

Double-coated adhesive tape

## TR-5320F

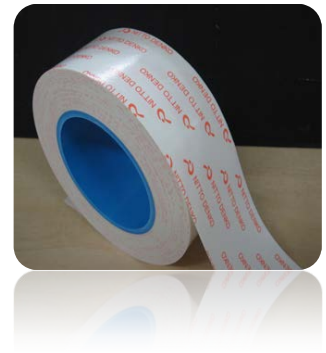
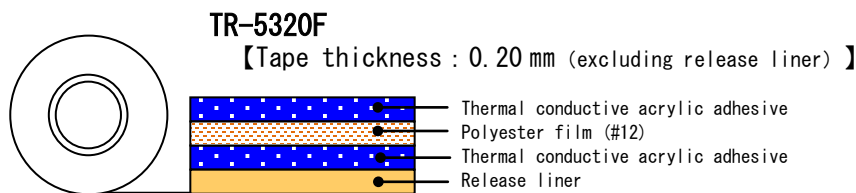
### Outline

Nitto Denko thermal conductive adhesive tape TR-5320F offers superior thermal conductive property by using the thermal conductive adhesive layer.

TR-5320F acquires flammability UL94 V-0 certification.

TR-5320F offers excellent workability and processability by adopting the polyester film as base material. The tape can be used various area such as electronics.

### Structure



### Features

- Superior thermal conductive property.
- Excellent adhesion and superior adhesive reliability.
- Flammability UL94 V-0[Halogen-free]. [ file No. : QMFZ2.E52859 ].
- Excellent workability and processability.
- Six restricted substances by RoHS are not contained.

### Applications

- Fixing of LED substrate to chassis
- Fixing of CPU to heat sink or heat radiation fan
- Fixing of various semiconductor packages to heat sinks
- Fixing of electronic components to heat radiation sheet

### Standard sizes

Tape thickness (mm)	Width (mm)	Length (m)
0.20	10~1000	20, 50

For details, please contact us.

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## Properties

### ● 180 degree peeling adhesion for each substrate

Substrate	TR-5320F
Stainless steel plate	11.2
Aluminum plate (A1050)	9.6
Aluminum plate (A6063)	12.2
Acrylic plate	13.1
Glass epoxy plate	16.9
Bakelite plate	18.9
Ceramics plate	13.5
White solder resist for LED	33.2

(Unit : N/20 mm)

Tape area : 20mm width

Lining material : PET film #25

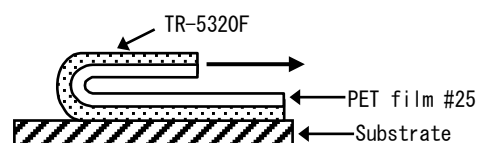
Pressing condition : 1pass back and forth with 2-kg roller at 23 degree C/50%RH

Applying condition : 23 degree C/50%RH×30min

Peeling speed : 300 mm/min

Peeling angle : 180 degree

Measurement temperature : 23 degree C/50%RH



### ● 180 degree peeling adhesion -Aging(durability) at each condition after applying

Condition	TR-5320F
Initial (23 degree C/50%RH×30min)	11.2
23 degree C×42 days (1000hrs)	13.3
60 degree C×42 days (1000hrs)	16.8
100 degree C×42 days (1000hrs)	20.5
120 degree C×42 days (1000hrs)	24.1
85 degree C /85%RH×42 days (1000hrs)	24.0
Thermal shock [1000cycles]※1	21.8

(Unit : N/20 mm)

Substrate : Stainless steel plate

Lining material : PET film #25

Pressing condition : 1pass back and forth with 2-kg roller at 23 degree C/50%RH

Applying condition : Refer to the left table.

Peeling speed : 300 mm/min

Peeling angle : 180 degree

Measurement temperature : 23 degree C/50%RH

※1 : Thermal shock condition

[-40 degree C ×30min⇒125 degree C×30min⇒]  
×1000 cycles

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## Properties

### ●Holding power

Temperature	TR-5320F
23 degree C	0.1
40 degree C	0.1
80 degree C	0.1
100 degree C	0.1

(Unit:mm/hr)

Substrate : Aluminum plate

Applying condition:

Measurement temperature ×30min

Measurement temperature :

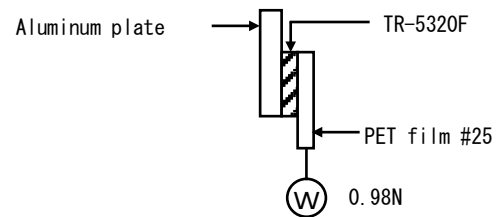
23 degree C, 40 degree C,

80 degree C, 100 degree C

Tape area : 10mm × 10 mm

Load : 0.98N(100g)

Load time : 1hr



### ●Holding power -Aging(durability) at each condition after applying

Condition	TR-5320F
Initial (23 degree C/50%RH)	0.1
23 degree C × 42 days (1000hrs)	0.1
60 degree C × 42 days (1000hrs)	0.1
100 degree C × 42 days (1000hrs)	0.1
60 degree C /90%RH × 42 days (1000hrs)	0.1
Thermal shock [1000cycles]※1	0.1

(Unit:mm/hr)

Substrate : Aluminum plate

Applying condition: Refer to the left table.

Measurement temperature : 40 degree C

Tape area : 10mm × 10 mm

Load : 0.98N(100g)

Load time : 1hr

※1 : Thermal shock condition

[-40 degree C × 30min ⇒ 125 degree C × 30min ⇒]  
× 1000 cycles

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## Properties

### ● Thermal conductivity

	TR-5320F
Thermal conductivity	0.7

(Unit : W/m·K)

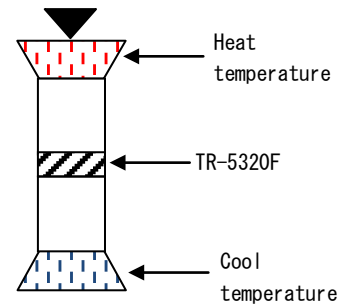
Steady state heat flow method

Tape area: 20mm×20mm

Heat temperature : 80 degree C

Cool temperature : 20 degree C

Load : 250kPa



### ● Thermal resistance

	TR-5320F
Thermal resistance	3.3

(Unit : cm<sup>2</sup>·K/W)

Steady state heat flow method

Tape area: 20mm×20mm

Heat temperature : 80 degree C

Cool temperature : 20 degree C

Load : 250kPa

### ● Thermal conductivity -Aging(durability) at each condition after applying

Condition	TR-5320F
Initial (23 degree C/50%RH)	0.7
60 degree C×42 days(1000hrs)	0.7
100 degree C×42 days(1000hrs)	0.7
120 degree C×42 days(1000hrs)	0.7
85 degree C /85%RH×42 days(1000hrs)	0.7
Thermal shock[1000cycles]※1	0.7

(Unit : W/m·K)

Substrate : Aluminum plate

Applying condition: Refer to the left table.

Steady state heat flow method

Tape area: 20mm×20mm

Heat temperature : 80 degree C

Cool temperature : 20 degree C

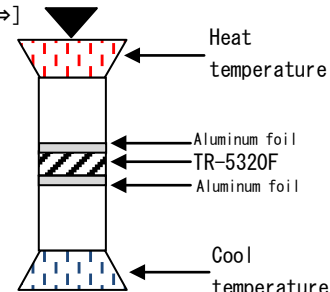
Load : 250kPa

※1 : Thermal shock condition

[-40 degree C ×30min

⇒125 degree C×30min⇒]

×1000 cycles



### ● Thermal resistance -Aging(durability) at each condition after applying

Condition	TR-5320F
Initial (23 degree C/50%RH)	3.3
60 degree C×42 days(1000hrs)	3.3
100 degree C×42 days(1000hrs)	3.4
120 degree C×42 days(1000hrs)	3.3
85 degree C /85%RH×42 days(1000hrs)	3.2
Thermal shock[1000cycles]※1	3.5

(Unit : cm<sup>2</sup>·K/W)

Substrate : Aluminum plate

Applying condition: Refer to the left table.

Steady state heat flow method

Tape area: 20mm×20mm

Heat temperature : 80 degree C

Cool temperature : 20 degree C

Load : 250kPa

※1 : Thermal shock condition

[-40 degree C ×30min

⇒125 degree C×30min⇒]

×1000 cycles

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## Properties

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### ●Flammability

	TR-5320F
UL94	V-0 QMFZ2 E52859

(Unit : -)

Measurement condition : Refer to UL94 V test

### ●Electrical insulating property

	TR-5320F
Breakdown voltage	8.9

(Unit : kV)

Measurement temperature : 23 degree C

Measurement humidity : 50%RH

Voltage rising rate : 1kV/s

Load : 4.9N

### ●Total VOC emission

Condition	TR-5320F
80 degree C×0.5 hrs	40
130 degree C×0.5 hrs	100

(Unit :  $\mu$ g/g)

Tape area:5cm<sup>2</sup>

Applying condition: Refer to the left table.

Heating method: 20mL vial bottle

Measurement : Quantity of volatile gas 1mL

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## Precautions when using

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- Remove all oil, moisture and dirt from the surface of the substrate before applying.
- The tape employs pressure-sensitive adhesive. Be sure to apply pressure with a roller or press when applying. Failure to do so could affect properties or appearance.
- The tape may not adhere well to significantly uneven or distorted surfaces. Level off the surface as much as possible before applying.
- Avoid setting or using such that significant stress is placed on the tape for several hours after application.

## Precautions when storing

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- Be sure to keep the tape in its box when not using.
- Keep in a cool dark place not exposed to direct sunlight.

## Safety Precautions

WARNING
<ul style="list-style-type: none"><li>● Make sure the product is suitable for the application (objective and conditions) before attempting to use. The tape may come off depending on the substrate to or conditions under which it is applied.</li><li>● Use in combination with another method of joining if there is possibility of an accident.</li></ul>

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