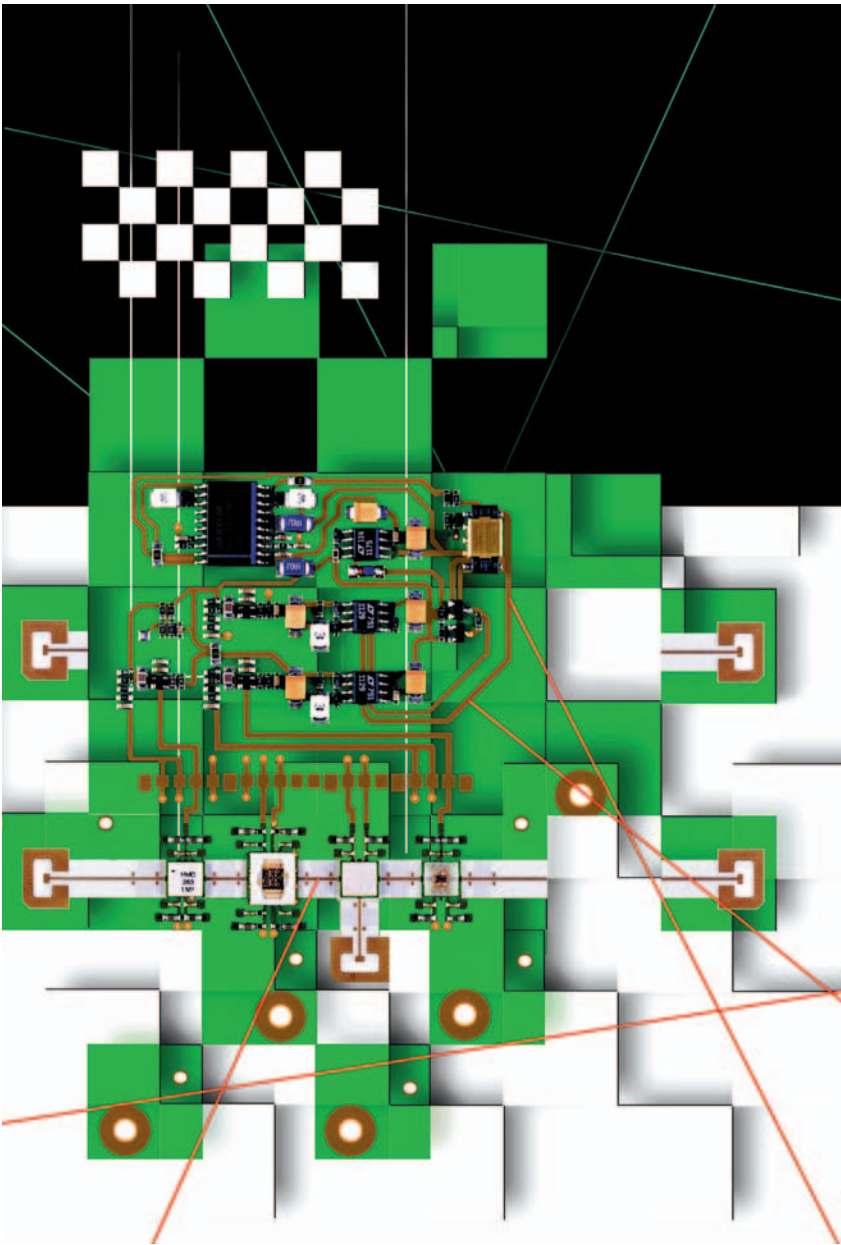


TacLamplus



Benefits & Applications:

- Laser Ablatable
 - Sequential Multilayer
 - Very Low Loss
 - Low Moisture Absorption
 - High Peel Strength
 - Uniform & Consistent DK
-
- Automotive Radar
 - mmWave Radios
 - Power Amplifiers

TacLamplus is a cost effective, non-reinforced microwave substrate that can be used to create very low loss structures both with single dielectric layers and multiple layers.

Exceptional copper foil adhesion allows small feature resolution and the unique composition of the dielectric facilitates clean laser ablation for micro via and component cavity formation.

The use of metal plate such as 1 mm copper helps maintain dimensional stability and provides a sound ground plane and heat sink.

North & South America

Taconic - Headquarters
Petersburgh, NY 12138
Tel: 518-658-3202 / 1-800-833-1805
addinfo@4taconic.com

Europe/Middle East/Australia

Taconic International Ltd.
Republic of Ireland
Tel: +353-44-9395600
add@4taconic.com

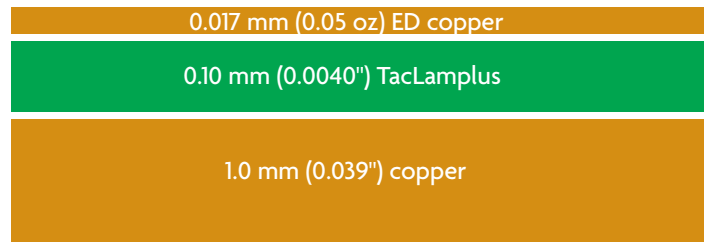
Asia

Korea Taconic Company
Republic of Korea
Tel: +82-31-704-1858
sales@taconic.co.kr

China

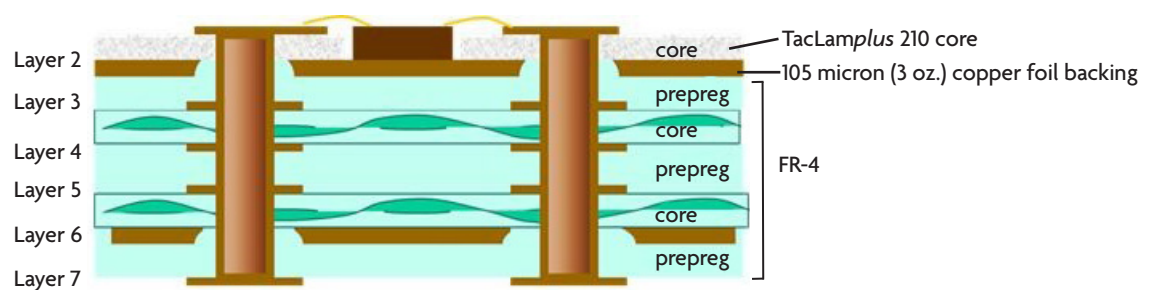
Taconic Advanced Material (Suzhou) Co., Ltd.
Suzhou City, China
Tel: +86-512-8718-9678
tssales@taconic.co.kr

Typical Construction for Metal-Backed Designs*



* Other combinations are available upon request

Typical Construction for Hybrid Multilayer Designs*



Waveguide



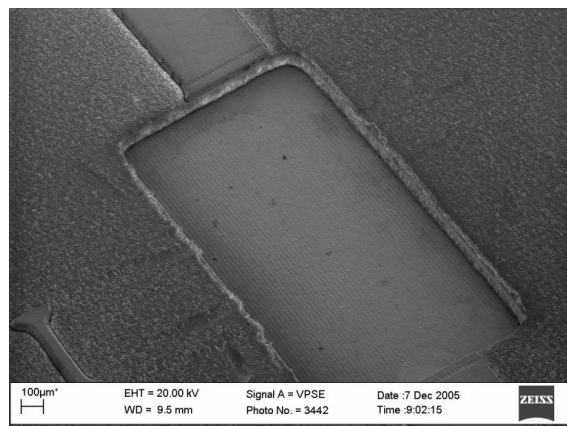
K-Type Cavity



Laser Microvia

Laser Cut MMIC Cavity

TacLamplus dielectric thickness is tailored to suit short length wire bonding.



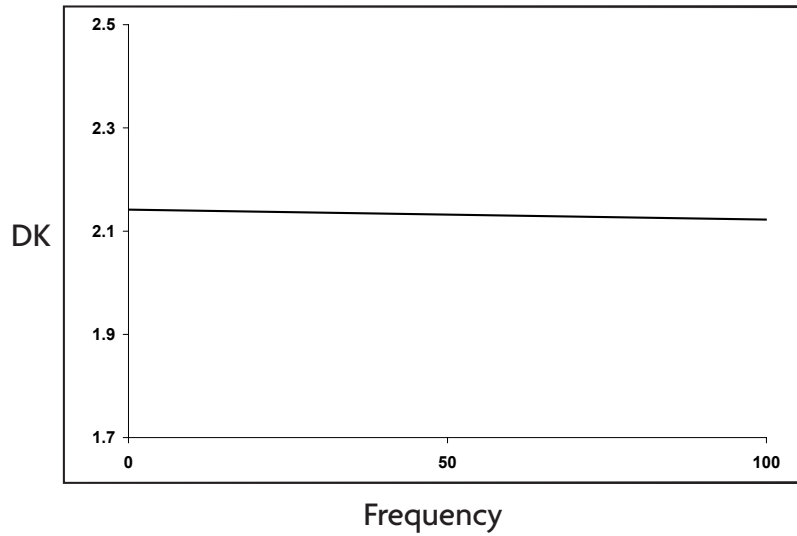
| TacLamplus Typical Values | | | | | |
|-------------------------------|-------------------|-------------------|-----------------|-------------------|-----------------|
| Property | Test Method | Unit | Value | Unit | Value |
| Dk @ 10 GHz | IPC-650 2.5.5.5.1 | | 2.10 | | 2.10 |
| Dk @ 50 GHz (i) | IPC-650 2.5.5.5.1 | | 2.10 | | 2.10 |
| Dk @ 90 GHz (i) | IPC-650 2.5.5.5.1 | | 2.08 | | 2.08 |
| Df @ 10 GHz | IPC-650 2.5.5.5.1 | | 0.0004 | | 0.0004 |
| Df @ 50 GHz (i) | IPC-650 2.5.5.5.1 | | 0.0007 | | 0.0007 |
| Df @ 90 GHz (ii) | IPC-650 2.5.5.5.1 | | 0.0008 | | 0.0008 |
| Insertion Loss @ 50 GHz (iii) | | dB/mm | 0.04 | dB/mm | 0.04 |
| Moisture Absorption | IPC-650 2.6.2.1 | % | 0.02 | % | 0.02 |
| Peel Strength | IPC-650 2.4.8 | lbs./inch | >4 | N/mm | >7.14 |
| Flammability Rating | UL 94 | | V-0 | | V-0 |
| Dielectric Breakdown | IPC-650 2.4.6 | Kv | >60 | Kv | >60 |
| Volume Resistivity | IPC-650 2.5.17.1 | Mohms/cm | 10 ⁷ | Mohms/cm | 10 ⁷ |
| Surface Resistivity | IPC-650 2.5.17.1 | Mohms | 10 ⁷ | Mohms | 10 ⁷ |
| Arc Resistance | IPC-650-2.5.1 | Seconds | >180 | Seconds | >180 |
| Specific Gravity | IPC-650 2.3.5 | g/cm ³ | 2.17 | g/cm ³ | 2.17 |
| Tensile Strength | IPC-650 2.4.19 | psi | 4,351 | N/mm ² | 30 |
| Young's Modulus | ASTM D 3039 | Mpa | 640 | Mpa | 640 |
| Poisson's Ratio | ASTM D 3039 | | 0.45 | | 0.45 |
| Specific Heat (Capacity) | ASTM E 1269 (DSC) | J/g/K | 0.85 | J/g/K | 0.85 |
| T _d (2% Wt. Loss) | IPC-650 2.4.24.6 | °F | 932 | °C | 500 |
| T _d (5% Wt. Loss) | IPC-650 2.4.24.6 | °F | 959 | °C | 515 |
| Outgassing | ECSS-Q-70 | CVCM/% | <0.02 | CVCM/% | <0.02 |
| CTE (X - Y axis) | ASTM D 3386 (TMA) | ppm/°C | 100 | ppm/°C | 100 |
| CTE (Z axis) | ASTM D 3386 (TMA) | ppm/°C | 105 | ppm/°C | 105 |
| Thermal Conductivity | ASTM F433 | W/M*K | 0.25 | W/M*K | 0.25 |

(i) Source: Queen's University, Belfast, Ireland

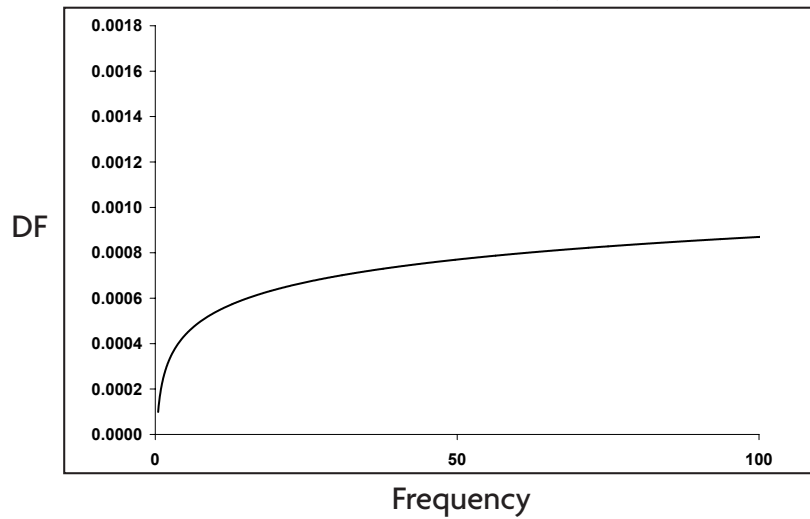
(ii) Source: Queen's University, Belfast, Ireland - accounting for copper foil roughness

(iii) Source: EADS Project, PROKOSMOS

DK vs. Frequency



DF vs. Frequency



How to Order

| Available Copper Cladding | | | | | | |
|---------------------------|--------------------------|------------------|-----|------------------------------|-----|------------------|
| Designation | Weight | Copper Thickness | | R _{MS} Treated Side | | Description |
| | | Inches | μm | μin | μm | |
| CH | 1/2 oz / ft ² | ~0.0007 | ~18 | 27 | 0.7 | Electrodeposited |
| C1 | 1 oz / ft ² | ~0.0014 | ~35 | 64 | 1.6 | Electrodeposited |

| Designation | Dk | Typical Thicknesses | |
|-------------|--------------|---------------------|-------|
| | | Inches | mm |
| TacLamplus | 2.20 +/-0.02 | 0.0040 | 0.100 |

| Available Sheet Sizes | |
|-----------------------|-----------|
| Inches | mm |
| 12 x 18 | 304 x 457 |
| 16 x 18 | 406 x 457 |
| 18 x 24 | 457 x 610 |



Compliant

An example of our part number is: **Taclamplus-220-0040-CH/C1MM - 18" x 24" (457 mm x 610 mm)**