



# PRODUCT DATA SHEET

LC-E229EF

250 °F Curing Thermally Conductive  
Electrically Insulating Epoxy Film Adhesive

### Description

LC-E229EF is a 250 °F (121 °C) curing supported, epoxy film adhesive specifically engineered to be thermally conductive, electrically insulating, and low volatility in vacuum environments. LC-E229EF is ideal for bonding PCB assemblies.

### Advantages

LC-E229EF demonstrates excellent adhesion and toughness throughout various cure cycles using both press or vacuum bag curing. LC-E229EF exhibits excellent resistance to humidity and can be used at both subzero and elevated temperatures. LC-E229EF is electrically insulating and thermally conductive. LC-E229EF can be supplied supported or unsupported in multiple weights and thicknesses.

### Physical Properties

Density: 1.7 ± 0.1 g/cm<sup>3</sup> per ASTM D792  
Gel Time @ 275 °F (135 °C): 3 – 8 min  
Aerial Weight (psf): .050±.005 lbs/ft<sup>2</sup>  
Film Thickness (uncured): .005±.0005 in  
Color: Dark Grey  
Tack: Low

### Shelf Life / Outlife / Storage

Shelf Life: 12 months from Certification Date  
Out Life: 14 days @ 70°F (21°C)  
Storage Temp: 0° F or below

### Cure Cycle Recommendations

LC-E229EF can be processed at temperatures from 235°F (113°C.) for 120 minutes to 290°F (143°C.) for 40 minutes. A 250°F (121°C) cure for 60 minutes is optimal in most cases using press, vacuum bag or autoclave processing.

Mechanical Properties			
Property	Tested per Specification	Condition	Measured Value (psi)
Lap Shear, avg (psi)	ASTM D1002-10	-40 °F (-40 °C)	6000
		75 °F (23.8 °C)	5800
		180 °F (82.2 °C)	4500

\*All testing was performed using 1/8" Chromic Acid etched 2024-T3 Aluminum Lap Shears cured @ 250 °F for 60 minutes.

Resin Properties		
Property	Tested per Specification	Value
Dielectric Constant (@ 100 Hz)	ASTM D150	4.5
Electrical Resistivity (10 <sup>14</sup> Ω)	ASTM D257	2.4
T <sub>g</sub> (°C)	ASTM E1545	100 ±5
CTE ( $\frac{PPM}{K}$ )	ASTM E831	< T <sub>g</sub> : 64±3
		> T <sub>g</sub> : 173±3
Thermal Conductivity ( $\frac{W}{m°C}$ )	ASTM D5470	0.980
Outgassing (%)	ASTM E595	TML: 0.8
		CVCM: 0.0
		WVR: 0.11

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