# CoolZorb

## A Hybrid Board Level Solution

Laird

Smart Technology. Delivered.

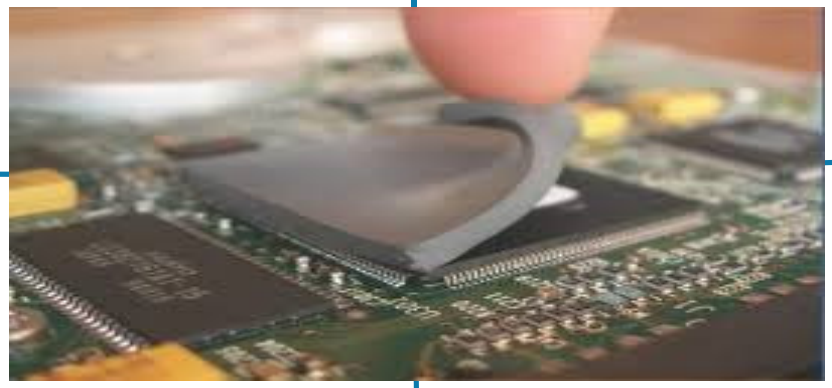
# Design Engineering Challenges Today

- Space constraints (miniaturization of electronics)
- increase functionality of electronics
- High power density / higher frequencies for higher data rates
- Complex EMI/EMC management
- Complex Thermal management
- Challenges can be more efficiently addressed using multi functional product solutions

# CoolZorb – The Hybrid Solution

Hybrid Thermal/EMI management

Tailored performance

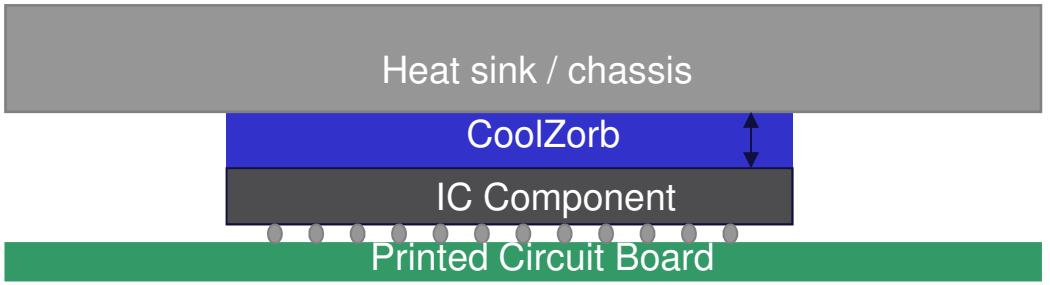


Design flexibility

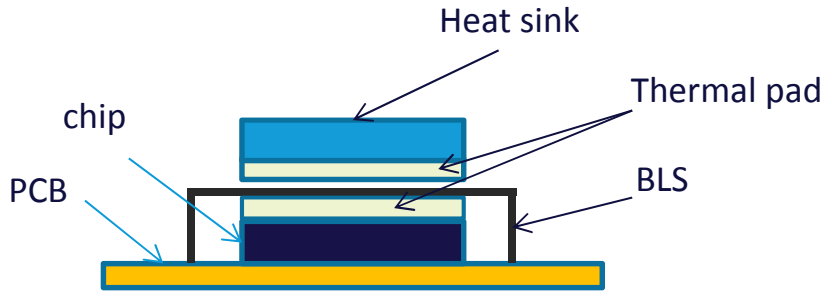
Ease of assembly

# Two in One Thermal/EMI Management

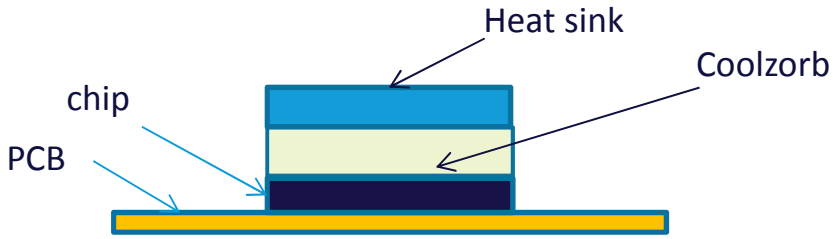
- One layer / two functions
- Combines performance of thermal interface material and EMI absorber
- High thermal conductivity
- suppresses unwanted radiation from IC
- Suppresses radiating electromagnetic fields coupling between IC and heat sink



# Design Flexibility



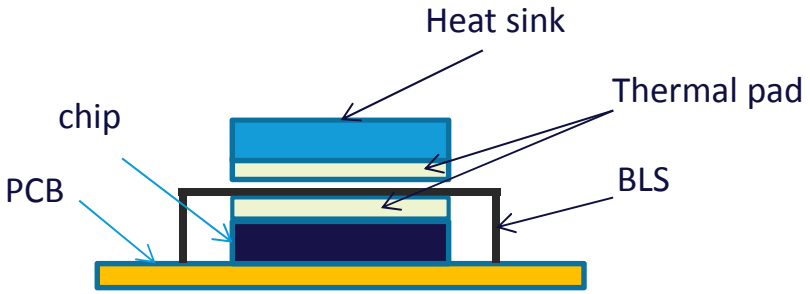

Standard TIM/BLS



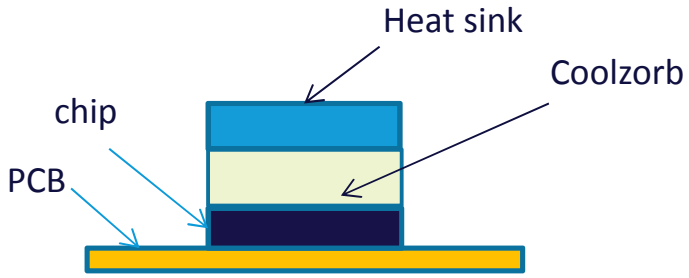

CoolZorb – Design Concept

- Single gap pad
- Reduced number of components
- Simplified board design & layout
- Conserves space
- Lower thermal resistance
- Improved heat transfer

# Ease Of Assembly



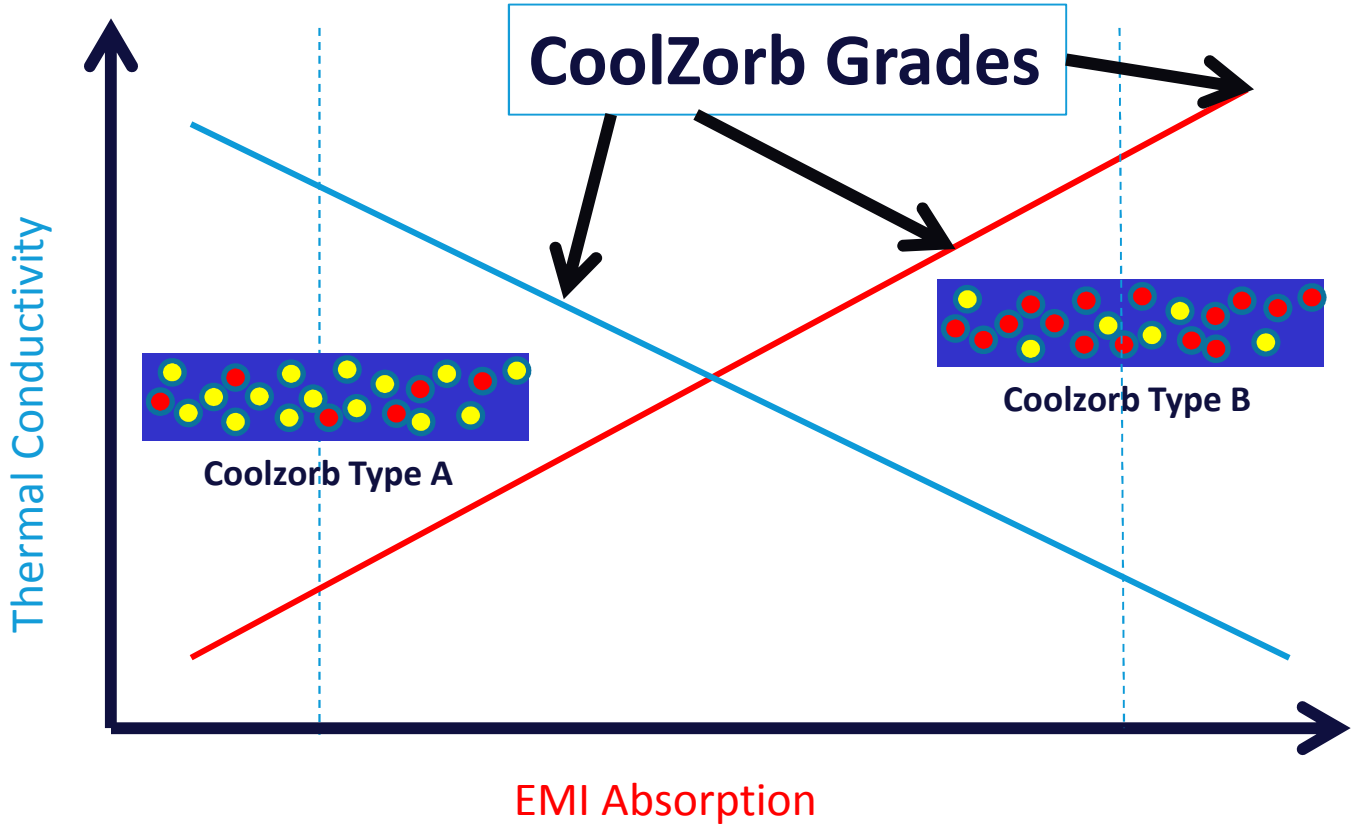

Standard TIM/BLS




CoolZorb – Design Concept

- Simplified manufacturing due to less components
- Lean BOM
- Natural inherent tack on both sides reduces thermal interface resistance
- Peel and stick adhesive not required – just remove liner and attach

# Changing Filler Composition To Tailor Performance




- Thermal & EMI properties may be tailored for needs of specific applications by changing the filler composition/grades
- Coolzorb is non-conductive and electrically isolating
- Coolzorb has natural inherent tack to minimize thermal resistance

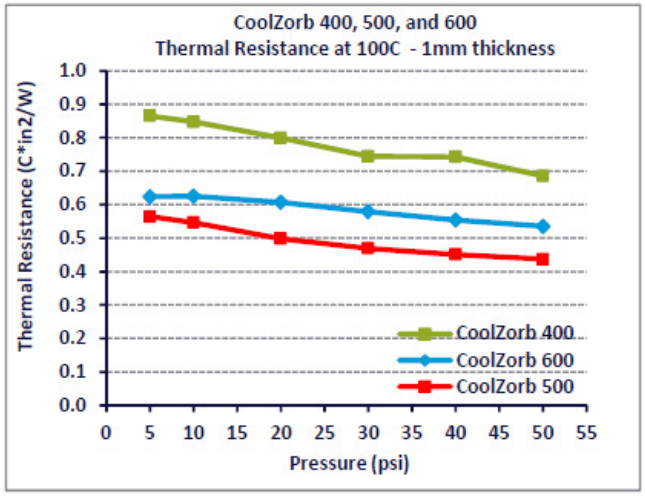
# Product Selection Design Guidelines

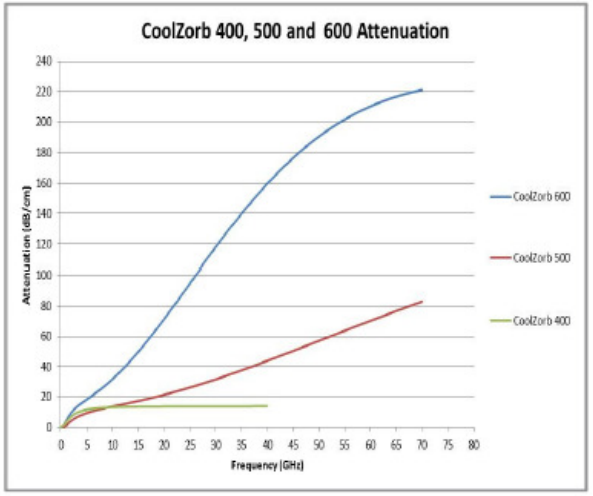
- CoolZorb 400 - standard grade and most cost effective for less challenging thermal management/EMI requirements (Tc= 2.0 W/mK)
- CoolZorb 500 - premium grade recommended for the most challenging thermal management applications (Tc= 4.0 W/mK) that also require good EMI attenuation
- CoolZorb 600 is a premium grade that is recommended for the most challenging EMI attenuation applications that also require good thermal conductivity (Tc= 3.0 W/mK)

| TYPICAL PROPERTIES | COOLZORB 400 | COOLZORB 500 | COOLZORB 600 |
|---|---|---|---|
| Thermal Conductivity | 2.0W/m-K | 4.0W/m-K | 3.0W/m-K |
| Attenuation (5 GHz) | 11.7 dB/cm | 9.4 dB/cm | 18.3 dB/cm |
| Attenuation (15 GHz) | 13.5 dB/cm | 17.3 dB/cm | 49.8 dB/cm |

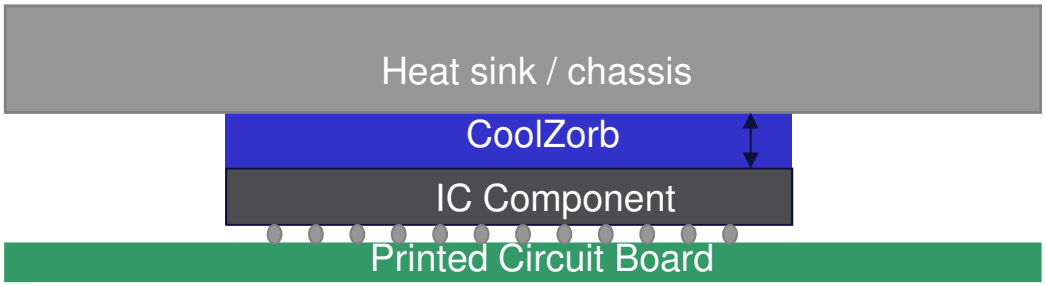
# CoolZorb Portfolio – Summary Of Key Properties

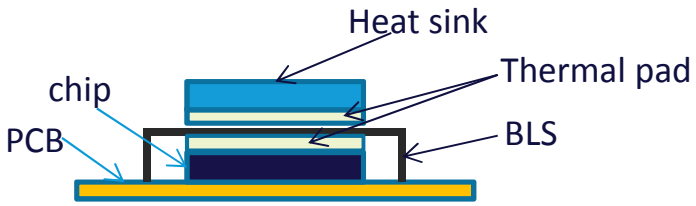
| TYPICAL PROPERTIES | COOLZORB 400 | COOLZORB 500 | COOLZORB 600 |
|---|---|---|---|
| Thermal Conductivity | 2.0W/m-K | 4.0W/m-K | 3.0W/m-K |
| Hardness | 56 Shore 00 | 55 Shore 00 | 60 Shore 00 |
| Temperature Range | -20°C to 100°C | -40°C to 175°C | -40°C to 175°C |
| UL Flammability | UL94V0 | UL94V0 | UL94V0 |
| Attenuation Frequency | 5 GHz & higher | 5 GHz & higher | 3 GHz & higher |



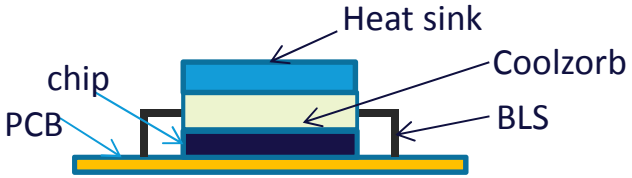
# CoolZorb Placement & Proposed Applications




Standard TIM/BLS


CoolZorb – Design concept #2




CoolZorb/BLS – Design concept #1

# CoolZorb – Your added-value solution