FDC Thickness Calculation – v2.0

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Material List

1). Entrance/Exit windows: 25 μm aluminized mylar; ρ_{AM}=1.0 gm/cm^3

2). Cathode layers: 50 μm kapton (=20 mil); ρ_k=1.42 gm/cm^3
+ 1 oz copper (1 oz/ft^2 = 37.1 μm); ρ_{Cu}=8.23 gm/cm^3

3). Ground planes: same as cathode layers

FDC Package (19 material layers)

1. entrance window
2. U_1 cathode
3. V_1 cathode
4. ground plane
5. U_2 cathode
6. U_2 cathode
7. ground plane
8. U_3 cathode
9. U_3 cathode
10. ground plane
11. U_4 cathode
12. U_4 cathode
13. ground plane
14. U_5 cathode
15. U_5 cathode
16. ground plane
17. U_6 cathode
18. U_6 cathode
19. exit window

Per package:
- entrance/exit windows × 2
- cathode planes × 12
- ground planes × 5

Thickness (per package)

1). entrance + exit windows: 1.0 gm/cm^3 · 25×10^{-4} cm · 2 = 0.0050 gm/cm^2

2). cathode planes: 1.42 gm/cm^3 · 50×10^{-4} cm · 12 = 0.0852 gm/cm^2
8.23 gm/cm^3 · 0.00371 cm · 12 = 0.0198 gm/cm^2

3). ground planes: 1.0 gm/cm^3 · 25×10^{-4} cm · 5 = 0.0125 gm/cm^2

1.0 oz Cu option: **0.468 gm/cm^2**

0.5 oz Cu option: **0.285 gm/cm^2**