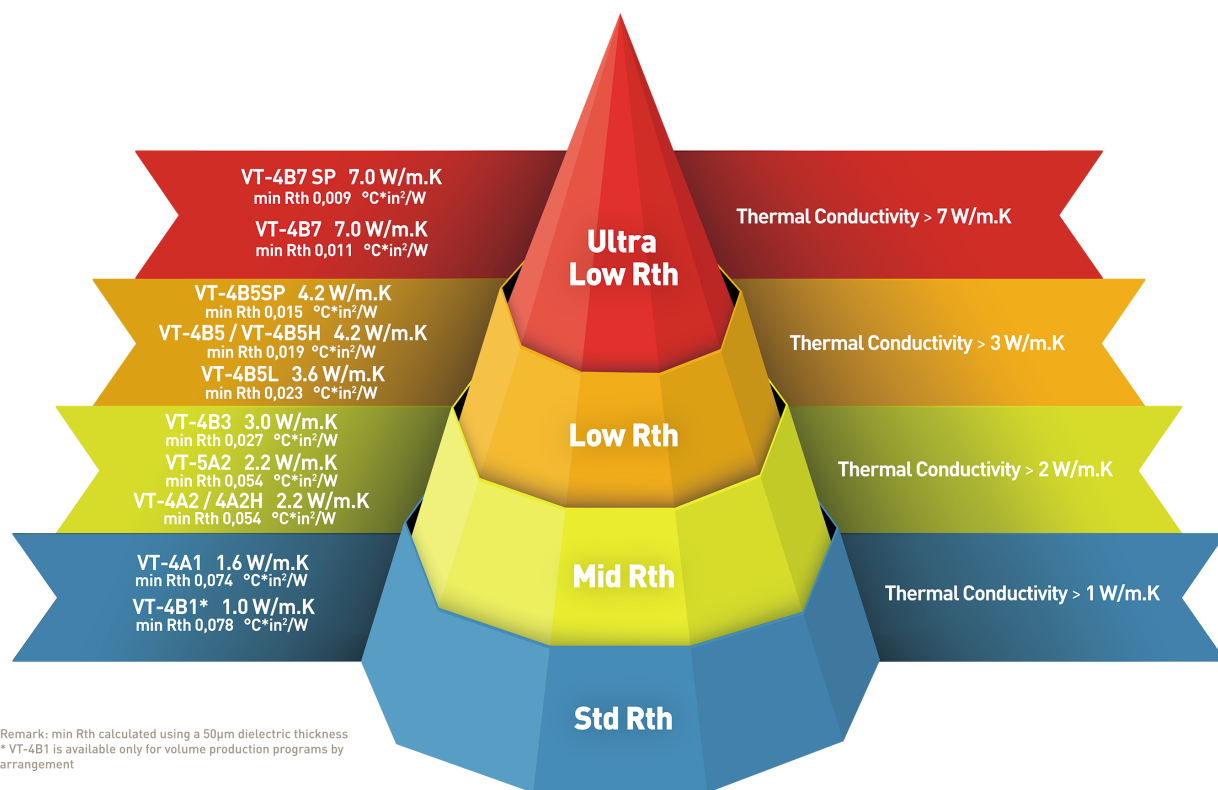


VT-4B5L

Metal Base Laminate

UL Approval: E214381 Version: B01



Remark: min Rth calculated using a 50µm dielectric thickness
* VT-4B1 is available only for volume production programs by arrangement

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VT-4B5L

UL Approval: E214381 Version: B01

Metal Base Laminate

General Information

- > Thermal conductivity -- 3.6 W/mK
- > Ceramic Filled
- > Halogen Free
- > Flammability UL94 V-0
- > Solder Joint Crack Solution

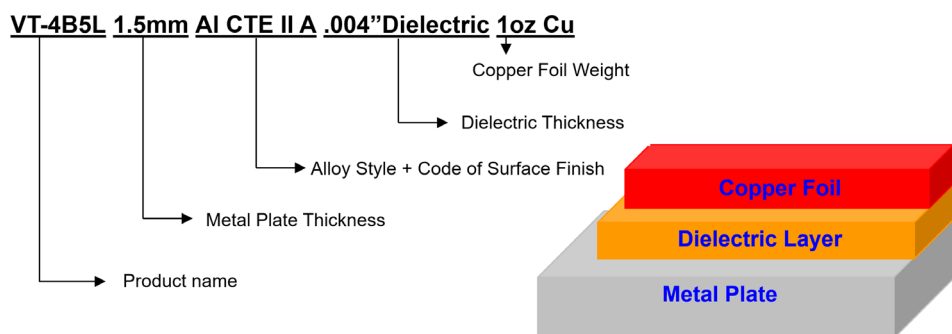
Application

- > High Beam & Low Beam
- > 3D Lighting
- > Power Conversion
- > Motor Drives & Controllers
- > Power Supply

Storage Condition & Shelf Life

		Laminate
Storage Condition	Temperature	Room
	Relative humidity	/
Shelf Life		24 months (airproof)

Designation of IMS Laminate



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Metal Base Laminate

Laminate Properties

Item		Test Method (IPC-TM-650) or as noted	Unit	Dielectric Thickness	
				50µm	100µm
Thermal Conductivity		ISO22007-2	W/m*K	3.6	
Thermal Impedance		ISO22007-2	°C*in ² /W	0.022	0.034
Tg	DSC	2.4.25	°C	100	
Td	TGA	ASTM D3850	°C	380	
Elastic Modulus	30°C	2.4.24.4	GPa	0.5	
	125°C			0.2	
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	8000
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 Cu)	As Received	2.4.8	Lb/in	5	
CTI	As Received	ASTM D3638	V	600	
Flammability	As Received	UL 94	Rating	V-0	
RTI	Electric	UL 746E	°C	155	
	Mechanical			155	

Remark:

(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.

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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VT-4B5L

Metal Base Laminate

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Availability

Metal Plate Selection

Alloy Style	Thermal Conductivity (W/mK)	Hardness (HV)	Tensile Strength (MPa)	Density (g/cm ³)	CTE (ppm/°C)	Standard Thickness (mm)
CTE II	170	45	189	2.7	19	1.0, 1.5, 2.0

Remark: Additional alloy and alloy thicknesses could be available upon request.

Laminate

Item	Availability	
Dielectric Thickness	.002" (50µm), .004" (100µm)	
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 Foil Weight	1oz, 2oz, 3oz	

Remark: Additional options could be available upon request.

Surface Finish for Aluminum (Al) 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

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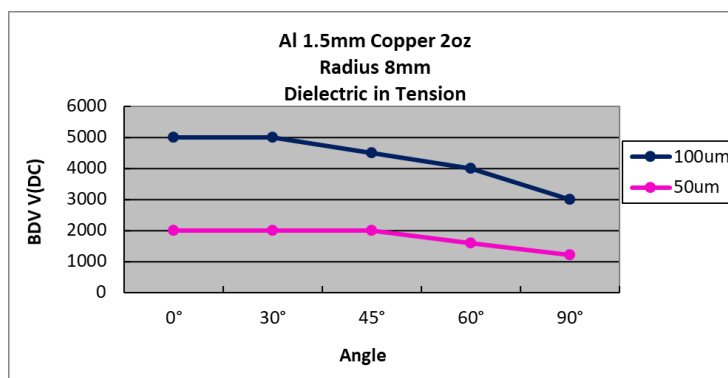
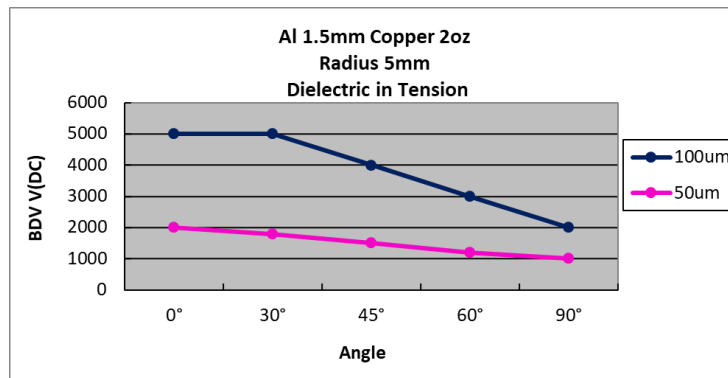
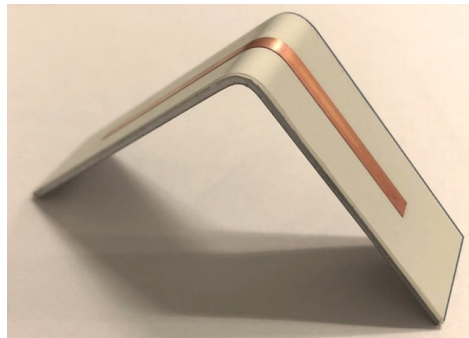
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Bending Performance (For reference only)



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