

Noise Suppression Thermal Conductive Sheet

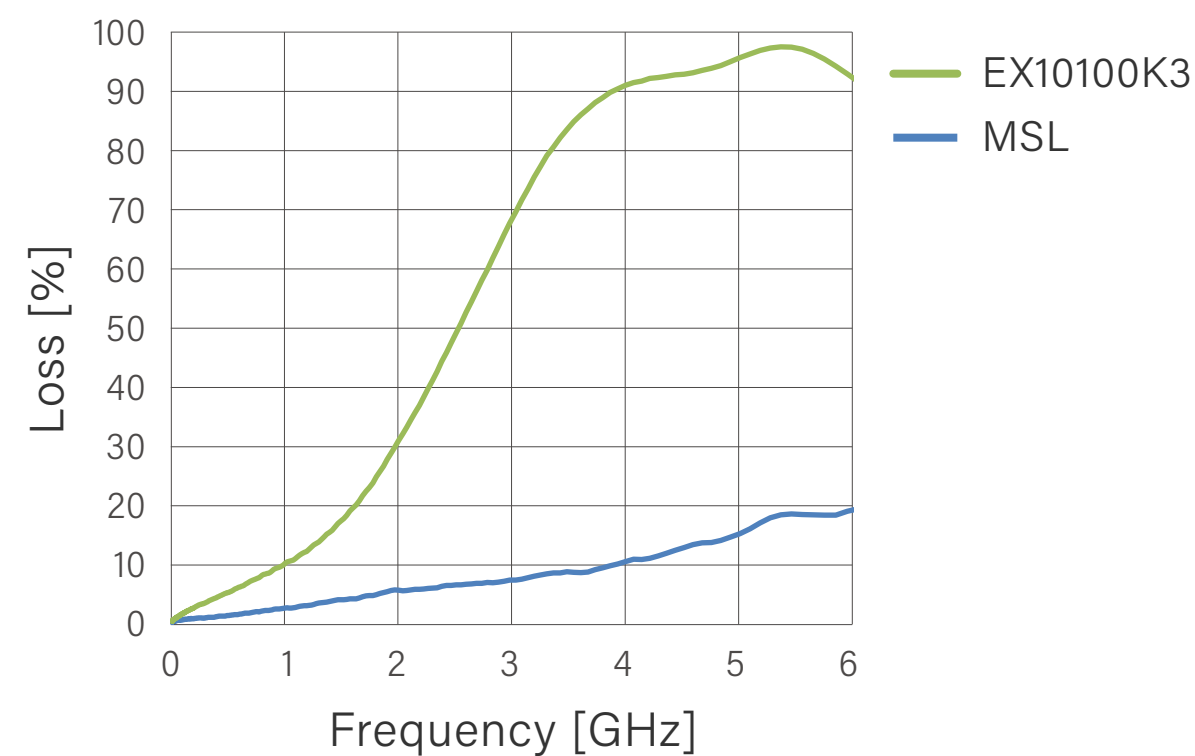
- Carbon Fiber Type

The usage of 5G technology will enable faster OTA updates and v2v and v2x communication. Thus, EMC solutions, especially in high frequency domain for receiver and RF module, become increasingly essential.

Product Name EX10000K3 Noise Suppression
20W TIM
Carbon Fiber + Magnetic filler hybrid type

Features

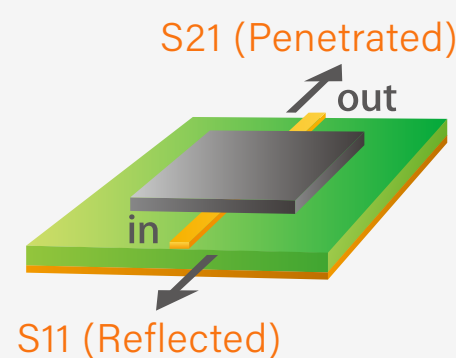
Excellent noise suppression in high frequency band



[Measuring Condition]

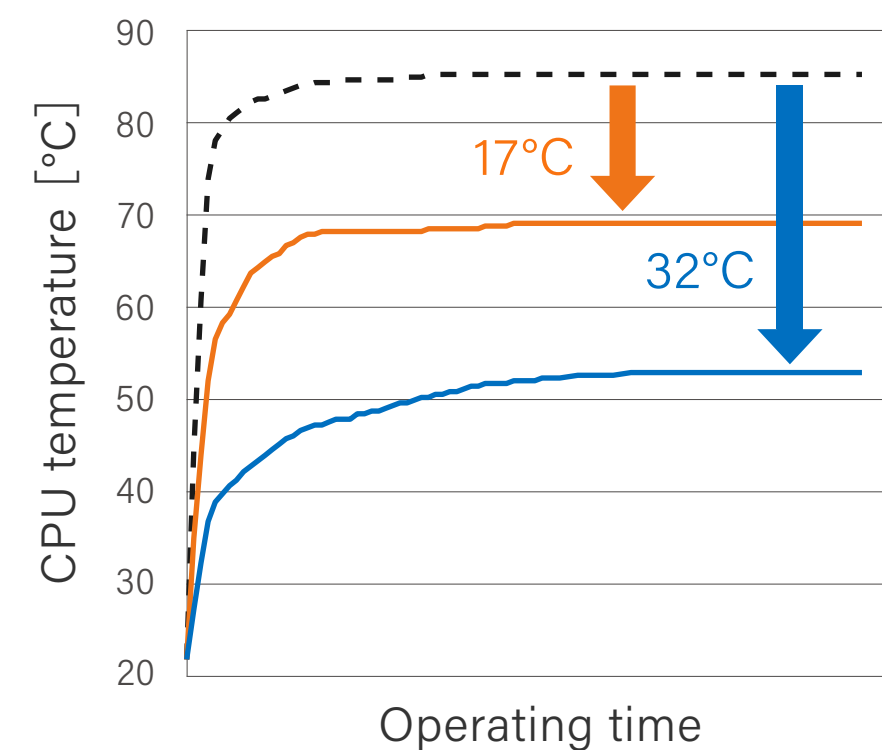
2cm square sheet is placed on the MSL (Micro Strip Line), and the loss is measured by S11 and S21.

(Thickness of sheet is 1.0mm)



Ultrahigh thermal conductivity

Thermal conductive effect in CPU



--- No TIM
— Dexerials' conventional TIM
— Dexerials' CFS TIM

Mechanism

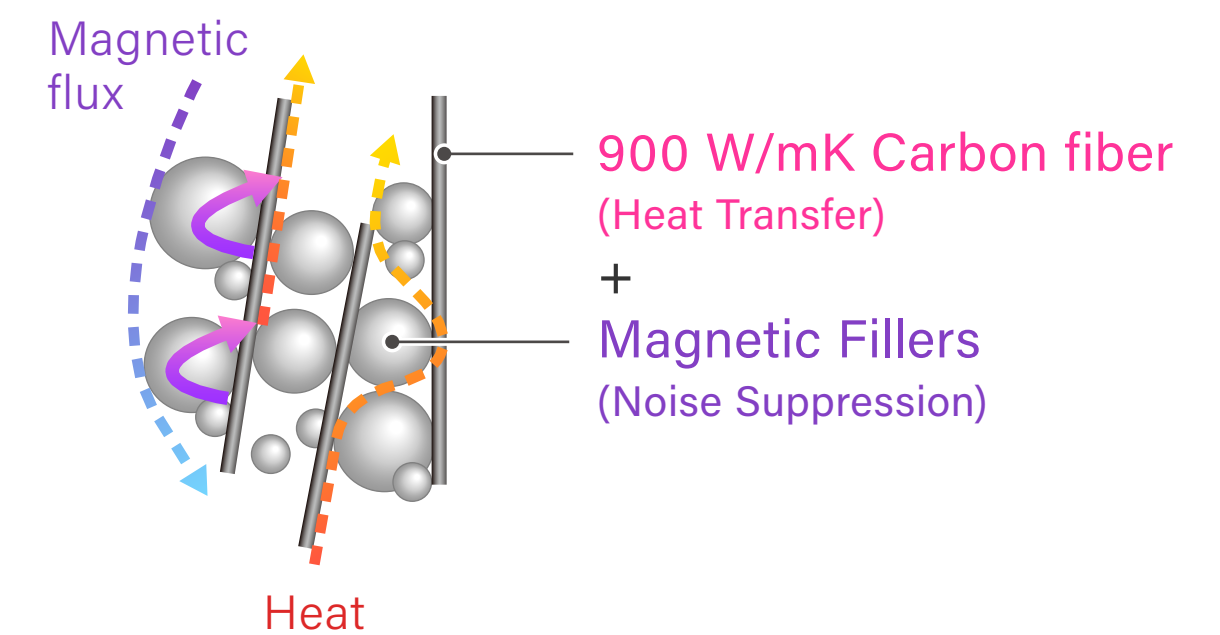
EMC solutions by single pad

Carbon fiber works for :

- Heat flow
- EMI shielding

Magnetic filler works for :

- Noise absorption



Effects of EMI shielding

Shield can	Covering the whole area	Covering the whole area	Place TIM in the opening at the top of the shield can
Heat radiating material	TIM1: 1W/mK Grease TIM2: 3W/mK Pad	TIM1: 1W/mK Grease TIM2: 20W/mK Pad	TIM2: 20W/mK+EMI Pad
Sample	Heat Pipe TIM2 Pad Shield can TIM1 Grease	Heat Pipe TIM2 CFS Shield can TIM1 Grease	Heat Pipe Shield can TIM CFS
CPU Performance	Poor overall performance Score: ~100,000 CPU [°C]: ~40.0	Low heat radiation caused by many contact surfaces. Score: ~110,000 CPU [°C]: ~41.0	High heat radiation, Low thermal resistance Score: ~130,000 CPU [°C]: ~38.0

Specifications

Item name	Thermal conductivity*1	Hardness*2	Thickness*3 *4	Resin binder	Flame retardance
	W/m·K	Shore OO	mm		
Noise Suppression EX10000K3 Under-development	20	40 - 60	0.5 - 3.0	Silicone	-

*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.

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