VT-4B3

UL Approval: E214381 Version: 23/08/2023

Metal Base Laminate

General Information

- Thermal conductivity -- 3.0 W/mK
- Ceramic Filled
- Halogen Free
- Flammability UL94 V-0
- MOT 130°C

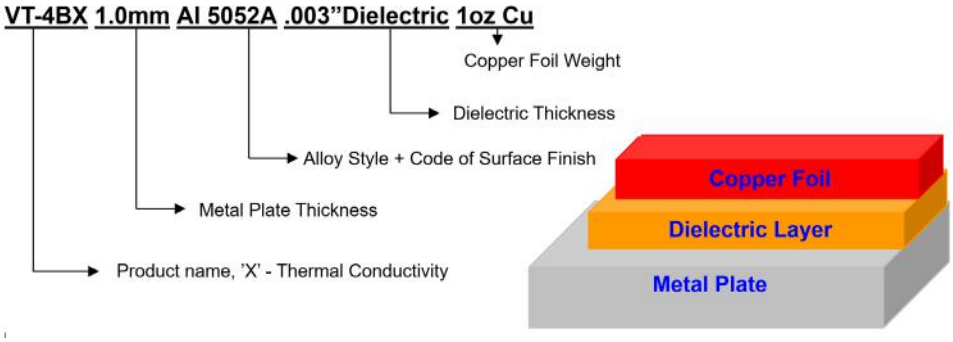
Application

- LED Lighting
- Power Conversion
- Controllers
- Motor Drives
- Rectifiers
- Power Supply

Storage Condition

		Laminate
Storage Condition	Temperature	Room
	Relative humidity	/

Designation of IMS Laminate



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Laminate Properties

Item		Test Method (IPC-TM-650) or as noted	Unit	Dielectric Thickness					
				50µm	75µm	100µm	125µm	150µm	180µm
Thermal Conductivity		ISO22007-2	W/m*K	3.0					
Thermal Impedance		ISO22007-2	$^{o}C*in^2/W$	0.027	0.040	0.053	0.067	0.080	0.095
Tg	DSC	2.4.25	^{o}C	130					
	DMA	2.4.24.4		145					
Td	TGA	ASTM D3850	^{o}C	380					
Thermal Stress	Solder Dip @ 288°C	2.4.13.1	Minute	≥5					
Hi-Pot Proof Test	DC	2.5.7.2	V	>600					
Breakdown Voltage	AC	2.5.6.3	V	4000	7000	8000	9000	10000	11000
Dk @ 1MHz	C-24 /23 / 50	2.5.5.3	_	4.8					
Df @ 1MHz	C-24/ 23 / 50	2.5.5.3	_	0.016					
Volume Resistance	After Moisture	2.5.17.1	MΩ-cm	5.0E+8					
	E-24/125			3.0E+7					
Surface Resistance	After Moisture	2.5.17.1	MΩ	2.0E+7					
	E-24/125			5.0E+6					
Peel strength (1oz)	As Received	2.4.8	Lb/in	11					
CTI	As Received	ASTM D3638	V	600					
Flammability	As Received	UL 94	Rating	V-0					
RTI	Electric	UL 746E	°C	130					
	Mechanical	UL 746E	°C	130					

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

(2) Hi-Pot proof test (600VDC) is performed 100% on the whole working panels (with copper foil). Any higher requirement of Hi-Pot test can be AABUS.

(3) Breakdown test is a destructive test, which is done on substrate (without copper foil) of a random sample in the FQC laboratory.

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Availability

Metal Plate Selection

Item		Thermal Conductivity (W/mK)	Hardness (HV)	Tensile Strength (MPa)	Density (g/cm³)	CTE (ppm/ °C)	Standard Thickness (mm)
Aluminum (Al)	5052H32	138	68	215	2.7	23.8	1.0, 1.5, 2.0, 3.0
	6061T6	167	95	276	2.7	23.6	1.0, 1.5, 2.0
	CTE II	170	45	189	2.7	19	1.0, 1.5, 2.0
Copper (Cu)	C1100	386	95	310	8.9	16.8	1.0, 1.5, 2.0

Remark: Additional thicknesses could be available upon request.

Laminate

Item		Availability
Dielectric Thickness		.002" (50μm), .003" (75μm),.004" (100μm), .005" (125μm), .006" (150μm), .007" (180μm)
Standard Size	Imperial (inch)	18.11*24.02, 20.08*24.02, 20.98*24.02
	Metric (mm)	460*610, 510*610, 533*610
Copper Weight		1/3oz, Hoz, 1oz, 2oz, 3oz, 4oz, 5oz, 6oz

Remark: Additional options could be possible upon request.

Surface Finish for Aluminium Plate

Code	Surface Finish
None	Default Brushing
"A"	Anodizing
"ER I"	High Emissivity

Protective Film for Metal Plate

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