

# **LONGLITE™ Flex 200 Series**

## **Adhesiveless Flexible Copper Laminate Material**

Single-clad Laminate

### **Description**

LONGLITE™ Flex 200 thin dielectric materials available from Rogers Corporation are single-clad, adhesiveless laminates specifically designed for thinner flex circuit constructions. The LONGLITE Flex 200 series of all-polyimide (API) laminates are made by casting polyimide directly onto copper foil, without the use of conventional adhesives.

Since these laminates are manufactured without the use of adhesive, they are ideally suited for the manufacturing of general purpose flexible circuits and those intended to be used in extremely harsh working environments, as well as thin multilayer and rigid-flex circuits.

LONGLITE Flex 200 laminates are manufactured in rolls available in widths of 250mm and 500mm.

### **Product Features**

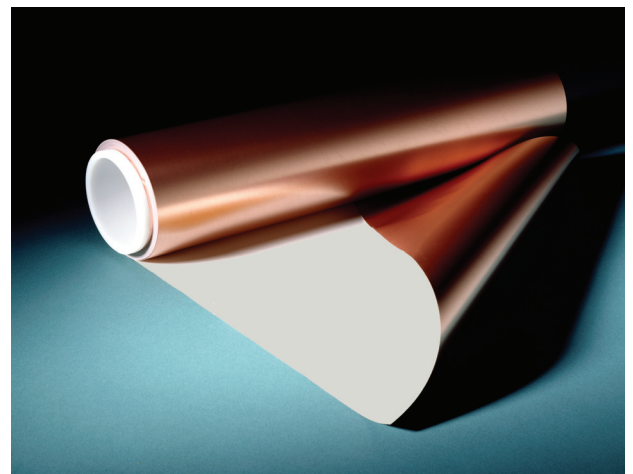
- Excellent dimensional stability provides added reliability in both processing and circuit performance.
- Excellent thermal resistance for soldering.
- Thinner cross-section than laminates with adhesives, allowing for more design freedom in flexing applications.
- Inherently flame resistant with a flammability rating of UL 94V-0.
- Exceptional electrical performance.
- Meets known industry requirements for halogen-free (green) materials.
- Low coefficient of thermal expansion (CTE).

### **Applications**

The LONGLITE Flex 200 series is suitable for ultra fine pattern flexible printed circuit applications requiring high thermal and chemical durability as well as exceptional flexibility.

Some application examples include:

- Conventional and high density flex circuits
- Multilayer and Rigid-Flex designs
- LCD (Liquid Crystal Display) interconnects
- Air gap or hybrid Rigid-Flex used in cell phone hinges



The information in this data sheet is intended to assist you in designing with Rogers' circuit materials. It is not intended to and does not create any warranties, express or implied, including any warranty of merchantability or fitness for a particular purpose or that any results shown in this data sheet will be achieved by a user for a particular purpose. The user is responsible for determining the suitability of Rogers' circuit materials for each application.

## Environmental Standards:

LONGLITE™ Flex 200 products contain no cadmium, lead, mercury, hexavalent chromium compounds, PBBs, PBDE's and meet or exceed the following industry standards:

- IEC and JPCA halogen-free requirements

## Product Offerings: Single Sided Adhesiveless Laminates

Product Number LONGLITE Flex	Construction Information				
	Copper			Polyimide Core	
	Cu Type	microns	oz	microns	mils
209L810	RA	18	1/2	25	1
209L880	RA	18	1/2	20	0.8
209L8H0	RA	18	1/2	12.5	0.5
20HL810	HA RA	18	1/2	25	1
20HL880	HA RA	18	1/2	20	0.8
20HL8H0	HA RA	18	1/2	12.5	0.5
20MLT10	ED	12	1/3	25	1
20MLT80	ED	12	1/3	20	0.8
20MLTH0	ED	12	1/3	12.5	0.5

### Available Configurations:

Many additional configurations are available as non-standards. Please check with your Rogers representative.

### Part Number and Descriptions:

Laminate (L) Designations	X	00L	X	X	0
Copper Type _____					
9=RA, H= Flex Fatigue Resistant RA (HA RA), M=ED					
Copper Thickness, oz (µm) _____					
T=1/3 (12), 8=12 (18)					
Polyimide Film Thickness, mil (µm) _____					
H=0.5 (12.5), 8=0.8 (20), 1=1 (25)					

### Storage Conditions:

LONGLITE Flex 200 laminates will retain their original properties for a minimum of one year from the date of manufacture when stored at 4-29°C and 70% RH in the original packaging.

### Applicable Specifications:

Copper Clad Laminates: IPC 4204/11

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## Typical Values

## LONGLITE™ Flex 200

Property	Test	Details	Units	Single-Sided Copper-Clad Laminates
<b>Mechanical Properties</b>				
Peel Strength	IPC-TM-650 method 2.4.9	Method A (as received)	kN/m	1.3
		After solder float		1.2
		after 200°C - 1 hour		1.2
	IPC-TM-650 method 2.3.2	MEK, 10 minutes	1.2	
Dimensional Stability	IPC-TM-650 method 2.2.4	Method C	MD	<0.1
			TD	<0.1
Flexural Endurance	JIS C 6471	MIT Test (without coverlay) R=0.8 mm, Load=500g	MD	1000
			TD	1000
<b>Electrical Properties</b>				
Dielectric Constant	IPC-TM-650 method 2.5.5.3	@1MHz	-	3.26
Dissipation Factor		@ 1MHz	-	0.0099
Surface Resistance	IPC-TM-650 method 2.5.17	-	Ohms	$1.4 \times 10^{15}$
Volume Resistance		-	Ohms cm	$1.3 \times 10^{16}$
Insulation Resistance	IPC-TM-650 method 2.6.3	500V, 60 sec.	Ohms	$2.8 \times 10^{11}$
Dielectric Strength	ASTM D-149	-	kV/mil	5.2
<b>Physical Properties</b>				
Moisture Absorption	IPC-TM-650, method 2.6.2		%	1.6
<b>Thermal Properties</b>				
Solder Resistance	IPC-TM-650, method 2.4.13	288°C, 10 sec.	-	PASS
Flammability	UL 94	File Number: E108591	-	V-0

Typical values are a representation of an average value for the population of the property. For specification values contact Rogers Corporation.

*LONGLITE Flex 200 adhesiveless laminates are compatible with R/flex JADE series coverfilms and bonding films:*

*R/flex JADE™ is a halogen-free, flame retardant epoxy adhesive system specially formulated to meet the unique requirements of emerging commercial applications worldwide. The product's proprietary formulation is designed to deliver uncompromising performance in an environmentally friendly package. For innovative flexible circuit designs and creative engineering challenges specify Rogers.*

*R/flex JADE halogen-free epoxy system delivers:*

- Superior thermal stability to withstand multiple passes through lead-free soldering
- Transparent adhesive system
- Excellent dimensional stability for ease of processing

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## World Class Performance

Rogers Corporation (NYSE:ROG), headquartered in Rogers, Conn., is a global technology leader in the development and manufacture of high performance, specialty material-based products for a variety of applications in diverse markets including: portable communications, communications infrastructure, computer and office equipment, consumer products, ground transportation, aerospace and defense. In an ever-changing world, where product design and manufacturing often take place on different sides of the planet, Rogers has the global reach to meet customer needs. Rogers operates facilities in the United States, Europe and Asia. The world runs better with Rogers.®

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### CONTACT INFORMATION:

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0762-0507-0.5CC Publication#:14-041