

Data Sheet

**Halogen-free
& High elasticity Low CTE Ultra-thin IC substrate materials
(Black type)**

LEXCMGX Laminate R-1515E

Aug. 2022 No.22081004

Specification / Laminate R-1515E

| Property | | Units | Test Method | Condition | Typical Value | |
|----------------------|-----------------------------------|----------|-------------|---------------------|------------------|-----------------------------------|
| THERMAL | Glass Transition Temp (Tg) | | C | DMA | As received | 270 ^{*1} |
| | Thermal Decomposition Temp (Td) | | | TGA | | 390 |
| | Time to Delam (T260) | With Cu | Min | IPC TM-650 2.4.24.1 | | > 120 |
| | Time to Delam (T288) | | | | | > 120 |
| | CTE : α1 | X - axis | ppm / C | IPC TM-650 2.4.24 | < Tg | 8 - 10 ^{*1} |
| | | Y - axis | | | | 8 - 10 ^{*1} |
| | | Z - axis | | | 22 ^{*2} | |
| | CTE : α2 | Z - axis | | | > Tg | 95 ^{*2} |
| Thermal Conductivity | | W / mK | Laser Flash | 25 C | 0.7 | |
| ELECTRICAL | Volume Resistivity | | MΩ - cm | IPC TM-650 2.5.17.1 | C-96/35/90 | 1 x 10 ⁹ ^{*1} |
| | Surface Resistivity | | | | | MΩ |
| | Dielectric Constant (Dk) | 1GHz | - | IPC TM-650 2.5.5.9 | C-24/23/50 | 4.7 |
| | Dissipation Factor (Df) | | | | | 0.011 |
| PHYSICAL | Water Absorption | | % | IPC TM-650 2.6.2.1 | D-24/23 | 0.3 ^{*1} |
| | Tensile Modulus | | GPa | ASTM D3039 | 25 C | 27 ^{*1} |
| | Poisson's Ratio | | | | | 0.2 ^{*2} |
| | Flexural Modulus | | GPa | JIS C6481 | 25 C | 33 |
| | | | | | 250 C | 18 |
| | Peel Strength | 12 um | kN / m | IPC TM-650 2.4.8 | As received | 0.9 |
| Flammability | | - | UL | C-48/23/50 | 94V-0 | |

The sample thickness. ^{*1} 0.1mm , ^{*2} 0.8mm

* The data in the above table are not guaranteed values.

++ Before purchase ++

【Important Notices Before Use】

- The customer must verify the suitability and fitness of the product for use in their application.
- Customers communicating delivery specifications and usage forecasts in advance will be given higher priority in manufacturing and delivery from Panasonic.
- Product specifications are subject to change without notice
- For additional product information contact your distributor or local Panasonic location listed below.

【Safety Information】

- Please review the Safety Data Sheet (SDS) and use the product safely.
 - ▶ This product is intended only for use as an IC substrate laminate. Do not use this product for any other purpose.
 - ▶ For assistance in processing, contact your distributor or local Panasonic location listed below.

Contact Information

Technical Marketing

- Japan (Mie)
TEL: 81-59-346-1131
- USA (Mountain View)
TEL: 1-408-861-3946
- Austria (Enns)
TEL: 43-7223-883
- China (Shanghai)
TEL: 86-21-3855-2332
- Thailand (Ayutthaya)
TEL: 66-3533-0846

Sales Offices

- China (Shanghai) TEL: 86-21-3855-2332
- Singapore TEL: 65-6241-6754
- Philippines (Makati) TEL: 63-632-886-6291 to 94
- Korea (Seoul) TEL: 82-2-361-7873
- Taiwan (Hsin Chu) TEL: 886-3-598-3201
- Thailand (Ayutthaya) TEL: 66-3533-0846
- Austria (Enns) TEL: 43-7223-883
- USA (Mountain View) TEL: 1-408-861-3946
- Japan (Tokyo) TEL: 81-6-6904-2771

Panasonic Industry Co., Ltd.
Electronic Materials Business Division
Head Office: 1006 Kadoma, Kadoma City, Osaka 571-8506
TEL: 81-6-6908-1101

industrial.panasonic.com/ww/electronic-materials

U.S. Web site

<https://na.industrial.panasonic.com/products/electronic-materials>