

## Safety Precautions

### Statement Content

The statement content is based on materials, data, and information currently available and no guarantee is made with respect to content, physical properties, or hazards and harmful effects. Further, as handling precautions relate to normal handling, for special handling, safety measures appropriate to the application and its method should be taken.

### WARNING Fire/high temperature caution

- Fires should be extinguished with powder, carbon dioxide, foam fire extinguisher, or water sprays.

### WARNING First-aid measures

- Eye contact: Remove from eyes quickly, and wash eyes by clean water sufficiently. If bloodshot eyes or respiratory symptoms develop, seek medical advice.
- Skin contact: Wash the skin liberally with water and soap. If you feel stimulus, seek medical advice.
- Swallow: Vomit it, wash mouth and seek medical advice.




### CAUTION Disposal

- As data relating to health and the natural environment are incomplete, the greatest care should be exercised when handling UPISEL®.
- When disposing of UPISEL®, because of pollution concerns, the material should be burned in an appropriate incinerator. This should be done in accordance with the Air Pollution Control Act and other laws and regulations.

### PROHIBITION Others

- The product is for industrial use only. If your company uses the product for medical or other special use requiring safety considerations, the determination of suitability and safety of the finished product will be the responsibility of your company.
- Do not plant and inject the material and do not use the product if it is possible that part of the product could remain in the humans body.

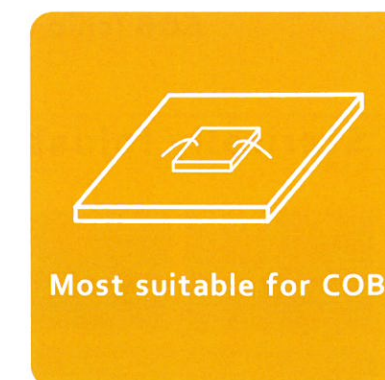
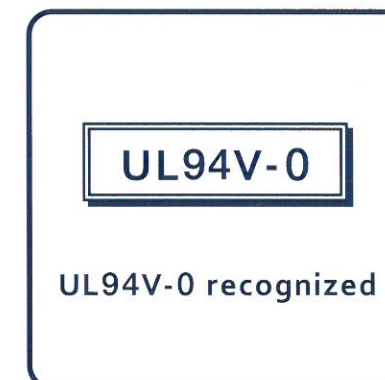
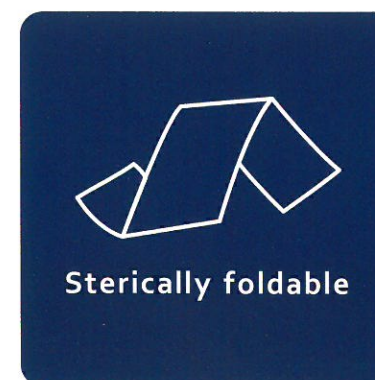
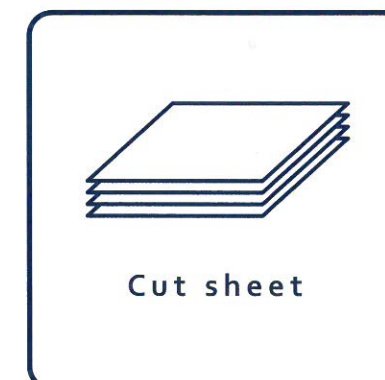
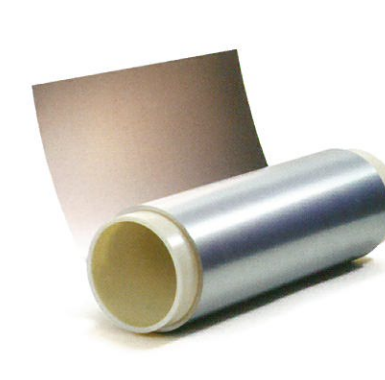
### Meaning of displayed symbols

 <b>WARNING</b>	Failure to observe this sign and erroneous handling of the product may cause death or grave injury to users.
 <b>CAUTION</b>	Failure to observe this sign and erroneous handling of the product may cause injury to users or a large physical loss.
 <b>PROHIBITION</b>	This sign indicates activities that are prohibited (prohibited items). The activities that are actually banned are described on or near the sign.

UPISEL® is a trademark registered in Japan No.4346943 by Ube Industries, Ltd.  
HALOGEN FREE : Satisfy JPCA - ES01.

# UPISEL®-H

## Polyimide Type Metal Base Heat Radiation Material



Ube-Exsymo.co.Ltd  
Electronic & Information Materials Div.  
Sumitomo Seimei Nihonbashi-Tomizawacho Bldg.  
9-19, Nihonbashi-Tomizawacho, Chuo-ku, Tokyo  
103-0006, Japan  
Phone +81-3-6667-2419  
URL <http://www.ube-exsymo.co.jp>



# UPISEL-H

is a heat radiation laminate based on Polyimide film dielectric. Providing excellent heat radiation by the very thin Polyimide layer having superior dielectric breakdown voltage.

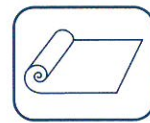
## Typical Characteristics



Ultra thin



Light weight



Available roll supply



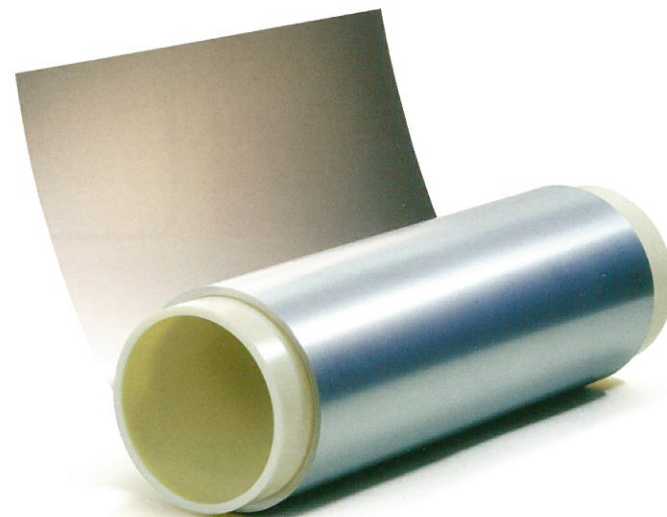
Sterically foldable



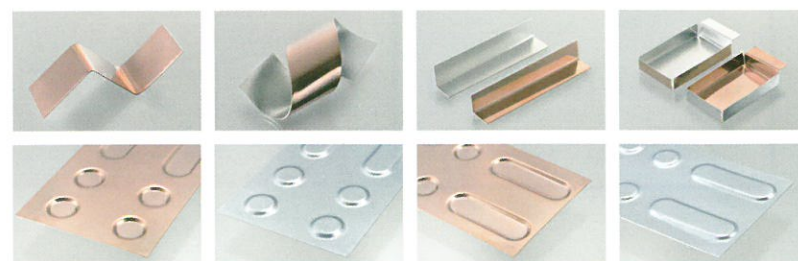
Halogen-free, UL94V-0 recognized (E319042)



No ceramic filler contained and no particle contamination at machining; most suitable for bare-chip mounting COB (chip on board)



## Sterically foldable



## Applications

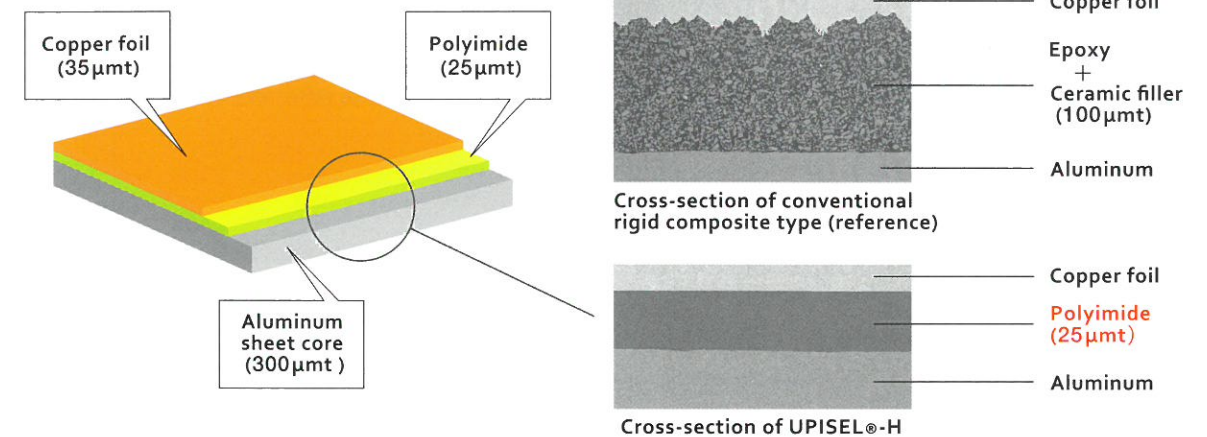
### LED mounting substrate

- LED backlight unit
- LED lighting
- Automotive lighting unit

### Power module

- Inverter
- Power supply

## Structure

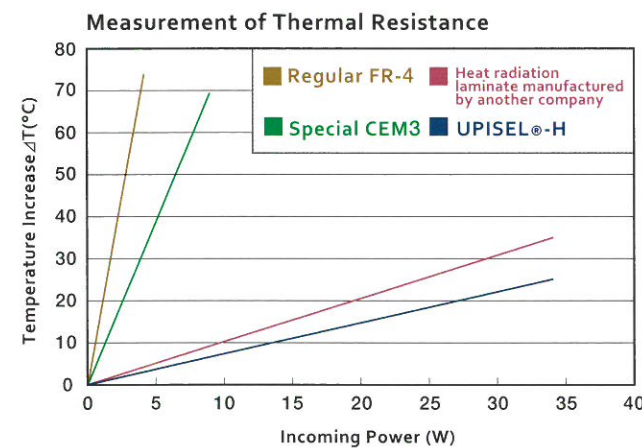


Labeling Standard

AIR 30 25 35

AIR : aluminum core based  
30 : metal-core thickness (300 μm)  
25 : polyimide thickness (25 μm)  
35 : copper foil thickness (35 μm)

## Heat Radiation Property



### Reference Calculated Value

Dielectric Material	t (mm)	λ (W/m · K)	R (°C/W)
Regular FR-4 epoxy-glass	1.0	0.4	18
Special CEM3 epoxy-glass-filler	1.0	1.0	7
Heat radiation laminate manufactured by another company epoxy-filler	0.1	1.0	0.7
UPISEL-H polyimide	0.025	0.3	0.6

$$R = \frac{t}{S \cdot \lambda}$$

R : thermal resistance  
λ : thermal conductivity of dielectric layer  
t : dielectric thickness  
S : device area

## Typical Properties

Item	Conditions	Value
Peel strength	Normal	1.5 N/mm
	85°C/85% RH 1,000 hrs	1.5 N/mm
UPISEL dielectric breakdown voltage	25μm thickness	7.0 kV
UL flammability	UL94	V-0

## Supply Forms

Roll  
Width 510mm x 100m



Cut sheet  
510 x 610mm, etc.

