

# 2L FCCL

Two Layer Flexible Copper Clad Laminate

## Feature

- High volume commercialized flexible film constructed by polyimide and copper layer.
- High Tg, excellent flame resistance and outstanding mechanical strength.
- High dimensional stability after thermal process.
- Low moisture absorption rate and high moisture resistance.
- Excellent dielectric properties.

## Construction



## Application

- FPC

## License

- RoHS

## Type Designation

2UP	D	R	20	10	JD
<ul style="list-style-type: none"> <li>• Taiflex 2L Type</li> <li>• UBE:2VP、2UP</li> <li>• KNK:2BP、2FP</li> <li>• Taiflex:2TP、2OP</li> </ul>	<ul style="list-style-type: none"> <li>• Copper Foil Side</li> <li>• Single side:S</li> <li>• Double side:D</li> </ul>	<ul style="list-style-type: none"> <li>• Cooper Foil Type</li> <li>• ED Cu:E</li> <li>• RA Cu:R</li> </ul>	<ul style="list-style-type: none"> <li>• PI Film Thinkness</li> <li>• 2 mil:20</li> <li>• 1.5 mil:15</li> <li>• 1.3 mil:13</li> <li>• 1 mil:10</li> <li>• 0.8 mil:08</li> <li>• 0.5 mil:05</li> </ul>	<ul style="list-style-type: none"> <li>• Copper Foil Thickness</li> <li>• 2 oz:20</li> <li>• 1 oz:10</li> <li>• 1/2 oz:05</li> <li>• 1/3 oz:03</li> </ul>	<ul style="list-style-type: none"> <li>• Copper Foil Type</li> <li>• JX:JD</li> </ul>

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## Reliability Performance

The value is Typical and not guarantee.

Reliability Performance			Unit	2UPDR2010JD	
Type of Cu				RA	
Basic	Peel strength As received		kgf/cm	1.36	
	Dimensional stability	Method B	MD	-0.008	
			TD	0.02	
		Method C	MD	-0.019	
			TD	0.012	
	Solder (Dip)		300°C /30sec	Pass	
Machine	Tensile strength		MPa	MD 504/TD 516	
	Elongation		%	MD 85/TD 86	
	Modulus		GPa	MD 7.3/TD 7.4	
Electrical	Volume resistivity (Rv) 1000V		Ωcm	2.94*10 <sup>14</sup>	
	Surface resistance (Rs) 1000V		Ω	2.83*10 <sup>13</sup>	
	Dielectric Constant (Dk)	10GHz	-	3.5	
	Dissipation Factor (Df)	10GHz	-	0.008	
Other	CTE (25~200°C)	MD	PPM/°C	19.2	
		TD		18	
Shelf Life			Month	12 Months @ <35°C, 65±20R.H.	

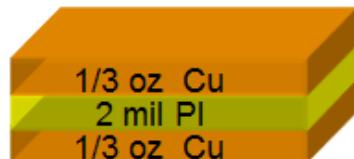
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## Application

- FPC

## License

- RoHS
- UL 94 V-0

## Type Designation

2FP	D	E	20	03	MW
<b>Taiflex 2L Type</b> UBE: <b>2VP</b> 、 <b>2UP</b> KNK: <b>2BP</b> 、 <b>2FP</b> Taiflex: <b>2TP</b> 、 <b>2OP</b>	<b>Copper Foil Side</b> Single side: <b>S</b> Double side: <b>D</b>	<b>Cooper Foil Type</b> ED Cu: <b>E</b> RA Cu: <b>R</b>	<b>PI Film Thinkness</b> 2 mil: <b>20</b> 1.5 mil: <b>15</b> 1.3 mil: <b>13</b> 1 mil: <b>10</b> 0.5 mil: <b>05</b> 0.3 mil: <b>03</b>	<b>Copper Foil Thickness</b> 2 oz: <b>20</b> 1 oz: <b>10</b> 1/2 oz: <b>05</b> 1/3 oz: <b>03</b> 1/5 oz: <b>02</b> 1/10 oz: <b>01</b>	<b>Copper Foil Type</b> Mitsui: <b>MW</b>

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Two Layer Flexible Copper Clad Laminate

## Reliability Performance

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Reliability Performance			Unit	2FPDE2003MW		
Type of Cu				ED		
Basic	Peel strength As received		kgf/cm	>0.8		
	Dimensional stability	method B	MD	%	0.069	
			TD		0.069	
		method C	MD		0.061	
			TD		0.072	
	Solder (Dip)		300°C /30sec	Pass		
	MIT(Without CVL) 0.8R/0.5Kg		MD	MPa	154	
			TD		133	
Machine	Tensile strength		MD	MPa	160	
			TD		160	
	Elongation		MD	%	65	
			TD		65	
	Modulus		MD	GPa	5.1	
			TD		5.1	
Electrical	Volume resistivity (Rv) 1000V		Ωcm	1.94*10 <sup>15</sup>		
	Surface resistance (Rs) 1000V		Ω	4.35*10 <sup>13</sup>		
Other	Tg(Core Film) (DMA at 1Hz)	AD	°C	372.5		
	CTE (25~200°C)	MD	PPM/°C	17		
		TD		18		
	Moisture Adsorption		%	≤1%		
Shelf Life			Month	12 Months@<35°C, 65±20R.H.		

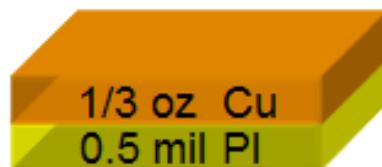
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## Application

- FPC

## License

- RoHS
- UL 94 VTM-0

## Type Designation

2LP	S	E	05	03	MW
<ul style="list-style-type: none"> <li>• Taiflex 2L Type</li> <li>• Single side:<b>2LP</b></li> </ul>	<ul style="list-style-type: none"> <li>• Copper Foil Side</li> <li>• Single side:<b>S</b></li> <li>• Double side:<b>D</b></li> </ul>	<ul style="list-style-type: none"> <li>• Cooper Foil Type</li> <li>• ED Cu:<b>E</b></li> <li>• RA Cu:<b>R</b></li> </ul>	<ul style="list-style-type: none"> <li>• PI Film Thinkness</li> <li>• 2 mil:<b>20</b></li> <li>• 1.5 mil:<b>15</b></li> <li>• 1.3 mil:<b>13</b></li> <li>• 1 mil:<b>10</b></li> <li>• 0.5 mil:<b>05</b></li> <li>• 0.3 mil:<b>03</b></li> </ul>	<ul style="list-style-type: none"> <li>• Copper Foil Thickness</li> <li>• 2 oz:<b>20</b></li> <li>• 1 oz:<b>10</b></li> <li>• 1/2 oz:<b>05</b></li> <li>• 1/3 oz:<b>03</b></li> </ul>	<ul style="list-style-type: none"> <li>• Copper Foil Type</li> <li>• Mitsui:<b>MW</b></li> </ul>

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## Reliability Performance

The value is Typical and not guarantee.

Reliability Performance			Unit	2LPSE0503MW
Type of Cu				ED
Basic	Peel strength As received		kgf/cm	1.09
	Dimensional stability	Method B	MD	0.076
			TD	0.062
	Method C	MD	%	0.075
		TD	%	0.06
	Solder (Dip)		300°C /30sec	Pass
Machine	Tensile strength		MPa	MD 330.75/TD 333.3
	Elongation		%	MD 25.97/TD 26.01
	Modulus		GPa	MD 7.028/TD 7.464
Electrical	Dielectric constant 10 GHz		-	3.21
	Dielectric factor 10 GHz		-	0.008
	Volume resistivity (Rv) 1000V		Ωcm	1.01*10 <sup>16</sup>
	Surface resistance (Rs) 1000V		Ω	1.06*10 <sup>15</sup>
	Tg (DMA at 1Hz)	PI	°C	313
	CTE (25~200°C)	MD	PPM/°C	14.72
		TD		13.7
Shelf Life			Month	12 Months@<35°C, 65±20R.H.