

Thermal conductivity
2.7W/m·K*

Excellent resin flowability

RTI 150°C

* Measured with the laser flash method

Applications
Automotive

Vehicle chargers, Power supplies for railroads, Power conditioners for photovoltaic power generation, Inverters, Step-up converters, etc.



Halogen-free

R-2400

High-thermal conductive film for multi-layer circuit board

High-thermal conductivity of 2.7 W/m·K* helps reduce the number of thermal management components. The excellent resin flowability enables multilayering of electronic circuit boards, contributing to the miniaturization of equipment. Certified to meet the UL-specified rated temperature of 150°C and can be used in high-temperature environment.

Superiority of R-2400 Miniaturization of circuit boards by multilayering (cross-sectional view)

Conventional materials

Insufficient resin flowability makes circuit filling difficult. Multilayering of circuit boards is not possible because insulating layers **cannot be formed**.

<Double-sided circuit board>

Conventional materials*
Heat sink
Power semiconductor
Heat sink

Conventional materials*
Circuit board miniaturization by multilayering

Circuits are not filled (Generation of voids)

*Conventional materials: High thermal conductive materials

R-2400

Excellent resin flowability achieves superior circuit filling properties. Multilayering of circuit boards is possible because insulating layers **can be formed satisfactorily**.

<Double-sided circuit board>

Conventional materials*
Heat sink
Power semiconductor
Heat sink

R-2400
Circuit board miniaturization by multilayering

Circuits are filled

*Conventional materials: High thermal conductive materials

- **Component-embedded applications**
It is expected to apply R-2400's excellent resin flowability to component-embedded circuit boards.
- **Example of copper pattern embedding**
Cu thickness : 105um
Film thickness : 100um x 2ply

R-2400
Power semiconductor
Heat sink

R-2400
R-1566
R-2400
200.00um

Product line-up(Thickness)
100μm, 150μm



Comparison of thermal conductivity

		Halogen-free R-1566	Halogen-free R-2400
Temperature distribution map	Surface		
	Cross section		
Maximum temperature		174°C	138°C
Layer configuration			
FET: 2.4 mm Copper foil: 0.018 mm R-1566/R-2400: 0.8 mm Copper foil: 0.018 mm		(Unit:mm)	(Unit:mm)

Analyzed by using Murata software's Femtet.

General properties

Item	Test method	Condition	Unit	Halogen-free R-2400
Thermal conductivity	ASTM D5470	A	W/m·K	3.8
	Laser flash	A		2.7
Glass transition temp. (Tg)	DMA	E-1/105	°C	200
Withstand voltage vertical to layer	ASTM D149	C-48/23/50	kV	6.5 (100um)
CLTE	IPC-TM-650 2.4.24	E-2/105	ppm	30 (40-260°C)
Tracking resistance	ASTM D3638	C-48/23/50	V	600 (PLC-0)
Rated temperature (RTI)	UL	—	°C	150
Flammability	UL	C-48/23/50	—	94V-0

The sample thickness is 0.8mm. Withstand voltage vertical to layer data is for a thickness of 0.1mm.

Tracking resistance, rated temperature and flammability are data for a combination of R-2400 0.1mm above and below a 0.38mm core material.

Our Halogen-free materials are based on JPCA-ES-01-2003 standard and others.
The above data are typical values and not guaranteed values.

Please see our website for Notes before you use.

industrial.panasonic.com/ww/electronic-materials

Panasonic Industry R-2400

Panasonic Industry Co., Ltd. Electronic Materials Business Division

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