ROGERS CORPORATION

Advanced Circuit Materials

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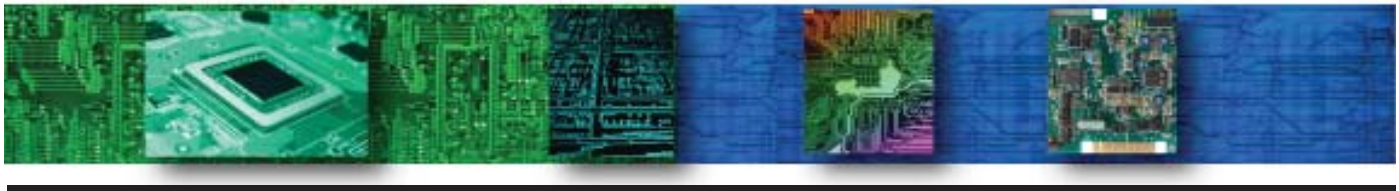
*Data Sheet*
*SYRON 7000*

# SYRON™ 7000 High Performance Circuit Material

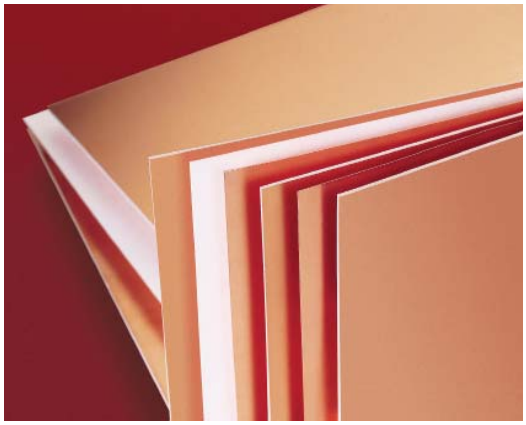


| Features: | Benefits: |
|---|---|
| High maximum operating temperature | • Can be used in applications where high temperature stability is necessary |
| Excellent chemical resistance | • Ease of processing<br>• Resistant to solvents and reagents used to process circuit boards<br>• Operates in harsh chemical environments |
| Environmentally friendly | • Halogen free/inherently flame retardant<br>• Lead-free solder capable<br>• Low smoke/toxicity |

| Typical Applications: | |
|---|---|
| • Flex-to-install applications | • Conformal circuitry |
| • Lightweight feed manifolds | • Oil and gas exploration |
| • Automotive sensors | • Airborne lightning strike protection |

SYRON™ 7000 thermoplastic circuit materials provide an excellent solution for printed circuit board applications used in demanding environmental conditions.

SYRON 7000 is thermally stable, with a melt temperature higher than PTFE materials and an estimated relative thermal index (RTI) greater than 210°C (410°F). The SYRON products possess impressive chemical and radiation resistance. These lead-free solder capable laminates are green materials which are naturally flame retardant and halogen free.



Dielectric thickness of 0.002" (0.0508mm) is available with ½ oz very low profile electrodeposited copper foil cladding.

## Typical Values

## SYRON 7000 Laminates

| Property | | Typical 7000 | Direction | Units | Condition | Test Method |
|---|---|---|---|---|---|---|
| Dielectric Constant, $\varepsilon_r$ | | 3.4 max | Z | | 10 GHz/23°C | IPC-TM-650, 2.5.5.5.1 |
| Dissipation Factor, Tan $\delta$ | | 0.0045 max. | Z | | 10 GHz/23°C | IPC-TM-650, 2.5.5.5.1 |
| Thermal Coefficient of $\varepsilon_r$ | | +7 | | ppm/°C | -50 to 150°C | IPC-TM-650, 2.5.5.5.1 |
| Copper Peel Strength | | 5.0 | | pli | | IPC-TM-650, 2.4.8 |
| Low Outgassing | TML | 0.09 | | % | | ASTM E-595 |
| | CVCM | 0.01 | | | | |
| | WVR | 0.09 | | | | |
| T260 | | Pass | | | | |
| T288 | | Pass | | | | |
| Flammability* | | VTM-O | | | | UL94 |
| UL RTI* | | >200 | | °C | | |
| Dielectric Strength | | 4500 | | VPM | | IPC-TM-650 2.5.6.2 |
| Coefficient of Thermal Expansion | | 18<br>23<br>68 | X<br>Y<br>Z | ppm/*C | 0 - 150*C | IPC-TM-650 2.1.41 |
| Dimensional Stability | | -0.04<br>-0.1 | MD<br>CMD | % | After bake @ 120°C | IPC-TM-650 2.2.4 |
| Tensile Strength | | 100 | | MPa | | ASTM D-638 |
| Elongation | | 4 | | % | | ASTM D-638 |
| Young's Modulus | | 1200<br>(8600) | | kpsi<br>(MPa) | | ASTM D-638 |
| Moisture Absorption | | 0.2 | | % | D24/23 | IPC-TM-650, 2.6.2.1 |
| Specific Gravity | | 1.55 | | | | ASTM D-792 |
| Surface Resistivity | | $10^8$ | | Megohms | A and C96/35/90 | IPC-TM-650, 2.5.17.1 |
| Volume Resistivity | | $10^{10}$ | | Megohm-cm | A and C96/35/90 | IPC-TM-650, 2.5.17.1 |
| Thermal Conductivity | | 0.35 | | W/m/°K | | ASTM C-518 |
| Halogen Free | | Yes | | | | |
| Lead-Free Process Compatible | | Yes | | | | |

* Reported UL values are preliminary and reflect anticipated results of full UL testing.

Typical values are a representation of an average value for the population of the property. For specification values contact Rogers Corporation.

| Standard Thicknesses: | Panel Sizes | Copper Cladding |
|---|---|---|
| 0.002" (0.0508) ± 12.5% | 12" X 18" (305 X 457mm)<br>24" X 18" (610 X 457 mm)<br><br>Other panel sizes and rolls are available | ½ oz. (18 μm) very low profile electrodeposited copper foil. |

**The information in this data sheet is intended to assist you in designing with Rogers' circuit material laminates. It is not intended to and does not create any warranties express or implied, including any warranty of merchantability or fitness for a particular purpose or that the results shown on this data sheet will be achieved by a user for a particular purpose. The user should determine the suitability of Rogers' circuit material laminates for each application.**

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