

VT-4A2H

UL Approval: E214381 Version: 24/08/2023

Aluminum Base Laminate/Prepreg

General Information

- > VT-4A2H / VT-4A2H PP: Thermal Conductivity - 2.2 W/mK, MOT 105° C
- > Excellent Electrical and Mechanical Characteristics
- > Flammability UL94 V-0
- > Halogen Free

Application

- > Ultra bright LED Substrate
- > Power Conversion
- > PDP, LED, Regulator for TV
- > Monitor Drives
- > Rectifier, Power Supply

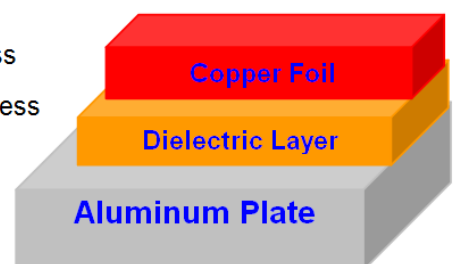
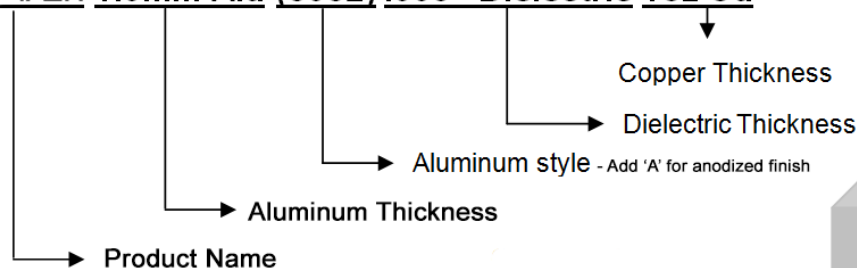
Storage Condition

		Laminate
Storage Condition	Temperature	Room
	Relative Humidity	/

The RCC & RCF exceeding shelf life should be retested.

Designation of IMS Laminate

VT-4A2H 1.0mm Alu (5052) .003" Dielectric 1oz Cu



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Laminate Properties

Item		Test Method (IPC-TM-650)	Unit	VT-4A2H			
				75µm	100µm	125µm	150µm
Thermal Conductivity		ISO 22007-2	W/m*K	2.2			
Thermal Impedance		ISO 22007-2	°C*in²/W	0.054	0.072	0.089	0.107
Tg	DSC	2.4.25	°C	130			
	DMA	2.4.24.4		150			
Td	TGA	ASTM D3850	°C	380			
Thermal Stress	Solder Dip @ 288°C	2.4.13.1	Minute	≥5			
Hi-Pot Withstand	DC	2.5.7.2	V	4500	5000	6000	8000
Breakdown Voltage	AC	2.5.6.3	V	6000	7500	9000	10000
Dk @ 1MHz	C-24 / 23 / 50	2.5.5.3	—	5.1			
Df @ 1MHz	C-24 / 23 / 50	2.5.5.3	—	0.014			
Volume Resistance	After Moisture	2.5.17.1	MΩ-cm	5.1E+8			
	E-24/125			3.1E+7			
Surface Resistance	After Moisture	2.5.17.1	MΩ	2.3E+7			
	E-24/125			5.2E+6			
Peel Strength (1oz)	As received	2.4.8	Lb/in	12			
CTI	As received	ASTM D3638	V	600			
Flammability	As received	UL 94	Rating	V-0			
RTI	Electric	UL 94	°C	105			
	Mechanical	UL 94	°C	105			

All test data provided are typical values and not intended to be specification values.

Disclaimer: The information and data contained in this technical literature is based on data and knowledge correct at the time of publishing/printing and 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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Availability

Laminate

Item		Availability
Dielectric		.003" (75µm), .004" (100µm), .005" (125µm), .006" (150µm), .008" (200µm)
Standard Size	Imperial	18.11*24.02, 20.08*24.02, 20.98*24.02, 18.11*48.03, 20.08*48.03, 20.98*48.03
	Metric	460*610, 510*610, 533*610, 460*1220, 510*1220, 533*1220
Copper Weight		Hoz, 1oz, 2oz, 3oz, 4oz, 6oz, 10oz
Aluminum Thickness		0.6mm, 0.8mm, 1.0mm, 1.2mm, 1.5mm, 2.0mm, 3.0mm
Aluminum Alloy		1100, 5052, or as required

Protective Film for Aluminium Plate

Type	Material	Max Operation Temperature
Standard	PET	170 °C
High Temperature	Polyimide	270 °C

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Aluminum and Aluminum Alloy Information

Major Chemical Composition

Alloy Code	Composition	Alloy Code	Composition
1060	Al, Si, Fe, Cu, Zn, Mn	5052	Al, Mg, Fe, Si, Cr, Cu, Zn
3003	Al, Mn, Si, Fe, Cu, Zn	6061	Al, Mg, Si, Fe, Cr, Cu, Zn, Ti, Mn

Calorific & Electrical Performance

Alloy	Melting Point Range (°C)	CTE (ppm/°C)		Cp (J/g-°C)	Thermal Conductivity (W/m*K)	Resistivity (Ω-cm)
		20~100°C	20~300°C			
1100	643~657.2	23.6	25.5	0.904	220	3.00E-6
3003	643~654	23.2	25.1	0.893	163	4.16E-6
5052	607.2~649	23.8	25.7	0.880	138	4.99E-6
6061	582~651.7	23.6	25.3	0.896	167	3.99E-6

Mechanical Performance

Alloy	Hardness (HB)	Ultimate Tensile Strength (MPa)	Tensile Yield Strength (MPa)	Elongation at Break 1.6mm (%)	Elastic Modulus (GPa)	Poisson Ratio	Fatigue Strength (MPa)	Shear Modulus (GPa)	Shear Strength (MPa)
1100H24	32	124	117	9	68.9	0.330	48.3	26.0	75.8
3003H24	40	152	145	8	68.9	0.330	62.1	25.0	96.5
5052H32	68	262	214	10	70.3	0.330	124	25.9	145
6061T6	95	310	276	12	68.9	0.330	96.5	26.0	207

*Number of cycles: 5.0E+8