

DuPont™ Interra® HK04M

All-Polyimide Embedded Capacitor Laminate

Flexible Circuit Materials

Product Description

DuPont™ Interra® HK04M Capacitor Laminate is designed to function as a thinner and more efficient power and ground planes in printed wiring boards (PWBs). This double-sided copper-clad laminate features an adhesive-less, all-polyimide dielectric layer, specifically formulated to reinforce thinner constructions and afford excellent resilience during processing and fabrication. Interra™ HK04M is compatible with existing PWB processes, including double-sided processing and its thin design maximizes capacitance density, reduces inductance, and decreases board or package thickness.

Key Features and Benefits

- Cost reduction via reducing surface mounted capacitors
- Reduced inductance for efficient low noise power delivery
- High initiation and propagation tear strengths provide superior handling and facilitate fabrication
- Balanced and unbalanced constructions available
- Certified to IPC-4821/1
- UL 94 V-0, UL File E124294
- RoHS Compliant

Packaging

Interra® HK04M Capacitor Laminate is supplied in sheet form, with standard dimensions of 18 x 24 in (457 x 610 mm).

Storage

DuPont™ Interra® HK04M Capacitor Laminate should be stored in original packaging at temperatures of 4-29 °C (40-85 °F) and below 70% relative humidity. The product should not be refrigerated or frozen and should be kept dry, clean, and well-protected. Subject to compliance with the foregoing handling and storage recommendations, DuPont's warranties shall remain in effect for the period provided in the DuPont Standard Conditions of Sale.

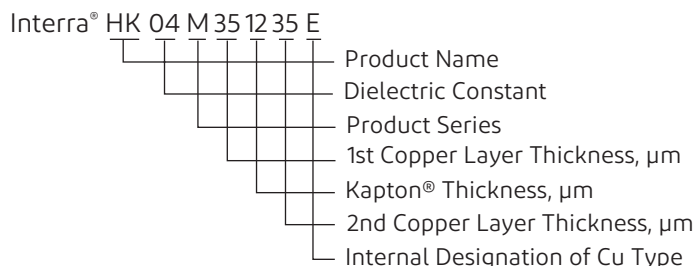
Processing

DuPont™ Interra® HK04M Capacitor Laminate is fully compatible with all conventional PWB processes, including double-sided processing. Interra® HK04M processing guide available from your DuPont sales representative.

Table 1 - Standard Interra® HK04M Capacitor Laminate Offerings

Product Code	Capacitance Density (pF/cm ²)	Copper Thickness (oz/ft ²)	Polyimide Thickness (μm (mil))	Copper Thickness (μm (oz/ft ²))
HK04M351235E	240	35 (1.0)	12 (0.5)	35 (1.0)
HK04M701270E	240	70 (2.0)	12 (0.5)	70 (2.0)
HK04M182518E	125	18 (0.5)	25 (1.0)	18 (0.5)
HK04M352535E	125	35 (1.0)	25 (1.0)	35 (1.0)
HK04M702570E	125	70 (2.0)	25 (1.0)	70 (2.0)
HK04M182535E	125	18 (0.5)	25 (1.0)	35 (1.0)
HK04M352570E	125	35 (1.0)	25 (1.0)	70 (2.0)

Product Code Key



Safe Handling

Prior to handling, DuPont recommends referencing the Interra® Safe Handling Guide available at interra.dupont.com.

Quality and Traceability

DuPont™ Interra® HK04M Capacitor Laminate is manufactured under a certified ISO9001:2015 Quality Management System facility. Complete material and manufacturing records, which include archive samples of finished product, are maintained by DuPont. Each manufactured lot is identified for reference traceability. The packaging label serves as the primary tracking mechanism in the event of customer inquiry and includes the product name, batch number, size, and quantity.

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Table 2 - DuPont™ Interra® HK04M Capacitor Laminate Properties

Property	HK04M351235E Typical Value	HK04M352535E Typical Value	Test Method
Capacitance Density, pF/cm ² (nF/in ²)	240 (1.5)	125 (0.8)	DuPont Method
Dielectric Thickness, μm	12	25	ASTM D6988
Dielectric Constant (Dk)			
1 MHz	3.5	3.5	IPC-TM-650 2.5.5.3
2 GHz	3.5	3.5	ASTM D2520
Loss Tangent (Df)			
1 MHz	0.007	0.007	IPC-TM-650 2.5.5.3
2 GHz	0.007	0.007	ASTM D2520
Peel Strength (Adhesion to Copper)			
As Received, N/mm (lb/in)	2.0 (11)	1.9 (11)	IPC-TM-650 2.4.9
After Solder, N/mm (lb/in)	1.8 (10)	1.9 (11)	
Solder Float, 288 °C for 10 s	Pass	Pass	IPC-TM-650 2.4.13
Temperature and Humidity Bias (THB) 85 °C/85% RH and 50 V _{dcr} h	1,000	1,000	DuPont Method

Data within this table are typical values for the listed product. Performance can vary depending on construction and processing.



interra.dupont.com

For more information on Interra® HK04M Capacitor Laminate or other DuPont products, please visit our website.

The information provided in this data sheet corresponds to our knowledge on the subject at the date of its publication. It may be subject to revision as new knowledge and experience becomes available. This information is not intended to substitute for any testing you may need to conduct to determine for yourself the suitability of our products for your particular purposes. Since we cannot anticipate all variations in end-use and disposal conditions, DuPont makes no warranties and assumes no liability in connection with any use of this information. It is intended for use by persons having technical skill, at their own discretion and risk. Nothing in this publication is to be considered as a license to operate under or a recommendation to infringe any patent right.

CAUTION: Do not use in medical applications involving permanent implantation in the human body. For other medical applications, see "DuPont Medical Caution Statement," H-50102-5 and "DuPont Policy Regarding Medical Applications" H-50103-5.

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