

Fujipoly Data Sheet

Sheet CF210A


Extremely Compressible Carbon Fiber Gap Filler Type

FEATURES

Highly Conformable, Ultra High Thermally conductive gap filler material

CF210A is Ultra high thermally conductive and non-flammable thermal interface gap filler material. Incorporating carbon fiber oriented in the thickness direction, This is very soft conforming thermal gap filler exhibits excellent thermal performance for wide gap application between heat source and heat sink.

CONSTRUCTION

| Series | Characteristics | Constructions |
|--------------|--|---|
| Sheet CF210A | Sheet CF210A features double sticky surfaces and ultra high Thermal Conductivity at 21W/m·K based on ASTM D5470. |  Plain Type |

TYPICAL PROPERTIES

| Properties | | unit | CF210A | Test method | Spcimen |
|-----------------------|------------------------------------|----------|---|--------------------|---------|
| Physical Properties | Color | - | Black | Visual | - |
| | Specific Gravity | - | 2.2 | JIS K6220 | A |
| | Hardness* ¹ | Shore OO | 58 (0sec) | ASTM D2240 | B |
| 30 (10sec) | | | | | |
| Electrical Properties | Volume Resistivity | Ω·cm | <100 | JIS K7194 | C |
| | Breakdown Voltage | V/mm | <100 | ASTM D149 | C |
| Thermal Properties | Thermal Conductivity* ² | W/m·K | 21.0 | ASTM D5470 | - |
| | Useful Temperature | °F | -40 to +302 | - | - |
| | Low molecular Siloxane | wt% | D ₃ ~ D ₂₀ 0.0100 or less | Gas Chromatography | - |
| | Flame Retardant | - | V-0 Equivalent | UL 94 | - |

Specimen A : 2mmT Specimen B : 25mmW x 50mmL x 12mmT Specimen C : 110mmW x 110mmL x 2mmT

*1 : Measured hardness of peak value (0 sec) and the one after 10 sec. *2 : Measured under 10% compression rate

THERMAL RESISTANCE

Sheet CF210A

Unit : K·cm²/W (K·in²/W)

| Compression Ratio | 1.5mmT | 2.0mmT | 2.5mmT |
|-------------------|------------|------------|------------|
| 10% | 0.8 (0.12) | 1.0 (0.15) | 1.2 (0.19) |
| 20% | 0.8 (0.12) | 1.0 (0.15) | 1.1 (0.18) |
| 30% | 0.8 (0.12) | 1.0 (0.15) | 1.1 (0.18) |
| 40% | 0.8 (0.13) | 1.0 (0.16) | 1.2 (0.18) |
| 50% | 0.9 (0.13) | 1.1 (0.16) | 1.2 (0.19) |

Test method : Measured by ASTM D5470 equivalent

Test equipment : TIMtester1400 Specimen Area : DIA. 33.0mm

COMPRESSION FORCE

Sheet CF210A

Unit : N/6.4cm² (psi)

| Compression Ratio | 1.5mmT | 2.0mmT | 2.5mmT |
|-------------------|------------|------------|------------|
| 10% | 64 (14.5) | 50 (11.3) | 37 (8.4) |
| 20% | 114 (25.8) | 80 (18.1) | 58 (13.1) |
| 30% | 149 (33.8) | 102 (23.1) | 74 (16.8) |
| 40% | 194 (44.0) | 133 (30.1) | 96 (21.8) |
| 50% | 258 (58.5) | 178 (40.3) | 130 (29.5) |
| Sustain 50% | 19 (4.3) | 18 (4.1) | 16 (3.6) |

Test method : Measured by ASTM D575-91 for reference

Specimen Area : DIA. 28.6mm Platen Area : DIA. 28.6mm

Compression Velocity : 5.0mm/minute

DURABILITYUnit : K-cm²/W

| Test Property | Compression Ratio | 70°C | | | | | 150°C | | | | |
|--------------------|-------------------|---------|--------|--------|--------|----------|---------|--------|--------|--------|----------|
| | | Initial | 100hrs | 250hrs | 500hrs | 1,000hrs | Initial | 100hrs | 250hrs | 500hrs | 1,000hrs |
| Thermal Resistance | 20% | 1.08 | 1.08 | 1.03 | 0.94 | 0.98 | 1.05 | 1.03 | 1.05 | 1.02 | 1.07 |
| | 50% | 1.13 | 1.12 | 1.09 | 1.07 | 1.06 | 1.13 | 1.13 | 1.11 | 1.13 | 1.18 |

| Test Property | Compression Ratio | 60°C/95%RH | | | | | 85°C/85%RH | | | | |
|--------------------|-------------------|------------|--------|--------|--------|----------|------------|--------|--------|--------|----------|
| | | Initial | 100hrs | 250hrs | 500hrs | 1,000hrs | Initial | 100hrs | 250hrs | 500hrs | 1,000hrs |
| Thermal Resistance | 20% | 1.04 | 1.04 | 1.00 | 0.99 | 0.93 | 1.05 | 1.04 | 1.03 | 1.04 | 0.92 |
| | 50% | 1.07 | 1.02 | 1.03 | 1.02 | 0.99 | 1.08 | 1.07 | 1.06 | 0.97 | 0.92 |

| Test Property | Compression Ratio | -40°C | | | | | -40°C(30min) ⇄ +125°C(30min) | | | | |
|--------------------|-------------------|---------|--------|--------|--------|----------|------------------------------|--------|--------|--------|----------|
| | | Initial | 100hrs | 250hrs | 500hrs | 1,000hrs | Initial | 100hrs | 250hrs | 500hrs | 1,000hrs |
| Thermal Resistance | 20% | 1.09 | 1.08 | 1.07 | 1.07 | 1.06 | 1.03 | 1.02 | 1.04 | 0.96 | 0.92 |
| | 50% | 1.11 | 1.10 | 1.11 | 1.14 | 1.09 | 1.12 | 1.14 | 1.11 | 1.09 | 1.10 |

Thermal Resistance : Measured by using ASTM D5470 modified, refer to Fujipoly Test method FTM P-3030.

Specimen Area : 10mm square , initial thickness = 2.0mm

TYPES AND CONFIGURATION

| Series | Thickness | Sheet size |
|--------------|---------------|--|
| Sheet CF210A | 1.5mm ±0.20mm | 130mmx130mm (Recommended Usable Size:120mmx120mm) |
| | 2.0mm ±0.20mm | |
| | 2.5mm ±0.20mm | |

HANDLING NOTES

- It is recommended to compress the material with the equal ratio on the whole surface. Partial excessive stress may also result in excessive silicone oil exudation.

WARRANTY STATEMENT

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- Properties of the products may be revised due to some changes for improving performance.
- Properties values in this document are not specification or guaranteed.
- This product is made of silicone, and silicone oil may exude from the product.
- This product is made of silicone, and low molecular siloxane may vaporize depending on operating conditions.
- The product is designed, developed, and manufactured for general industrial use only. Never use for medical, surgical, and/or relating purposes. Never use for the purpose of implantation and/or other purposes by which a part of or whole product remains in human body.
- Before using, a safety must be evaluated and verified by the purchaser.
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