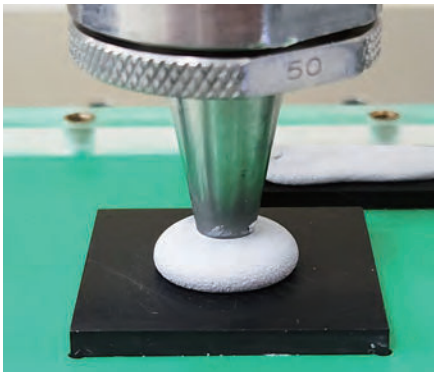


COOLPROVIDE™ / CPVG



Dispense-friendly,  
no-drip, single-liquid thermal putty

Features

- Useful to fill gaps between heat spreaders and ICs of various heights.  
CPVG-30: GAP 1 mm or less  
CPVG-50: GAP 2mm or less
- Putty TIM applies very low force after compression. (10% or less as compared to thermal pads)
- Because the pre-crosslinked state provides structural stability, no curing process (such as heating or UV) is required and will not drip immediately after application.
- Applied using a manual caulking gun or an automated dispenser.
- Silicone-free TIM generates no siloxane gas and has less oil bleeding.

■ Drip test

| Products          | Competitor's grease | CPVG-30 | CPVG-50 |
|-------------------|---------------------|---------|---------|
| Coating thickness | 1.0mm               | 1.0mm   | 1.0mm   |
| Results           |                     |         |         |
|                   | Drip observed       | No drip | No drip |

【Heat cycle test conditions / High-temperature test conditions】

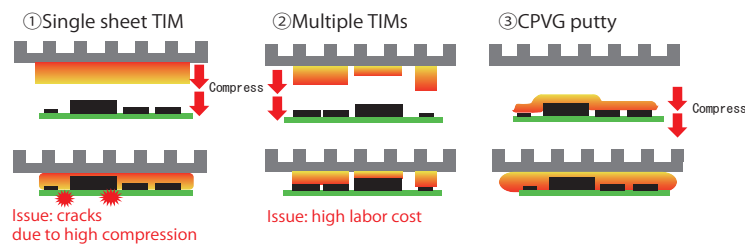
- Temperature : 125°C
- Time: 1000h
- Test Method: Test sample sandwiched between aluminum and glass plates

(The values are measured values, but not the product specifications or guaranteed.)

| Test type             |          | Unit    | Standard                     | CPVG-30-C               | CPVG-50-P                     |
|-----------------------|----------|---------|------------------------------|-------------------------|-------------------------------|
| Thermal Conductivity  |          | W/m · K | ISO22007-2 (Hot Disc method) | 3.0                     | 5.0                           |
| Thermal resistance*1  | t1.0mm   | °C/W    | ASTM D5470                   | 0.33                    | 0.19                          |
|                       | t0.3mm   |         |                              | 0.08                    | 0.05                          |
|                       | t0.1mm   |         |                              | 0.01                    | —                             |
| Color                 |          | —       | —                            | White                   | White                         |
| Specific Gravity      |          | —       | JIS Z 8807                   | 2.9                     | 3.2                           |
| Viscosity             | 0.5[1/s] | Pa · s  | ASTM D1824 compliant         | 3300                    | —                             |
|                       | 1.0[1/s] |         |                              | 2500                    | —                             |
|                       | 10rpm    |         |                              | 600                     | 1000                          |
| Recommended Thickness |          | mm      | —                            | 0.1 ~ 1.0               | 0.3 ~ 2.0                     |
| Volume Resistivity    |          | Ω · cm  | JIS K 6911 compliant         | 1.0 × 10 <sup>9</sup>   | 1.0 × 10 <sup>9</sup>         |
| Breakdown voltage     |          | kV/mm   | JIS K 6911 compliant         | 8                       | 3                             |
| Dielectric constant   | 1MHz     | —       | Company standard             | 9.25                    | 13.2                          |
| Loss tangent          | 1MHz     | —       | Company standard             | 0.06                    | 0.07                          |
| Shelf Life (25°C)     |          | —       | Company standard             | 6 months after delivery | 6 months after delivery       |
| Flammability          |          | —       | UL94                         | V-0 equivalent          | V-0 equivalent                |
| Operating temp        |          | °C      | —                            | -40 ~ 125               | -40 ~ 130                     |
| Supply format         |          | —       | —                            | Cartridge 330ml         | 20L Pail (Net content : 17kg) |

\* 1) Sample size : □25mm

■ Benefits of CPVG (Putty TIM)



|                         | ① | ② | ③ |
|-------------------------|---|---|---|
| Workability: components | ○ | × | ○ |
| IC Load                 | × | △ | ○ |

- Easy positioning of heat dissipation components
- Spreads to fill the gap upon compression, reducing the load on the IC

③CPVG thermal putty application

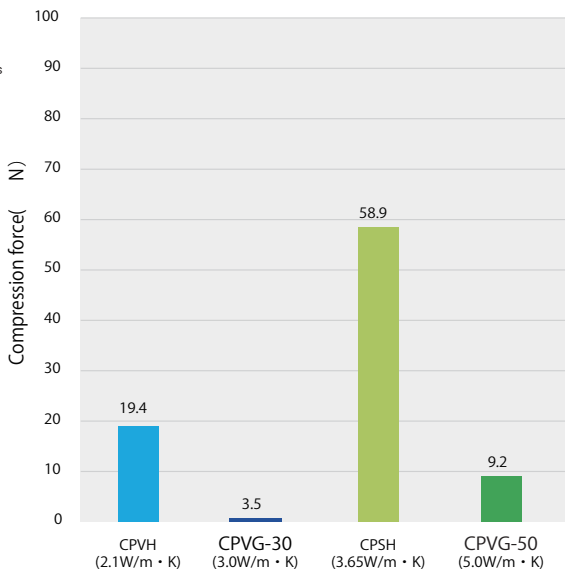


③CPVG thermal putty installation



\* We can help verify dispensing and application conditions.

■ Compression force comparison with CPVG (Putty) and thermal pads



<Test conditions>

- Sample dimensions : □10mm×10mm (t2mm)
- Compression rate : 20% compressed(t2mm⇒t1.6mm)
- \* Maximum compression force at 20% compression is listed.
- \* The thermal conductivity of each product is measured by the hot disk method.