

VT-4A Series

Datasheets 技术资料表

Aluminum Base Laminate / Prepreg 铝基板/ 散热半固化片

● General Information 概述

- VT-44A / VT-44A PP: Thermal conductivity -- 1.0W/mK, Ceramic Filled
- VT-4A1 / VT-4A1 PP: Thermal conductivity -- 1.6W/mK, Ceramic Filled
- VT-4A2 / VT-4A2 PP: Thermal conductivity -- 2.2W/mK, Ceramic Filled
- Excellent Electrical and Mechanical Characteristics 优异的电性能和机械性能
- Flammability 阻燃 (UL94 V0)

● Application 应用

- | | |
|---|--|
| <ul style="list-style-type: none"> ➤ Power Conversion ➤ PDP, LED, Regulator for TV ➤ Monitor Drives ➤ Rectifier, Power supply | <ul style="list-style-type: none"> ➤ 电源转换器 ➤ PDP、发光二极管、TV 稳压器 ➤ 监控器驱动 ➤ 整流器、电源 |
|---|--|

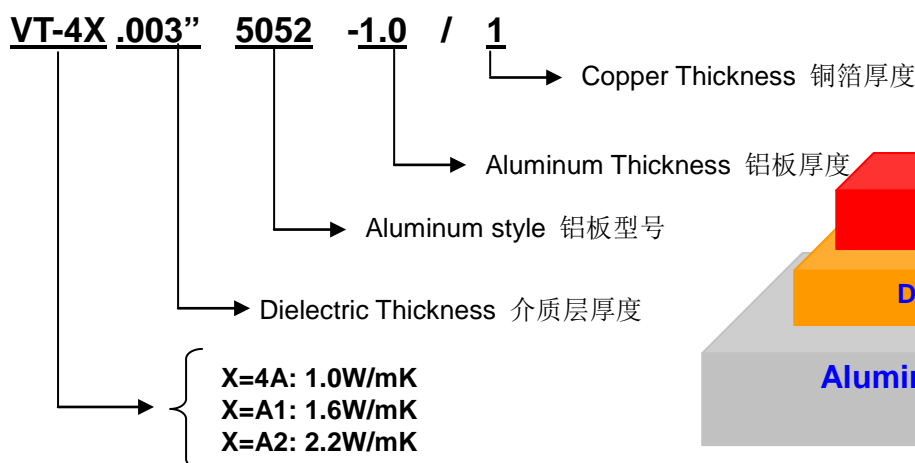
● Storage Condition & Shelf Life 存储条件&保存期限

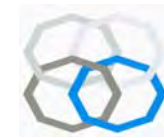
		Prepreg		Laminate
Storage Condition	Temperature	< 23°C (73°F)	< 5°C (41°F)	Room
	Relative Humidity	< 55%RH	/	/
Shelf Life		3 Months	6 Months	24 Months(airproof)

Note: The pre-preg exceeding shelf life should be retested.

过期半固化片在使用前需复测以确认特性。

● Designation 料号编码





VT-4A Series

● Properties Sheets 特性表

Laminate Properties		Test Condition (IPC TM650)	Unit	VT-44A				VT-4A1				VT-4A2				
				75um*	100um*	125um*	150um*	75um*	100um*	125um*	150um*	75um*	100um*	125um*	150um*	
Thermal Conductivity		ISO22007-2	W/m*K	1.0				1.6				2.2				
Thermal Impedance		ISO22007-2	°C*in ² /W	0.118	0.158	0.197	0.237	0.074	0.099	0.123	0.148	0.054	0.072	0.089	0.107	
Tg	DSC	2.4.25	°C	130				130				130				
Td	TGA	ASTM D3850	°C	380				380				380				
Thermal Stress		288°C,Solder Dip	2.4.13.1	minute				≥5				≥5				
Hi Pot Withstand		VDC	2.5.7	Volts	4500	5000	6000	6000	4500	5000	6000	6000	4000	4500	5500	6000
Dielectric Strength		VAC	2.5.6.2	V/mil	1500				1500				1500			
Dk (1MHz)		C-24 / 23 / 50	2.5.5.3	-	5.0				5.0				5.1			
Df (1MHz)		C-24 / 23 / 50	2.5.5.3	-	0.016				0.015				0.014			
Volume Resistance		After Moisture	2.5.17.1	MQ-cm	6×10 ⁸				4.5×10 ⁸				5.1×10 ⁸			
		E-24/125			4×10 ⁷				2.3×10 ⁷				3.1×10 ⁷			
Surface Resistance		After Moisture	2.5.17.1	MQ	3×10 ⁷				2.2×10 ⁷				2.3×10 ⁷			
		E-24/125			6×10 ⁶				5.1×10 ⁶				5.2×10 ⁶			
Peel strength (1oz Cu)		As Received	2.4.8	Lb / in	8.0				8.5				7.5			
Flammability		As Received	UL 94	-	V0				V0				V0			
CTI		As Received	ASTM D3638	Volts	600				600				600			

Note: All test data provided are typical values and not intended to be specification values; * means dielectric thickness.

所提供数据均为典型值，非特定规范；*代表绝缘层厚度。



VT-4A Series

● Availability 产品规格

➤ Laminate

Standard Size	Material	Material Thickness						
18"*24"	Copper	Hoz	1oz	2oz	3oz	4oz	6oz	10oz
20"*24"								
21"*24"								
18"*48"	Dielectric	.003"(75um), .004"(100um), .005"(125um), .006"(150um), .008"(200um)						
20"*48"								
21"*48"								
22"*48"	Aluminum	0.5mm	0.8mm	1.0mm	1.2mm	1.5mm	2.0mm	3.0mm
24"*48"								

Note: Other smaller size could be available;

Other material thickness is available;

Other Aluminum Alloy is available, refer to "Aluminum and Aluminum Alloy Information".

腾辉也可以供应更小的尺寸、更多的材料厚度以及铝合金类型（有关合金信息可参考“铝及其合金特性表”）。

➤ Prepreg

Material	Pressed Thickness (um)	Glass	Application
VT-44A PP	75	1080	Single Layer
	100	106	Circuit Clearance Filling & Hole Filling
		1080	Single Layer
	125	1080	-
VT-4A1 PP	75	1080	Single Layer
	100	106	Circuit Clearance Filling & Hole Filling
		1080	Single Layer
	125	1080	-
VT-4A2 PP	75	1080	Single Layer
	100	106	Circuit Clearance Filling & Hole Filling
		1080	Single Layer
	125	1080	-

➤ Protective Film for Aluminum Plate

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



VT-4A Series

● Aluminum and Aluminum Alloy Information 铝及其合金特性表

➤ Major Chemical Composition 主要化学组成

Alloy Code	Major Chemical Composition	Alloy Code	Major Chemical Composition
1100	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 热性能&电性能

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	3.00X10 ⁻⁶
3003	643~654	23.2	25.1	0.893	163	4.16X10 ⁻⁶
5052	607.2~649	23.8	25.7	0.880	138	4.99X10 ⁻⁶
6061	582~651.7	23.6	25.2	0.896	167	3.99X10 ⁻⁶

➤ Mechanical Performance 机械性能

Alloy	Hardness (HB)	Ultimate Tensile Strength (MPa)	Tensile Yield Strength (MPa)	Elongation at Break 1.6mm (%)	Modulus of Elasticity (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