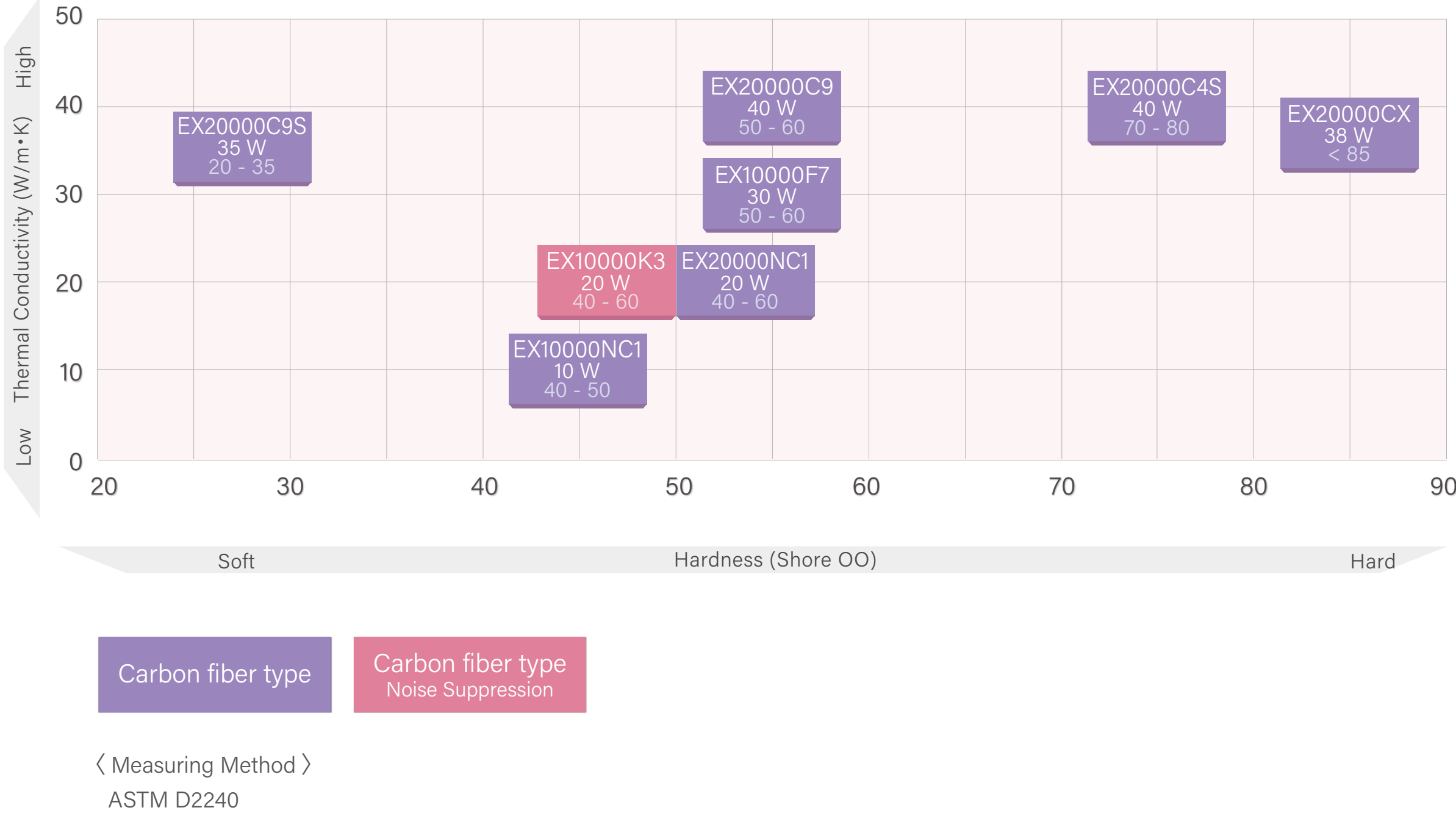
〈 Measuring Method 〉
ASTM D2240

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The document was created in November 2021.