



放熱 EMC対策 軽量化

Heat release EMC (Electromagnetic Compatibility) Weight reduction

金属筐体樹脂化 (OBC コンセプトモック)

Resinization of metal housing

電磁波シールド性と高放熱特性を持つ樹脂にて、射出成形ならではの形状自由度と放熱材併用で金属筐体を樹脂化し軽量化を目指す

We aim to reduce the weight of metal cases by utilizing resin designed for effective heat dissipation, selecting injection molding with a flexible resin for shaping, and incorporating heat dissipating materials instead of using metal.



Challenge

アルミ筐体より約45%軽量化

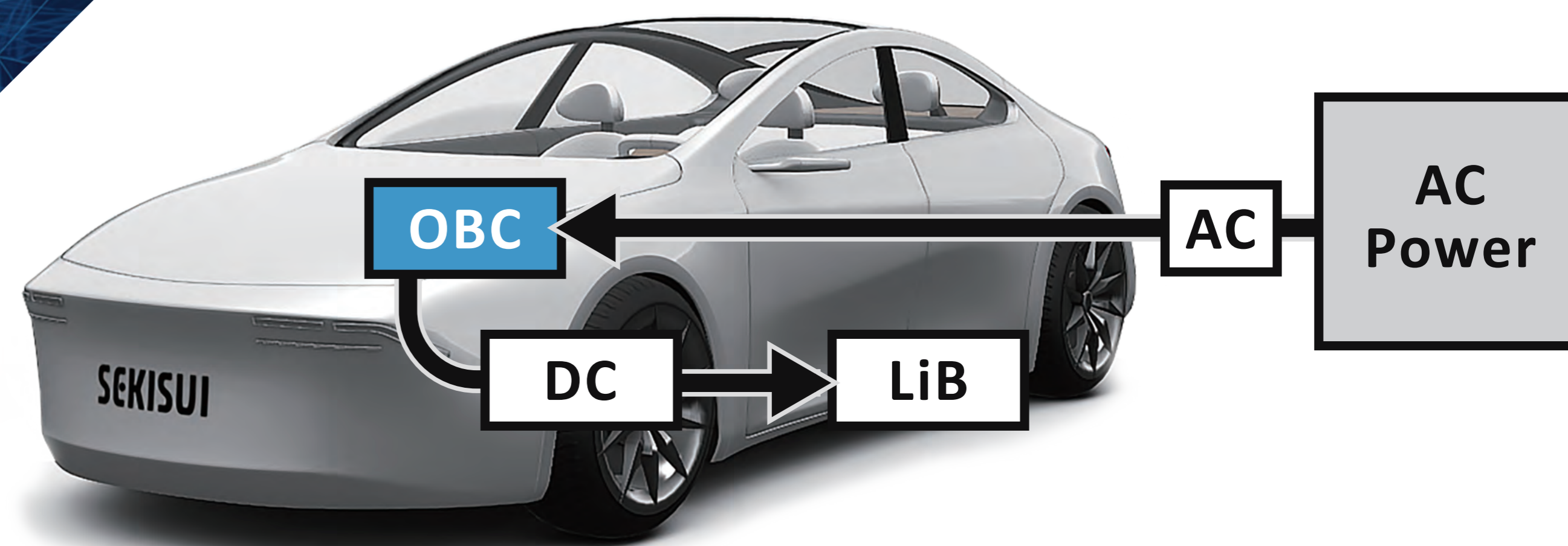
Approximately 45% lighter than aluminum housing



Solution

金属に劣る樹脂の放熱性を、筐体構造と放熱材の併用で補完

Complement the heat dissipation of resin, which is inferior to metal, by combining structure and heat dissipating materials.



Technology
技術情報
Technical overview

放熱性の補完

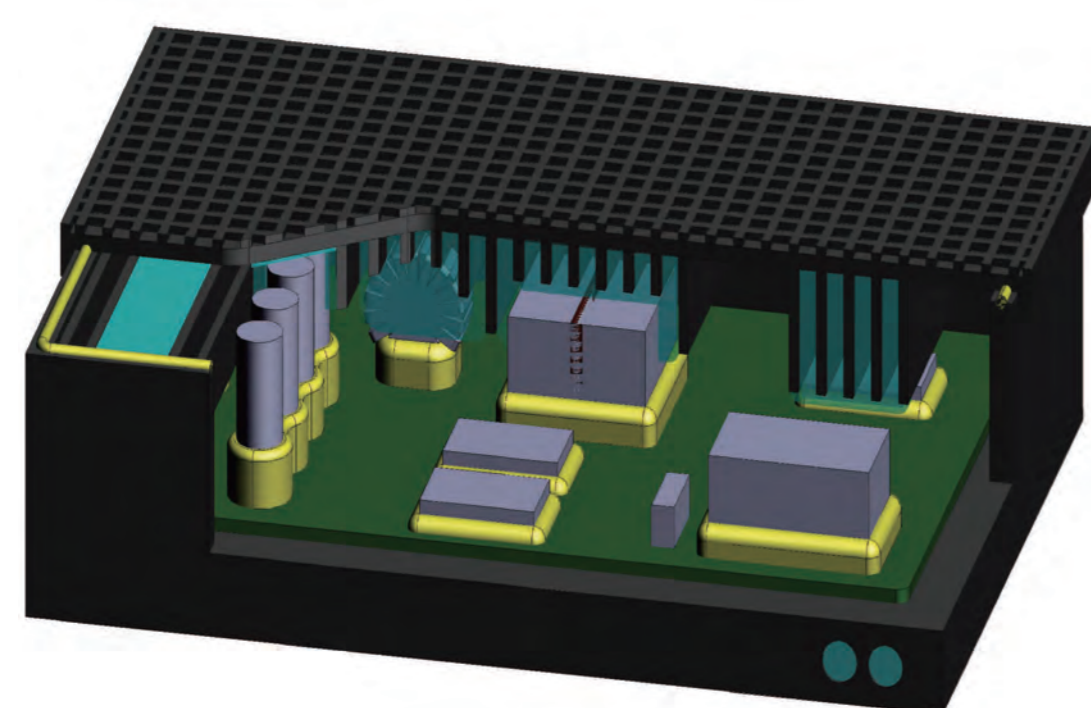
Complement of heat conduction

区画化で発熱部品を放熱材で埋没化 Compartmentalization buries heat components with TIM

伝熱板にて熱伝導パスを増加 Increase the heat transfer path with the heat transfer plate

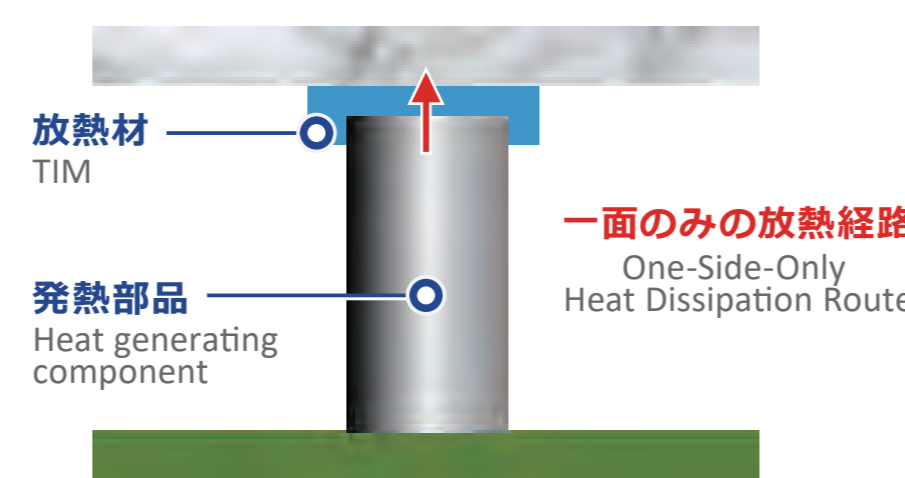
OBCコンセプトモック

OBC Concept mock-up



現行アルミダイキャスト筐体例

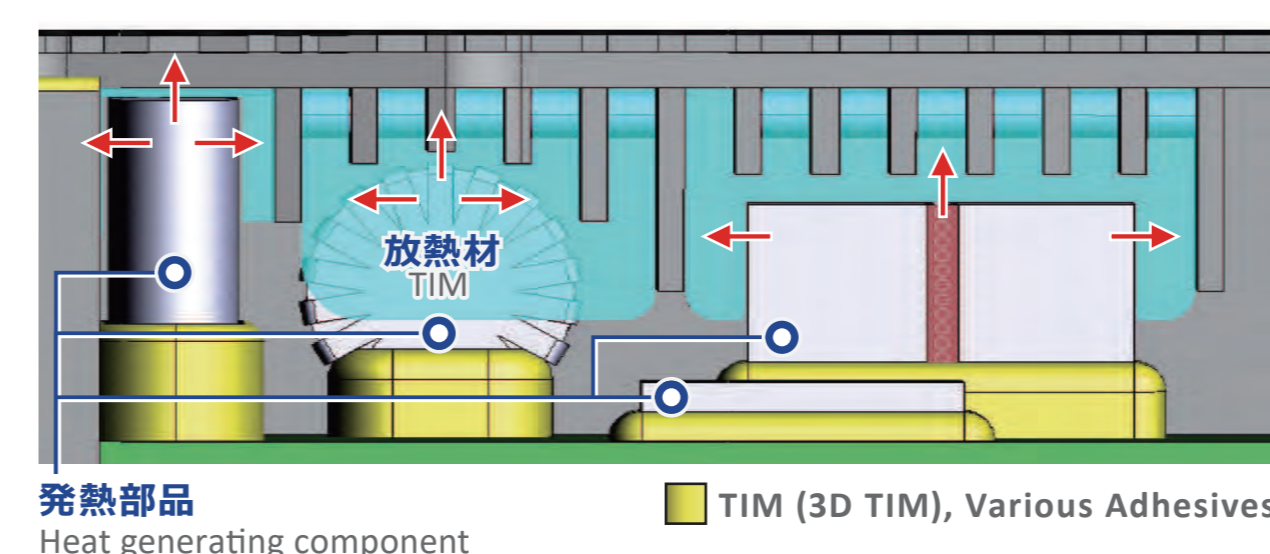
Example of current aluminum die cast housing



放熱EMC成形品

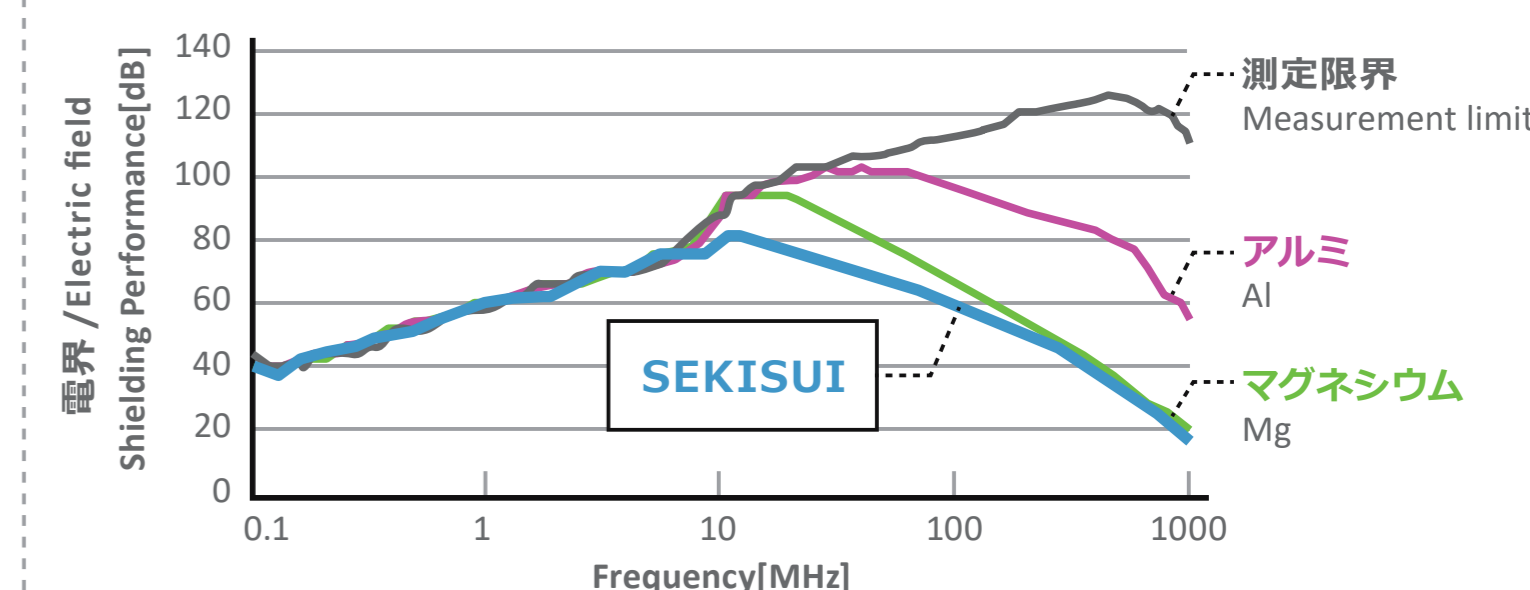
Heat Dissipation EMC Molded Product

3D 放熱経路
3D Heat Dissipation Path



電磁波シールド性能試験

Electromagnetic shield test



筐体：放熱EMC成形品

Casing : Heat Dissipation EMC Moldings

放熱材 (ギャップフィラーCGW、3D放熱材)

TIM (Grease CGW, 3D TIM)

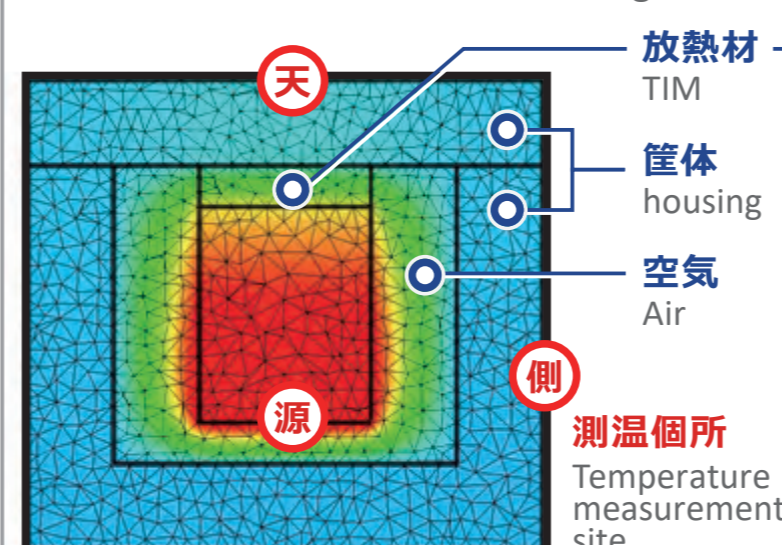
放熱材 (3D 放熱材)、各種接着剤

TIM (3D TIM), Various Adhesives

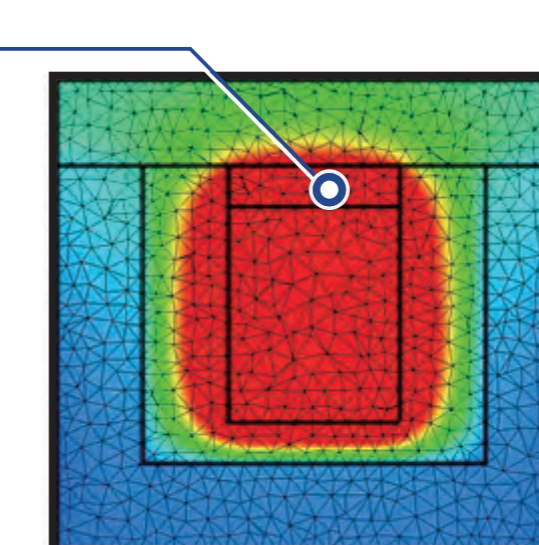
単純モデル
放熱シミュレーション例
Simple model simulation example

熱源 10W、熱伝導率 [W/m・K] = アルミ:96、放熱 EMC 成形品: 面方向 12.2、厚み方向 2.5、放熱材: 6、空気: 0.029、1辺: 60mm、環境温度: 20℃
Heat Source 10 W, Thermal conductivity [W/m・K] = Al:96, Molded: Surface 12.2, Thickness 2.5, TIM:6, Air: 0.029, 60 mm per side, environmental temperature: 20℃

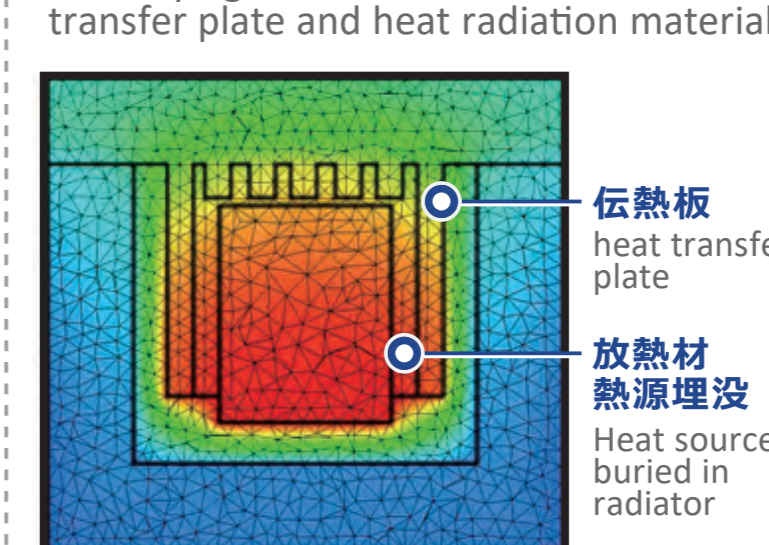
アルミダイキャスト筐体
Aluminum Die-Cast housing



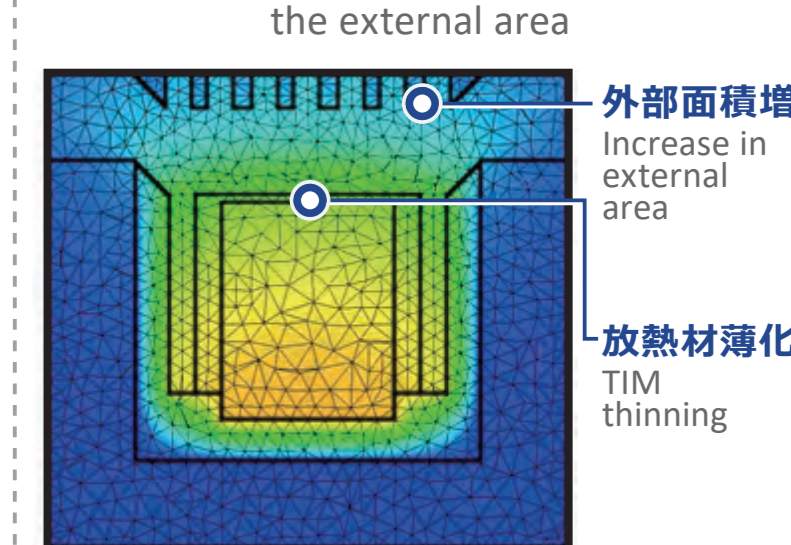
同形状 / 放熱EMC成形品
Same Molded Product



伝熱板、放熱材で熱源埋没
Burying the heat source with heat transfer plate and heat radiation material



放熱材薄化、外部面積増
Thinner the TIM and increase the external area



温度 [°C] Temperature	熱源 Heat source	103.3
	天面 Ceiling	69.8
	側面 Side	67.6

熱源 Heat source	132.4
天面 Ceiling	77.8
側面 Side	66.0

熱源 Heat source	99.7
天面 Ceiling	75.4
側面 Side	66.3

熱源 Heat source	92.5
天面 Ceiling	69.3
側面 Side	61.3



展示会特設Webサイト
1/29 (月) より製品資料公開
Exhibition Special Website
Document D/L from Mon, 29 Jan.

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