



ThinFlex

ThinFlex Corporation

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ThinFlex-I Coverlay

ThinFlex-I is a composite of polyimide film coated on one side with flame retardant modified epoxy adhesive. Coverlay can be used in the fabrication of flexible printed circuits for circuit protection and insulation.

1. Product Characteristics:

- * Excellent heat resistance
- * Excellent flammability (Flame class UL 94V-0; UL File No. E219724)
- * Excellent chemical resistance
- * Good dimensional stability
- * Excellent thermal, mechanical and electrical properties

2. Specifications:

Item		I-0505 I-0507 I-0508 I-0510	I-1005 I-1010 I-1014 I-1020
Polyimide Film Thickness		0.5 mil	1.0 mil
Adhesive	Type	Epoxy resin	
	Thickness	13 μ m 18 μ m 20 μ m 25 μ m	13 μ m 25 μ m 35 μ m 50 μ m
Supply Size		W: 250/500 \pm 2mm, L: 100+2/-0m (roll type)	

***Other thicknesses and dimensions are available on customers' demand.**



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3. Constructions:

Polyimide film
Epoxy Adhesive (or Black Epoxy Adhesive)
Release paper

4. Properties:

Test item		Unit	I-0505 I-0507 I-0508 I-1005	I-0510 I-1010 I-1014 I-1020	Test Method
Peel Strength	As Received	Kgf/cm	≥ 0.71	≥ 1.43	IPC-TM650 2.4.9
	After Soldering		≥ 0.71	≥ 1.43	
Surface Resistance		Ω	≥ 1.0×10 ¹⁰	≥ 1.0×10 ¹⁰	IPC-TM650 2.5.17
Volume Resistance		Ω-cm	≥ 1.0×10 ¹²	≥ 1.0×10 ¹²	
Resin Flow		μ m	≤ 200	≤ 200	ThinFlex
Dimensional Stability	M.D.	%	-0.2~0.2	-0.2~0.2	IPC-TM650 2.2.4C
	T.D.				
Thickness Tolerance		%	±10%	±10%	ThinFlex
UL Flame Class		--	94V-0	94V-0	UL

* Above data are typical values, and are not guaranteed values.



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Lamination and Process Conditions

ThinFlex Epoxy Coverlay are typically used in the following ranges:

A) Traditional Hot Press Conditions:

1. Part Temperature: 170-185°C
2. Pressure: 30-50 kg/cm²
3. Time: 30-60min, at temperature

B) Fast Hot Press Condition:

1. Pre-Press Temp / Time / Pressure: 170-190°C / 10sec / kiss pressure
2. Hot-Press Temp / Time / Pressure: 170-190°C / 90-140sec / 80-120kg/cm²
3. Post Cure Condition: 160-170°C / 1-2 hour

5. Storage:

ThinFlex-I will meet its shelf-life for at least 3 months after arrival at the user's factory when stored in the original packaging in a dry place at temperatures below 6°C.

Note: The information and data contained in this technical literature is believed to be accurate and is offered in good faith for the benefit of the user. The user should make his own tests to verify the suitability of this product for any application before its use. All data are typical values only and subject to change without notice.

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ThinFlex-M

Halogen Free Coverlay

ThinFlex-M is a composite of polyimide film coated on one side with flame retardant modified halogen free epoxy adhesive. Coverlay can be used in the fabrication of flexible printed circuits for circuit protection and insulation.

1. Product Characteristics:

- * Excellent heat resistance
- * Excellent flammability
- * Excellent chemical resistance
- * Good dimensional stability
- * Excellent thermal, mechanical and electrical properties
- * No ion migration for a long time
- * High Tg

2. Specifications:

Item		M-0505 M-0506 M-0508 M-0510 M-0514	M-1010 M-1014 M-1020
Polyimide Film Thickness		0.5 mil	1.0 mil
Adhesive	Type	Epoxy resin	
	Thickness	13 μ m 15 μ m 20 μ m 25 μ m 35 μ m	25 μ m 35 μ m 50 μ m
Supply Size		W: 250/500 \pm 2mm, L: 100+2/-0m (roll type)	

***Other thicknesses and dimensions are available on customers' demand.**



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3. Constructions:

Polyimide film
Halogen Free Epoxy Adhesive
Release paper

4. Properties:

Test item		Unit	M-0505 M-0506 M-0508 M-0510	M-0514 M-1010 M-1014 M-1020	Test Method
Peel Strength	As Received	Kgf/cm	≥ 0.60	≥ 0.70	IPC-TM650 2.4.9
	After Soldering		≥ 0.60	≥ 0.70	
Surface Resistance		Ω	≥ 1.0×10 ¹⁰	≥ 1.0×10 ¹⁰	IPC-TM650 2.5.17
Volume Resistance		Ω-cm	≥ 1.0×10 ¹²	≥ 1.0×10 ¹²	
Resin Flow		μ m	≤ 150	≤ 150	ThinFlex
Dimensional Stability	M.D.	%	-0.2~0.2	-0.2~0.2	IPC-TM650 2.2.4C
	T.D.				
Thickness Tolerance		%	±10%	±10%	ThinFlex
UL Flame Class		--	Applying	Applying	UL

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Lamination and Process Conditions

ThinFlex Halogen Free Coverlay are typically used in the following ranges:

A) Traditional Hot Press Conditions:

1. Part Temperature: 170-185°C
2. Pressure: 30-50 kg/cm²
3. Time: 30-60min, at temperature

B) Fast Hot Press Condition:

1. Pre-Press Temp / Time / Pressure: 170-190°C / 10sec / kiss pressure
2. Hot-Press Temp / Time / Pressure: 170-190°C / 90-140sec / 80-120kg/cm²
3. Post Cure Condition: 160-170°C / 1-2 hour

5. Storage:

ThinFlex-M will meet its shelf-life for at least 3 months after arrival at the user's factory when stored in the original packaging in a dry place at temperatures below 6°C.

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ThinFlex-Q Halogen Free Coverlay

ThinFlex-Q is a composite of polyimide film coated on one side with flame retardant modified halogen free epoxy adhesive. Coverlay can be used in the fabrication of flexible printed circuits for circuit protection and insulation.

1. Product Characteristics:

- * Excellent heat resistance
- * Excellent flammability
- * Excellent chemical resistance
- * Good dimensional stability
- * Excellent thermal, mechanical and electrical properties
- * High Tg

2. Specifications:

Item		Q-0505 Q-0506 Q-0508 Q-0510 Q-0514	Q-1010 Q-1014 Q-1020
Polyimide Film Thickness		0.5 mil	1.0 mil
Adhesive	Type	Epoxy resin	
	Thickness	13 μ m 15 μ m 20 μ m 25 μ m 35 μ m	25 μ m 35 μ m 50 μ m
Supply Size		W: 250/500 \pm 2mm, L: 100 +2/-0m (roll type)	

*Other thicknesses and dimensions are available on customers' demand.



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3. Constructions:

Polyimide film
Halogen Free Epoxy Adhesive
Release paper

4. Properties:

Test item		Unit	Q-0505 Q-0506 Q-0508 Q-0510	Q-0514 Q-1010 Q-1014 Q-1020	Test Method
Peel Strength	As Received	Kgf/cm	≥ 0.70	≥ 1.00	IPC-TM650 2.4.9
	After Soldering		≥ 0.70	≥ 1.00	
Surface Resistance		Ω	$\geq 1.0 \times 10^{10}$	$\geq 1.0 \times 10^{10}$	IPC-TM650 2.5.17
Volume Resistance		Ω -cm	$\geq 1.0 \times 10^{12}$	$\geq 1.0 \times 10^{12}$	
Resin Flow		μ m	≤ 150	≤ 150	ThinFlex
Dimensional Stability	M.D.	%	-0.2~0.2	-0.2~0.2	IPC-TM650 2.2.4C
	T.D.				
Thickness Tolerance		%	$\pm 10\%$	$\pm 10\%$	ThinFlex
UL Flame Class		--	94V-0	94V-0	UL

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Lamination and Process Conditions

ThinFlex Halogen Free Coverlay are typically used in the following ranges:

A) Traditional Hot Press Conditions:

1. Part Temperature: 170-185°C
2. Pressure: 30-50 kg/cm²
3. Time: 30-60min, at temperature

B) Fast Hot Press Condition:

1. Pre-Press Temp / Time / Pressure: 170-190°C / 10sec / kiss pressure
2. Hot-Press Temp / Time / Pressure: 170-190°C / 90-140sec / 80-120kg/cm²
3. Post Cure Condition: 180-190°C / 60-90 minutes

5. Storage:

ThinFlex-Q will meet its shelf-life for at least 3 months after arrival at the user's factory when stored in the original packaging in a dry place at temperatures below 6°C.

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ThinFlex-V Halogen Free Coverlay

ThinFlex-V is a composite of polyimide film coated on one side with flame retardant modified halogen free acrylic adhesive. Coverlay can be used in the fabrication of flexible printed circuits for circuit protection and insulation.

1. Product Characteristics:

- * Excellent heat resistance
- * Halogen free
- * Excellent chemical resistance
- * Excellent thermal, mechanical and electrical properties

2. Specifications:

Item		V-0505 V-0510	V-1010 V-1020
Polyimide Film Thickness		0.5 mil	1.0 mil
Adhesive	Type	Acrylic resin	
	Thickness	13 μ m 25 μ m	25 μ m 50 μ m
Supply Size		W: 250/500 \pm 2mm, L: 100+2/-0m (roll type)	

***Other thicknesses and dimensions are available on customers' demand.**



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3. Constructions:

Polyimide film
Halogen Free Acrylic Adhesive
Release paper

4. Properties:

Test item		Unit	V-0505 V-0510	V-1010 V-1020	Test Method
Peel Strength	As Received	Kgf/cm	≥ 0.60	≥ 0.90	IPC-TM650 2.4.9
	After Soldering		≥ 0.60	≥ 0.90	
Surface Resistance		Ω	$\geq 1.0 \times 10^{10}$	$\geq 1.0 \times 10^{10}$	IPC-TM650 2.5.17
Volume Resistance		Ω -cm	$\geq 1.0 \times 10^{12}$	$\geq 1.0 \times 10^{12}$	
Resin Flow		μ m	≤ 200	≤ 200	ThinFlex
Dimensional Stability	M.D.	%	-0.2~0.2	-0.2~0.2	IPC-TM650 2.2.4C
	T.D.				
Thickness Tolerance		%	$\pm 10\%$	$\pm 10\%$	ThinFlex
UL Flame Class		--	94V-0	94V-0	UL

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Lamination and Process Conditions

ThinFlex Halogen Free Coverlay are typically used in the following ranges:

A) Traditional Hot Press Conditions:

1. Part Temperature: 170-185°C
2. Pressure: 30-50 kg/cm²
3. Time: 30-60min, at temperature

B) Fast Hot Press Condition:

1. Pre-Press Temp / Time / Pressure: 170-190°C / 10sec / kiss pressure
2. Hot-Press Temp / Time / Pressure: 170-190°C / 90-140sec / 80-120kg/cm²
3. Post Cure Condition: 160-180°C / 30-120 minutes

5. Storage:

ThinFlex-V will meet its shelf-life for at least 3 months after arrival at the user's factory when stored in the original packaging in a dry place at temperatures below 6°C.

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ThinFlex-KA Coverlay

ThinFlex-KA is a composite of polyimide film coated on one side with flame retardant modified epoxy adhesive. Coverlay can be used in the fabrication of flexible printed circuits for circuit protection and insulation.

1. Product Characteristics:

- * Excellent heat resistance
- * Excellent flammability
- * Excellent chemical resistance
- * Good dimensional stability
- * Excellent thermal, mechanical and electrical properties

2. Specifications:

Item		KA-0505 KA-0506 KA-0507 KA-0510	KA-1005 KA-1010 KA-1014 KA-1020	KA-2014
Polyimide Film Thickness		0.5 mil	1.0 mil	2.0 mil
Adhesive	Type	Epoxy resin		
	Thickness	13 μ m 15 μ m 18 μ m 25 μ m	13 μ m 25 μ m 35 μ m 50 μ m	35 μ m
Supply Size		W: 250/500 \pm 2mm, L: 100+2/-0m (roll type)		

***Other thicknesses and dimensions are available on customers' demand.**



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3. Constructions:

Polyimide film
Epoxy Adhesive (or Black Epoxy Adhesive)
Release paper

4. Properties:

Test item		Unit	KA-0505 KA-0506 KA-0507 KA-0510 KA-1005	KA-1010 KA-1014 KA-1020 KA-2014	Test Method
Peel Strength	As Received	Kgf/cm	≥ 1.00	≥ 1.50	IPC-TM650 2.4.9
	After Soldering		≥ 1.00	≥ 1.50	
Surface Resistance		Ω	≥ 1.0×10 ¹⁰	≥ 1.0×10 ¹⁰	IPC-TM650 2.5.17
Volume Resistance		Ω-cm	≥ 1.0×10 ¹²	≥ 1.0×10 ¹²	
Resin Flow		μ m	≤ 150	≤ 150	ThinFlex
Dimensional Stability	M.D.	%	-0.2~0.2	-0.2~0.2	IPC-TM650 2.2.4C
	T.D.				
Thickness Tolerance		%	±10%	±10%	ThinFlex
UL Flame Class		--	Applying	Applying	UL

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Lamination and Process Conditions

ThinFlex Epoxy Coverlay are typically used in the following ranges:

A) Traditional Hot Press Conditions:

1. Part Temperature: 170-185°C
2. Pressure: 30-50 kg/cm²
3. Time: 30-60min, at temperature

B) Fast Hot Press Condition:

1. Pre-Press Temp / Time / Pressure: 170-190°C / 10sec / kiss pressure
2. Hot-Press Temp / Time / Pressure: 170-190°C / 90-140sec / 80-120kg/cm²
3. Post Cure Condition: 160-170°C / 1-2 hour

5. Storage:

ThinFlex-KA will meet its shelf-life for at least 3 months after arrival at the user's factory when stored in the original packaging in a dry place at temperatures below 6°C.

Note: The information and data contained in this technical literature is believed to be accurate and is offered in good faith for the benefit of the user. The user should make his own tests to verify the suitability of this product for any application before its use. All data are typical values only and subject to change without notice.

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