

PP, RCC, THIN-CORE



PP

MODEL	AD2(2W)、AD3(3W)、AD5(5W)、AD8(8W)、M9(9W)
SIZE	1295mm×200M/Roll, Cutting size
THICKNESS	4、5、6、7mil
PURPOSE	Metal base board for pressing, Multi-Layer Metal Base Substrate Laminate



RCC

MODEL	AD2(2W)、AD3(3W)、AD5(5W)、AD8(8W)、M9(9W)
SIZE	1295mm×200M/Roll, Cutting size
THICKNESS	Cu : Hoz~5oz PP : 2、3、4、5、6、7、8mil
PURPOSE	Metal base board for pressing, Multi-Layer Metal Base Substrate Laminate



THIN-CORE

MODEL	AD2(2W)、AD3(3W)、AD5(5W)、AD8(8W)、M9(9W)
SIZE	36"×48"、40"×48"、42"×48"，Cutting size
THICKNESS	Cu : H/H、1/1、1/2、1/3、1/4 PP : 4~6mil
PURPOSE	Slim-Type High-Thermal-Conductivity Copper-Based MCCL, Multi-Layer Metal Base Substrate Laminate

Properties matter of Thin-core

Item	Unit	Specification	Test Condition
Solder resistance (288°C)	Sec.	Min 600	IPC-TM-650 3.10.1.1.2
Thermal shock	288°C×10"/cycle	Min 6 Times	IPC-TM-650 2.4.13.1
Peel strength Normal status	lb/in	Min 9	IPC-TM-650 2.4.8
Breakdown Voltage	V/mil	750	IPC-TM-650 2.5.6



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CS-AL-88/89 AD2 (2 W/m°C)



Specification of Aluminum Based Copper-clad Laminate

Item	Unit	Specification	Test conditions
Insulation thickness	μm	Max 200 Min 60	—
Solder resistance (288°C)	Sec.	Min 600	IPC-TM-650 3.10.1.12
Thermal shock	288°C*10"/cycle	Min 6 Times	IPC-TM-650 2.4.13.1
Peel strength (Normal status)	lb/in	Min 9	IPC-TM-650 2.4.8
Breakdown Voltage	V/mil	750	IPC-TM-650 2.5.6
Volume resistivity (Normal status >E+14)	Ω·cm	1.8x10 ¹⁵	IPC-TM-650 2.5.17.1
Surface resistivity (Normal status >E+12)	Ω	— 3.5x10 ¹⁴	IPC-TM-650 2.5.17.1
Dielectric constant			IPC-TM-650
1 MHz Normal status	—	5.6	2.5.5.3
1 GHz Normal status		5.3	2.5.5.5 2.5.5.6
Dissipation Factor			IPC-TM-650
1 MHz Normal status		0.013	2.5.5.3
1 GHz Normal status		0.010	2.5.5.5 2.5.5.9
Water absorption	%	0.2	IPC-TM-650 2.6.2.1
Thermal conductivity (measured on insulation layer only)	W/m°C	2.0	ASTM-E1461
Flammability	94V-0	Pass	IPC-TM-650 2.3.9
Tg	°C	100	IPC-TM-650 2.4.24
Td	°C	410	TBD (5wt% loss)
MOT (RTI)	°C	130	UL 746B
CTI (Comparative Tracking Index)	V	>600 (PLC=0)	UL746E DSR



The thickness and dimension of Aluminum Based Copper-clad Laminate

Product category	CS-AL-88/89 AD2 (The thickness of single-sided PCB)				
Dimension m/m		300~340×500~520			
		405/400×500~520			
		600~620×500~520			
		1200~1240×500~520			
		1200~1240×1020~1060			
The thickness of Single-Sided PCB with Aluminum Substrate	2.0 1/0	1.5 1/0	1.5 2/0	1.0 1/0	0.8 1/0
The thickness of Double-Sided PCB with Aluminum Substrate	2.0 1/1	1.5 H/H	1.5 1/1	1.0 1/1	0.8 1/1

» The above thicknesses exclude the thickness of glue, and the thicknesses of copper tinsel and Aluminum can be combined arbitrarily.

The thickness of copper foil : H oz~5.0 oz. The thickness of aluminum plate : 0.2~5.0mm.

» This material is one kind of halogens-free green environmental kindly material.

» Compliance with the specification of RoHS,Compliance with the specification of REACH.



The scope of application

- » Lighting : LED outer-wall lighting, LED stage lighting, road LED lighting, domestic LED lighting, office LED lighting.
- » Electronic devices in automobile : igniting device, voltage regulator, auto safety control system, AC transformer.
- » Power supply : Switch regulator, switch, DC-DC transformer, DC-AC transformer, large power, base board of solar cell.
- » Electronic control : Relay, transistor base, switchboard, radiator, insulating heat conductive board in semiconductor, motor control device.
- » Computer devices : Power supply device, soft disk driver, CPU.
- » Communication electronic products : automobile telephone, high frequency booster of mobile telephone, filter circuit, transmitting circuit.



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CS-AL-33/39 ADD3 (3 W/in²C)

Specification of Aluminum Based Copper-clad Laminate

Insulation thickness	μm	Max	200	—
Solder resistance (288°C)	Sec.	Min	60	IPC-TM-650 3.10.1.12
Thermal shock	288°C*10"/cycle	Min	600	IPC-TM-650 2.4.13.1
Peel strength (Normal status)	lb/in	Min	9	IPC-TM-650 2.4.6
Breakdown Voltage	V/mil		750	IPC-TM-650 2.5.6
Volume resistivity (Normal status >E+14)	Ω•cm		1.8x10 ¹⁸	IPC-TM-650 2.5.17.1
Surface resistivity (Normal status >E+12)	Ω	—	3.5x10 ¹⁵	IPC-TM-650 2.5.17.1
Dielectric constant				IPC-TM-650
1 MHz Normal status	—		6.1	2.5.5.3
1 GHz Normal status			6.0	2.5.5.5 2.5.5.6
Dissipation Factor				IPC-TM-650
1 MHz Normal status			0.017	2.5.5.3
1 GHz Normal status			0.009	2.5.5.5 2.5.5.9
Water absorption	%		0.2	IPC-TM-650 2.6.2.1
Thermal conductivity (measured on insulation layer only)	W/m°C		3.0	ASTM-E1461
Flammability	94V-0		Pass	IPC-TM-650 2.3.9
Tg	°C		100	IPC-TM-650 2.4.24
Td	°C		420	TBD (5wt% loss)
MOT (RTI)	°C		130	UL 746B
CTI (Comparative Tracking Index)	V		>600 (PLC=0)	UL746E DSR

The thickness and dimension of Aluminum Based Copper-clad Laminate

Dimension m/m	300~340×500~520
	405/400×500~520
	600~620×500~520
	1200~1240×500~520
	1200~1240×1020~1060

The thickness of Single-Sided PCB with Aluminum Substrate	2.0 1/0	1.5 1/0	1.5 2/0	1.0 1/0	0.8 1/0
The thickness of Double-Sided PCB with Aluminum Substrate	2.0 1/1	1.5 H/H	1.5 1/1	1.0 1/1	0.8 1/1

» The above thicknesses exclude the thickness of glue, and the thicknesses of copper tinsel and Aluminum can be combined arbitrarily.

The thickness of copper foil : H oz~5.0 oz. The thickness of aluminum plate : 0.2~5.0mm.

» This material is one kind of halogens-free green environmental kindly material.

» Compliance with the specification of RoHS.Compliance with the specification of REACH.

The scope of application

- » Lighting : LED outer-wall lighting, LED stage lighting, road LED lighting, domestic LED lighting, office LED lighting.
- » Electronic devices in automobile : igniting device, voltage regulator, auto safety control system, AC transformer.
- » Power supply : Switch regulator, switch, DC-DC transformer, DC-AC transformer, large power, base board of solar cell.
- » Electronic control : Relay, transistor base, switchboard, radiator, insulating heat conductive board in semiconductor, motor control device.
- » Computer devices : Power supply device, soft disk driver, CPU.
- » Communication electronic products : automobile telephone, high frequency booster of mobile telephone, filter circuit, transmitting circuit.

CS-AL-88/89 AD5 (5 W/m°C)



Specification of Aluminum Based Copper-clad Laminate

Item	Unit	Specification	Test condition
Insulation thickness	μm	Max 200 Min 60	—
Solder resistance (288°C)	Sec.	Min 600	IPC-TM-650 3.10.1.12
Thermal shock	288°C×10°cycle	Min 6 Times	IPC-TM-650 2.4.13.1
Peel strength (Normal status)	lb/in	Min 9	IPC-TM-650 2.4.8
Breakdown Voltage	V/mil	750	IPC-TM-650 2.5.6
Volume resistivity (Normal status >E+14)	Ω·cm	3.5x10 ¹⁶	IPC-TM-650 2.5.17.1
Surface resistivity (Normal status >E+12)	Ω	— 4.7x10 ¹⁴	IPC-TM-650 2.5.17.1
Dielectric constant			IPC-TM-650
1 MHz Normal status	—	5.8	2.5.5.3
1 GHz Normal status		5.7	2.5.5.5 2.5.5.6
Dissipation Factor			IPC-TM-650
1 MHz Normal status		0.015	2.5.5.3
1 GHz Normal status		0.008	2.5.5.5 2.5.5.9
Water absorption	%	0.2	IPC-TM-650 2.6.2.1
Thermal conductivity (measured on insulation layer only)	W/m°C	5.0	ASTM-E1461
Flammability	94V-0	Pass	IPC-TM-650 2.3.9
Tg	°C	100	IPC-TM-650 2.4.24
Td	°C	430	TBD (5wt% loss)
MOT (RTI)	°C	130	UL 746B
CTI (Comparative Tracking Index)	V	>600 (PLC=0)	UL746E DSR



The thickness and dimension of Aluminum Based Copper-clad Laminate

Product category	CS-AL-88/89 AD5 (The thickness of glue is 2~3mil)					
Dimension m/m				300~340×500~520		
				405/400×500~520		
				600~620×500~520		
				1200~1240×500~520		
				1200~1240×1020~1060		

The thickness of Single-Sided PCB with Aluminum Substrate

2.0 1/0 1.5 1/0 1.5 2/0 1.0 1/0 0.8 1/0

The thickness of Double-Sided PCB with Aluminum Substrate

2.0 1/1 1.5 H/H 1.5 1/1 1.0 1/1 0.8 1/1

» The above thicknesses exclude the thickness of glue, and the thicknesses of copper tinsel and Aluminum can be combined arbitrarily.

The thickness of copper foil : H oz~5.0 oz. The thickness of aluminum plate : 0.2~5.0mm.

» This material is one kind of halogens-free green environmental kindly material.

» Compliance with the specification of RoHS,Compliance with the specification of REACH.



The scope of application

- » Lighting : LED outer-wall lighting, LED stage lighting, road LED lighting, domestic LED lighting, office LED lighting.
- » Electronic devices in automobile : igniting device, voltage regulator, auto safety control system, AC transformer.
- » Power supply : Switch regulator, switch, DC-DC transformer, DC-AC transformer, large power, base board of solar cell.
- » Electronic control : Relay, transistor base, switchboard, radiator, insulating heat conductive board in semiconductor, motor control device.
- » Computer devices : Power supply device, soft disk driver, CPU.
- » Communication electronic products : automobile telephone, high frequency booster of mobile telephone, filter circuit, transmitter circuit.



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CS-AL-38/34-LED3(3 W/m²C)



Specification of Aluminum Based Copper-clad Laminate

Item	Unit	Test Condition	Specification	Test Standard
Insulation thickness	μm	Max Min	200 60	—
Solder resistance (288°C)	Sec.	Min	600	IPC-TM-650 3.10.1.12
Thermal shock	288°C*10"/cycle	Min	6 Times	IPC-TM-650 2.4.13.1
Peel strength (Normal status)	lb/in	Min	9	IPC-TM-650 2.4.8
Breakdown Voltage	V/mil		750	IPC-TM-650 2.5.6
Volume resistivity (Normal status >E+14)	Ω•cm		3.5x10 ¹⁵	IPC-TM-650 2.5.17.1
Surface resistivity (Normal status >E+12)	Ω	—	4.7x10 ¹⁴	IPC-TM-650 2.5.17.1
Dielectric constant				IPC-TM-650
1 MHz Normal status	—		5.8	2.5.5.3
1 GHz Normal status			5.7	2.5.5.5 2.5.5.6
Dissipation Factor				IPC-TM-650
1 MHz Normal status			0.015	2.5.5.3
1 GHz Normal status			0.008	2.5.5.5 2.5.5.9
Water absorption	%		0.2	IPC-TM-650 2.6.2.1
Thermal conductivity (measured on insulation layer only)	W/m°C		8.0	ASTM-E1461
Flammability	94V-0		Pass	IPC-TM-650 2.3.9
Tg	°C		100	IPC-TM-650 2.4.24
Td	°C		450	TBD (5wt% loss)
MOT (RTI)	°C		130	UL 746B
CTI (Comparative Tracking Index)	V		>600 (PLC=0)	UL746E DSR



The thickness and dimension of Aluminum Based Copper-clad Laminate

Dimension m/m	300~340×500~520	405/400×500~520	600~620×500~520	1200~1240×500~520	1200~1240×1020~1060
The thickness of Single-Sided PCB with Aluminum Substrate	2.0 1/0	1.5 1/0	1.5 2/0	1.0 1/0	0.8 1/0
The thickness of Double-Sided PCB with Aluminum Substrate	2.0 1/1	1.5 H/H	1.5 1/1	1.0 1/1	0.8 1/1

» The above thicknesses exclude the thickness of glue, and the thicknesses of copper tinsel and Aluminum can be combined arbitrarily.

The thickness of copper foil : H oz~5.0 oz. The thickness of aluminum plate : 0.2~5.0mm.

» This material is one kind of halogens-free green environmental kindly material.

» Compliance with the specification of RoHS,Compliance with the specification of REACH.



The scope of application

- » Lighting : LED outer-wall lighting, LED stage lighting, road LED lighting, domestic LED lighting, office LED lighting.
- » Electronic devices in automobile : igniting device, voltage regulator, auto safety control system, AC transformer.
- » Power supply : Switch regulator, switch, DC-DC transformer, DC-AC transformer, large power, base board of solar cell.
- » Electronic control : Relay, transistor base, switchboard, radiator, insulating heat conductive board in semiconductor, motor control device.
- » Computer devices : Power supply device, soft disk driver, CPU.
- » Communication electronic products : automobile telephone, high frequency booster of mobile telephone, filter circuit, transmitting circuit.



CS-5100M9 (Super-High Thermal Conductivity) 9W/m°C

Technology cooperate with HITACHI CHEMICAL CO., LTD



Specification of Aluminum Based Copper-clad Laminate

Item	Unit	Specification	Test condition
Insulation thickness	μm	Max 150 Min 70	—
Solder resistance (288°C)	Sec.	Min 600	IPC-TM-650 3.10.1.12
Thermal shock	288°C*10*/cycle	Min 6 Times	IPC-TM-650 2.4.13.1
Peel strength (Normal status)	lb/in	Min 7.5	IPC-TM-650 2.4.8
Breakdown Voltage	V/mil	750	IPC-TM-650 2.5.6
Volume resistivity (Normal status >E+14)	Ω·cm	10 ¹³	IPC-TM-650 2.5.17.1
Surface resistivity (Normal status >E+12)	Ω	10 ¹¹	IPC-TM-650 2.5.17.1
Dielectric constant	—	—	IPC-TM-650
1 MHz Normal status	—	8.0	2.5.5.3
1 GHz Normal status	—	7.6	2.5.5.5
Dissipation Factor	—	—	IPC-TM-650
1 MHz Normal status	—	0.005	2.5.5.3
1 GHz Normal status	—	0.003	2.5.5.5
Water absorption	%	0.2	2.5.5.9
Thermal conductivity (measured on insulation layer only)	W/m°C	9.0	IPC-TM-650 2.6.2.1
Flammability	94V-0	Pass	ASTM-E1461
Tg	°C	160	IPC-TM-650 2.3.9
Td	°C	350	IPC-TM-650 2.4.24
			TBD (5wt% loss)



The thickness and dimension of Aluminum Based Copper-clad Laminate

Product category	CS-5100M9 (The thickness of glue is 3~6mm)				
Dimension m/m	300~340×500~520	405/400×500~520	600~620×500~520	1200~1240×500~520	1200~1240×1020~1060
The thickness of Single-Sided PCB with Aluminum Substrate	2.0 1/0	1.5 1/0	1.5 2/0	1.0 1/0	0.8 1/0
The thickness of Double-Sided PCB with Aluminum Substrate	2.0 1/1	1.5 H/H	1.5 1/1	1.0 1/1	0.8 1/1

» The above thicknesses exclude the thickness of glue, and the thicknesses of copper tinsel and Aluminum can be combined arbitrarily.

The thickness of copper foil : H oz~5.0 oz. The thickness of aluminum plate : 0.2~5.0mm.

» This material is one kind of halogens-free green environmental kindly material.

» Compliance with the specification of RoHS,Compliance with the specification of REACH.



The scope of application

- » Lighting : LED outer-wall lighting, LED stage lighting, road LED lighting, domestic LED lighting, office LED lighting.
- » Electronic devices in automobile : igniting device, voltage regulator, auto safety control system, AC transformer.
- » Power supply : Switch regulator, switch, DC-DC transformer, DC-AC transformer, large power, base board of solar cell.
- » Electronic control : Relay, transistor base, switchboard, radiator, insulating heat conductive board in semiconductor, motor control device.
- » Computer devices : Power supply device, soft disk driver, CPU.
- » Communication electronic products : automobile telephone, high frequency booster of mobile telephone, filter circuit, transmitting circuit.



CS-3000M (Using in Car and Low Elasticity Rate)

Technology cooperate with HITACHI CHEMICAL CO., LTD



Specification of Aluminum Based Copper-clad Laminate

Item	Unit	Specification	Test condition
Insulation thickness	μm	80	—
Solder resistance (268°C)	Sec.	Min 600	IPC-TM-650 3.10.1.1.12
Thermal shock	288°C*10"/cycle -40°C~125°C*60"/cycle	Min 6 Times 3000 Times	IPC-TM-650 2.4.13.1
Peel strength (Normal status)	lb/in	Min 5.7	IPC-TM-650 2.4.6
Breakdown Voltage	V/mil	750	IPC-TM-650 2.5.6
Volume resistivity (Normal status >E+14)	Ω·cm	10 ¹⁴	IPC-TM-650 2.5.17.1
Surface resistivity (Normal status >E+12)	Ω	10 ¹⁴	IPC-TM-650 2.5.17.1
Dielectric constant	—	—	IPC-TM-650
1 MHz Normal status	—	5.5	2.5.5.3
1 GHz Normal status	—	5.2	2.5.5.5
Dissipation Factor	—	—	IPC-TM-650
1 MHz Normal status	—	0.021	2.5.5.3
1 GHz Normal status	—	0.013	2.5.5.5
Water absorption	%	0.8	IPC-TM-650 2.6.2.1
Thermal conductivity (measured on insulation layer only)	W/m°C	2.0	ASTM-E1461
Flammability	94V-0	Pass	IPC-TM-650 2.3.9
Tg	°C	—	IPC-TM-650 2.4.24
Td	°C	350	TBD (5wt% loss)



The thickness and dimension of Aluminum Based Copper-clad Laminate

Product category	CS-3000M (The thickness of glue is 80μm)				
Dimension m/m	300~340×500~520 405/400×500~520 600~620×500~520 1200~1240×500~520 1200~1240×1020~1060				
The thickness of Single-Sided PCB with Aluminum Substrate	2.0 1/0	1.5 1/0	1.5 2/0	1.0 1/0	0.8 1/0
The thickness of Double-Sided PCB with Aluminum Substrate	2.0 1/1	1.5 H/H	1.5 1/1	1.0 1/1	0.8 1/1

» The above thicknesses exclude the thickness of glue, and the thicknesses of copper tinsel and Aluminum can be combined arbitrarily.

The thickness of copper foil : H oz~5.0 oz. The thickness of aluminum plate : 0.2~5.0mm.

» This material is one kind of halogens-free green environmental kindly material.

» Compliance with the specification of RoHS,Compliance with the specification of REACH.



The scope of application

- » EPS : Electronic power steering.
- » Electronic devices in automobile : igniting device, voltage regulator, auto safety control system, AC transformer
- » Power supply : Switch regulator, switch, DC-DC transformer, DC-AC transformer, large power, base board of solar cell.
- » Electronic control : Relay, transistor base, switchboard, radiator, insulating heat conductive board in semiconductor, motor control device.
- » Computer devices : Power supply device, soft disk driver, CPU.
- » Communication electronic products : automobile telephone, high frequency booster of mobile telephone, filter circuit, transmitting circuit.



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CS-9000IMC (FCCL)

Technology cooperate with FIJI PACIFIC CHEMICAL CO., LTD



Specification of Aluminum Based Copper-clad Laminate

Item	Unit	Specification	Test condition
Insulation thickness	μm	Max 35 Min 15	—
Solder resistance (288°C)	Sec.	Min 600	IPC-TM-650 3.10.1.12
Thermal shock	288°C*10"/cycle	Min 6 Times	IPC-TM-650 2.4.13.1
Peel strength (Normal status)	lb/in	Min 5.6	IPC-TM-650 2.4.8
Breakdown Voltage	V/mil	1000	IPC-TM-650 2.5.6
Volume resistivity (Normal status >E+14)	Ω·cm	10 ¹³	IPC-TM-650 2.5.17.1
Surface resistivity (Normal status >E+12)	Ω	10 ¹²	IPC-TM-650 2.5.17.1
Dielectric constant			IPC-TM-650
1 MHz Normal status		3.3	2.5.5.3
1 GHz Normal status		3.2	2.5.5.5 2.5.5.6
Dissipation Factor			IPC-TM-650
1 MHz Normal status		0.004	2.5.5.3
1 GHz Normal status		0.003	2.5.5.5 2.5.5.9
Water absorption	%	0.8	IPC-TM-650 2.6.2.1
Thermal conductivity (measured on insulation layer only)	W/m°C	0.25	ASTM-E1461
Flammability	94V-0	Pass	IPC-TM-650 2.3.9
Tg	°C	260	IPC-TM-650 2.4.24
Td	°C	350	TBD (5wt% loss)



The thickness and dimension of Aluminum Based Copper-clad Laminate

Product category	CS-9000IMC (The thickness of glue is 0.6~1.2mm)
Dimension m/m	300~340×500~520 405/400×500~520 600~620×500~520 1200~1240×500~520

The thickness of Single-Sided
PCB with Copper Substrate

H oz~2.0 oz / H oz~3.0 oz

- » The above thicknesses exclude the thickness of glue, and the thicknesses of copper tinsel and Copper base can be combined arbitrarily.
- The thickness of copper foil : H oz~2.0 oz ; The thickness of Copper base : H oz~3.0 oz.
- » This material is one kind of halogens-free green environmental kindly material.
- » Compliance with the specification of RoHS,Compliance with the specification of REACH.



The scope of application

- » Lighting : LED outer-wall lighting, LED stage lighting, road LED lighting, domestic LED lighting, office LED lighting.
- » Electronic devices in automobile : igniting device, voltage regulator, auto safety control system, AC transformer.
- » Power supply : Switch regulator, switch, DC-DC transformer, DC-AC transformer, large power, base board of solar cell.
- » Electronic control : Relay, transistor base, switchboard, radiator, insulating heat conductive board in semiconductor, motor control device.
- » Computer devices : Power supply device, soft disk driver, CPU.
- » Communication electronic products : automobile telephone, high frequency booster of mobile telephone, filter circuit, transmitting circuit.

