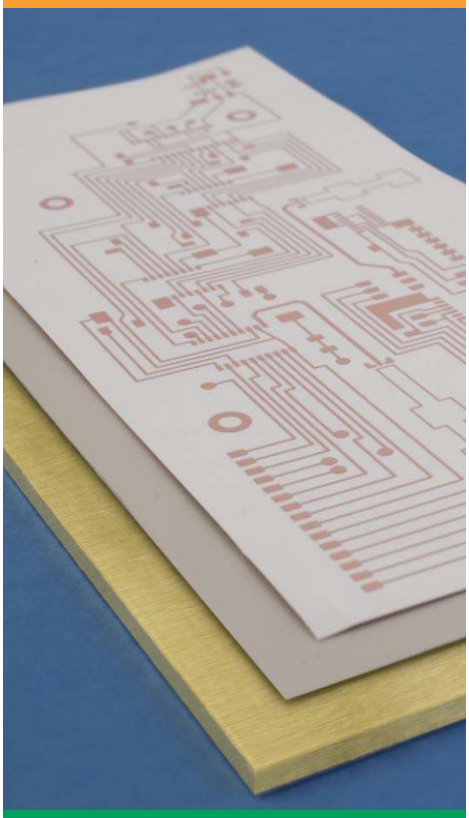
ROGERS CORPORATION

Data Sheet

COOLSPAN® TECA

Thermally and Electrically Conductive Adhesive



COOLSPAN® Thermally & Electrically Conductive Adhesive (TECA) film is a thermosetting, epoxy based, silver filled adhesive film used to bond circuit boards to heavy clad metal backplanes, heat sink coins and RF module housings. The adhesive can be used as an alternative to fusion bonding, sweat soldering, mechanical, or press fit metal attachment. COOLSPAN TECA provides both a thermal and electrical conductive bond interface.

COOLSPAN TECA film is supplied in sheet form on a PET carrier and is easy to handle when converting into preforms and when peeling from the carrier. Common converting processes include laser, steel rule die (SRD), router, and water jet cutting.

COOLSPAN TECA film has outstanding chemical resistance, and high temperature performance and will survive lead-free solder processing.

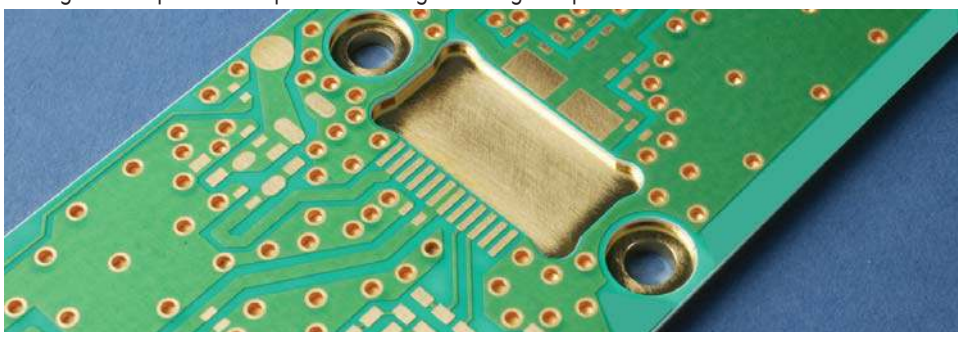
Processing Guidelines: The following processing guidelines provide a framework for working to identify the best set of parameters for a given application. Processing conditions may vary based on application and curing processes.

Adhesive and Surface Preparation: Allow adhesive to reach room temperature while strictly avoiding moisture condensation. Clean metal surfaces free of oils or other contaminants will provide for the best adhesion results. Cleaning with a solvent such as a reagent grade isopropyl alcohol is recommended.

Pre Tack Conditions: 125C for 5 minutes at 50 psi.

Cure Temperature and Time: 175C for 45 minutes, or 150C for 60 minutes. Temperature measured at adhesive.

Cure Pressure: Cure pressure will be dependant on factors such as size, flatness, and surface roughness. As such, it is recommended that a DOE (design of experiment) be used to identify a range of pressure that will ensure adequate wetting to both surfaces. A range of 80 psi to 140 psi serves as good range of pressures for such a DOE.



Features:

- Thermally and Electrically Conductive Bond Interface
- Supplied on PET carrier
- Easily converted to pre-forms and easily handled
- Low flow during pressure cure
- High bond strength
- Thermally robust
- Chemically resistant
- Lead-free solder compatible

Typical Applications:

- Alternative to heavy clad laminates
- Post fabrication metal backplane attachment
- Power amplifier heat sink coin attachment
- RF circuit board module assembly

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Film (Uncured) Typical Properties

Property	Typical Value [1]	Units	Condition/Test Method
Material Type	silver filled epoxy film	—	—
Thickness	0.002± 0.0005 0.004± 0.0005	inch	micrometer
Shelf Life [2]	3 minimum	months from DOS	IPC 4101C, 3.17, Condition 2
Work Life	3	months	<23C & <50% RH
Storage Life	12	months from DOM	5C (41F)
DSC Peak Exotherm	198	C	DSC
Tensile Strength	705	psi	IPC-TM-650 2.4.19
Mandrel Test	<0.125	inch	ASTM D4338

Cured Material Typical Properties

Property		Typical Value [1]	Units	Condition/Test Method
CTE below Tg		45	ppm/°C	TMA IPC-TM-650, 2.4.24.5 (modified)
CTE above Tg		70	ppm/°C	TMA IPC-TM-650, 2.4.24.5 (modified)
Tg		79	C	DMA ASTM D5026
Td		415	C	ASTM D3850, TGA
Storage Modulus @	-40C	11,417	MPa	DMA ASTM D5026
	0C	7,446		
	25C	5,387		
	100C	751		
	150C	445		
Lap Sheer Strength, ENIG to ENIG		2,000	psi	ASTM D1002-05
pH		6.2	—	25C
Ionics	Chloride	5.9	ppm	MIL STD 883 Method 5011
	Sodium	<4		
	Potassium	<35		
Ash Percent		85	%	TGA
Volume, Resistivity		0.00038	Ohm-cm	Four Point Probe, Laminated Plies
Thermal Conductivity		6.0	W/m°C	Laser Flash, Free Film, Z-Axis
Solder Float		Pass	—	IPC-TM-650, 2.4.13 method B

[1] Typical values should not be used for specification limits, except where noted.
[2] Guaranteed at least 3 months of shelf life remaining from date of shipment (DOS)

Ordering Information

Please contact Rogers Customer Service for pricing and availability. Please order using the following descriptions.

Description	Thickness (inch)	Sheet Size, W x L (inch)
COOLSPAN TECA 10X12 0020+-0005	0.002+/-0.0005	10 x 12
COOLSPAN TECA 10X12 0040+-0005	0.004+/-0.0005	10 x 12

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