

## COOLPROVIDE / CPVG(PuttyTIM※)

※ Thermal Interface Material



### Putty TIM can be applied thickly with a dispenser

- Putty TIM does not drip even when coated thickly. Useful to fill gaps between heat spreaders and ICs of various heights.  
CPVG-30 : GAP 1 mm or less  
CPVG-50 (Under development): GAP 2 mm or less
- Putty type TIM has low repulsive force (after compression), load on ICs and PCBs is lowered to 10 % or less of the sheet type.
- Single liquid type, cross-linked material does not easily drip.
- Auto coating is possible with a dispenser.
- Silicone-free type generates no siloxane gas and oil bleeding is reduced.

### Applications

[For both CPVG-30 and -50]

- Consumer equipment heat-dissipation management (PCs-including semiconductor devices, TVs, home appliances etc.)
- Communication equipment heat-dissipation management (5G antennas)

[For CPVG-50]




- On-Vehicle equipment heat-dissipation management (Engine rooms, others)

### Properties

#### ● Physical properties

Test type	Unit	Standard	CPVG-30	CPVG-50 (Under development)
Thermal Conductivity	W/m · K	ISO22007-2 (Hot Disc method)	3.0	5.0
Thermal resistance	t1.0mm	ASTM D5470	0.33	0.19
	t0.3mm		0.08	0.05
	t0.1mm		0.01	0.00
Color	—	—	Gray	Blue
Specific Gravity	—	JIS Z 8807	2.9	3.2
Viscosity	0.5[1/s]	ASTM D1824 compliant	3,300	6,500
	1.0[1/s]		2,500	4,000
Volume Resistivity	$\Omega \cdot \text{cm}$	JIS K 6911 compliant	$1.0 \times 10^9$	$1.0 \times 10^9$
Breakdown voltage	kV/mm	JIS K 6911 compliant	8	12
Relative permittivity	500MHz	Company standard	8.98	13.47
	1GHz	Company standard	8.88	13.58
Flammability	—	UL94	Equivalent to V-0	Equivalent to V-0
Operating temp	°C	—	-40 ~ 125	-40 ~ 125
Product form when supplied	—	—	Cartridge: 330 ml	

#### ● Results of drip off test

Other company's grease	CPVG-30	CPVG-50
		
Dripped off	No-drip off	No-drip off

[Test conditions]

Temperature: 125°C

Time: 1000h

Coating thickness: t=1mm

Materials: Glass + Aluminum plate

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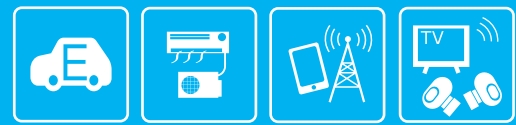
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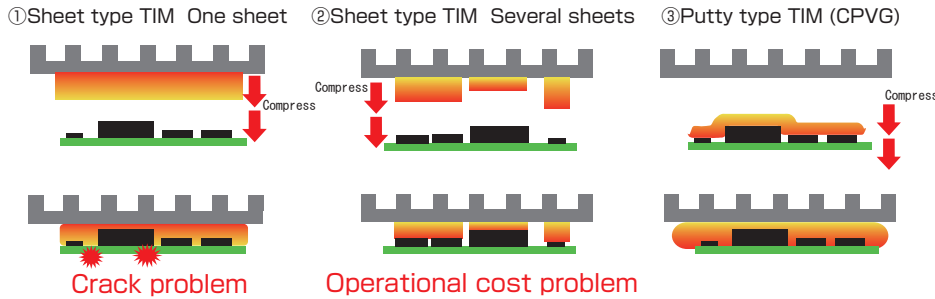
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## COOLPROVIDE / CPVG (PuttyTIM<sup>※</sup>)

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### Workability of CPVG (Putty TIM) and the load on ICs



③ Putty TIM (CPVG) as applied

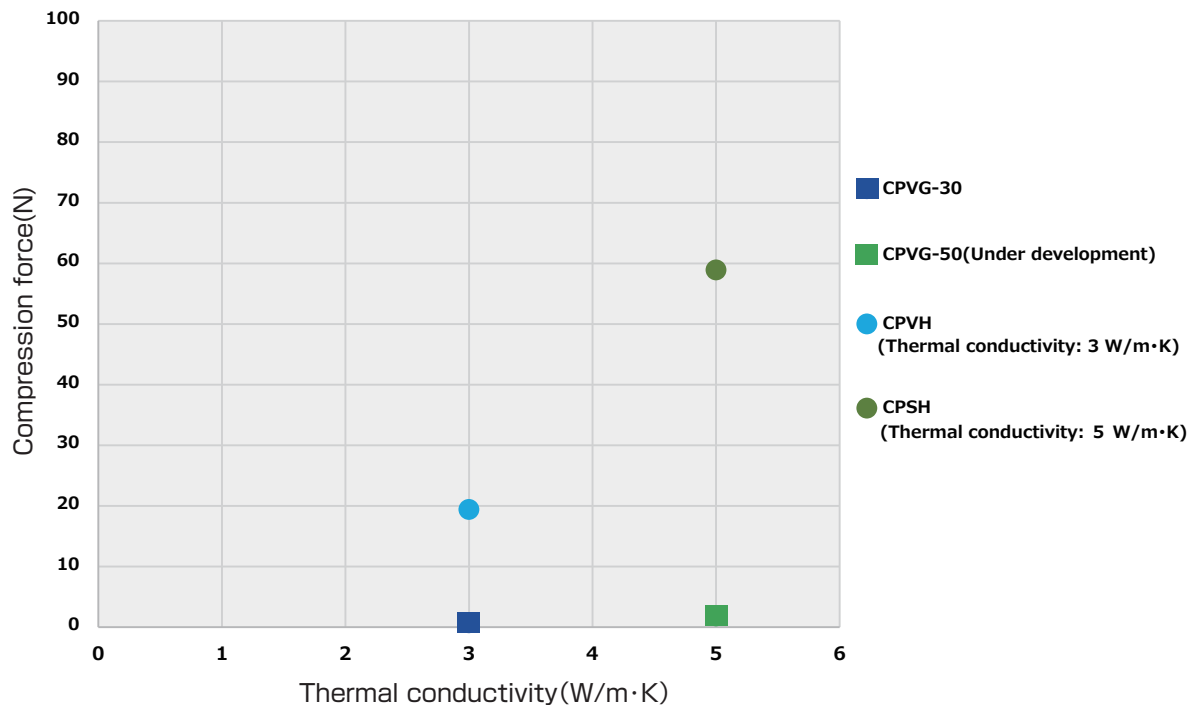
※ Offers evaluation and verify dispensing to right application.

Machine:MS-1D (Musashi engineering CO.,LTD)

③ Putty TIM (CPVG) as assembled

	①	②	③	
Workability	○	×	○	Heat-dissipating component is easily installed at the required locations
Load on IC	×	△	○	Low load on ICs, since the putty spreads into gaps when compressed

### Compressive force and thermal conductivity (Comparison with sheet TIMs)



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