

Features & Benefits

- 35.0 W/mK Thermal Conductivity
- Electrically conductive
- Low Interfacial Resistance
- Superior Thermal Performance
- Flexi and Soft Metallic material

Applications

- Servers CPUs, GPU, SOC
- High Power AI chips
- Power Semiconductors devices
- Power electronics like IGBT cooling

Introduction

TCLAD TCSM is a patented high thermal conductivity Flexi and soft metallic thermal interface material. It is used between the heat sink and heat source such as a CPU, GPU, AI SOC or power electronics to provide the lowest thermal resistance path for heat dissipation. This material can be used under the package lid or bare die or outside the lid (TIM1/TIM1.5/TIM2.0).

Typical properties Unlike current typical liquid materials available in the market like Gallium and other Gallium and Indium based material which are completely liquid and low viscosity, a damp is required to prevent migration. is an advanced metallic thermal interface material engineered to deliver ultra-low thermal resistance without the limitations of dry metal foils or liquid metal TIMs. This product has viscosity-controlled metallic structure enables wetting and conformal contact across warped and non-coplanar surfaces, while its high rebound preserves interface integrity over time. The propriety material is a non-eutectic alloy and operates within the operating temperature of semiconductor products.

Usage. Supplied as a foil structure, it supports multiple integration approaches, including pre-attachment and bonded interfaces, for scalable manufacturing and consistent system-level performance. It contains no organic material and requires no burn-in as compared to PCM. It can be also be screen printed.

Useable life and storage: TCSM products are best if stored in a cool and dry / non-humid environment, especially where they are not exposed to any sunlight/fire. The shelf life can be up to 12 months when properly stored.

Package Information: Typical package size as foil structure. Custom size available.

Precautions: Please review the technical datasheet of the material before use of the products in terms of the material characteristic to fit one's application. All values stated here are typical values.

We provide custom solutions for your applications. For further inquiries, please contact your local sales agent or directly TCLAD in your region.

Item	Condition	Unit	Value	Method
General				
Color	Visual	-	Silver	-
Continuous Use Temp	-	°C	30 - 250	-
Density	25°C	g/cc	4.4	ASTM D792
Total Foil assembly thickness		mm	130	
Minimum Bondline	25 °C	mm	0.12	-
Electrical				
Young Modulus	25 °C	Mpa	0.25	ASTM D575
Liquidus Point for non-eutectic alloy	-	°C	28	-
Solid point for non-eutectic alloy	-	°C	300	-
Boiling Point	-	°C	>2200	-
Thermal				
Thermal Conductivity	-	W/m-K	35	ASTM D5470
Thermal Impedance	BLT 100 µm	°C-cm²/W	0.025	-
Durability				
RoHS	-	-	Compliant	

Applications Tips:

- **Surface Preparation:** Thoroughly clean the surfaces before applying the TCSM to ensure proper adhesion and to maximize thermal performance. Screen print for application is 0.02 to 0.2 mm thickness
- **Proper Storage:** Store any unused materials in a cool, dry location and adhere to the manufacturer's guidelines for shelf life and storage conditions to maintain product integrity. Store at 8°C to 35°C in a dry environment. • Shelf life is 12 months from the date of manufacture. • Please contact us for application notes and further instructions as this is a new material.

