

VT-4B (Copper Base)

UL Approval: E214381 Version: Preliminary 4

Copper Base Laminate

General Information

- > VT-4B3 Laminate: Thermal conductivity -- 3.0W/mK
- > VT-4B5 Laminate: Thermal conductivity -- 4.2W/mK
- > VT-4B7 Laminate: Thermal conductivity -- 7.0W/mK
- > Ceramic Filled
- > Halogen Free
- > Flammability UL94 V0
- > MOT 130°C

Application

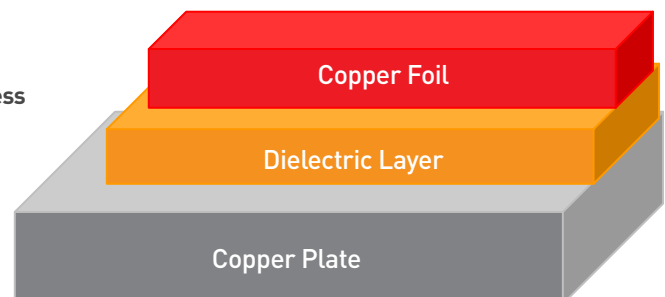
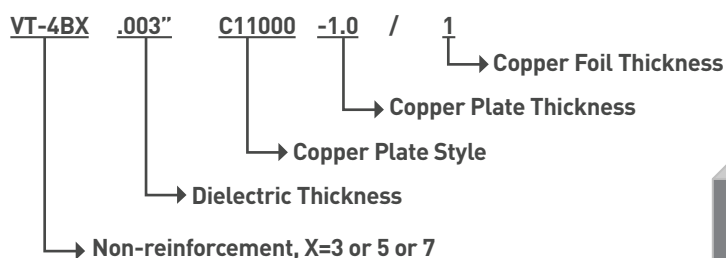
- > Ultra bright LED Substrate
- > Power Conversion
- > PDP, LED, Regulator for TV
- > Monitor Drives
- > Rectifier, Power Supply

Storage Condition & Shelf Life

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

The RCC exceeding shelf life should be retested.

Designation of IMS Laminate



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Laminate Properties

Item	Test Method (IPC-TM-650)	Unit	VT-4B3			VT-4B5			VT-4B7			
			50um	75um	100um	50um	75um	100um	50um	75um	100um	
Thermal Conductivity	ISO22007-2	W/m*K	3.0			4.2			7.0			
Thermal Impedance	ISO22007-2	°C*in ² /W	0.027	0.040	0.053	0.020	0.029	0.038	0.011	0.017	0.022	
Tg	DSC	2.4.25	130			120			100			
Td	TGA	ASTM D3850	380			380			380			
Thermal Stress	Solder Dip @ 288°C	2.4.13.1	≥5			≥5			≥5			
Hi-Pot Withstand	DC	2.5.7.2	V	2000	3000	4000	2000	3000	4000	2000	3000	4000
Breakdown Voltage	AC	2.5.6.3	V	4000	7000	8000	4000	7000	8000	4000	7000	8000
Dk @ 1MHz	C-24 /23 / 50	2.5.5.3	—	4.8			4.8			4.8		
Df @ 1MHz	C-24/ 23 / 50	2.5.5.3	—	0.016			0.016			0.016		
Volume Resistance	After Moisture	2.5.17.1	MΩ-cm	5.0E+8			5.0E+8			5.0E+8		
	E-24/125			3.0E+7			3.0E+7			3.0E+7		
Surface Resistance	After Moisture	2.5.17.1	MΩ	2.0E+7			2.0E+7			2.0E+7		
	E-24/125			5.0E+6			5.0E+6			5.0E+6		
Peel strength (1oz)	As Received	2.4.8	Lb/in	11			7			4.5		
CTI	As Received	ASTM D3638	V	600			600			600		
Flammability	As Received	UL 94	Rating	V0			V0			V0		
RTI	Electric	UL 94	°C	130			130			130		
	Mechanical	UL 94	°C	130			130			130		

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

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Availability

Laminate

Item	VT-4B3	VT-4B5	VT-4B7
Dielectric	.003" (75um), .004" (100um)	.002" (50um), .003" (75um), .004" (100um)	.002" (50um), .003" (75um), .004" (100um)
Standard Size	18"*24" (457mm*610mm), 20"*24" (508mm*610mm), 21"*24" (533mm*610mm)		
Copper Weight	1/3oz, Hoz, 1oz, 2oz, 3oz, 4oz, 6oz		
Copper Plate Thickness	0.6mm, 0.8mm, 1.0mm, 1.5mm, 2.0mm, 3.0mm		
Copper Plate Alloy	C11000, or as required		

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Ventec offers C11000 as a standard copper plate.

Copper Plate Consideration

Alloy	Thermal Conductivity (W/m-K)	CTE (ppm/°C)	Density (g/cm3)	Modulus (GPa)	Yield Strength (MPa)
Cu-C11000	386	17	8.9	44	310
Al-5052H32	138	25	2.7	26	215

Protective Film for Copper Plate

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

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