



tesa HAF[®] 8412 ACF



Product Information

45µm Anisotropic conductive heat activated adhesive film

Product Description

tesa[®] HAF 8412 ACF is an anisotropic conductive, heat activated, brown adhesive film based on reactive phenolic resin and nitrile rubber containing conductive particles.

tesa[®] HAF 8412 ACF features especially:

- Anisotropic conductivity
- Mechanical module embedding and electrical connectivity in one step
- Good workability on all common implanting lines
- Suitable for PVC, ABS, PET and PC cards
- Good ageing resistance

Thickness: 45 µm (mean value of particle size)

Product Features

- Excellent grounding performance in applications with structural bonding requirements
- High bonding strength in narrow and small bonding areas
- Good ageing resistance
- Reliable SmartCard chip bonding and electrical connectivity in one step
- Suitable for PVC, ABS and PC SmartCards (DI)

Application Fields

tesa[®] HAF 8412 ACF is designed for the embedding of chip-modules into dual interface smart cards for non-contact and contact based applications.

Technical Information (average values)

The values in this section should be considered representative or typical only and should not be used for specification purposes.

Product Construction

- | | | | |
|--------------------|------------------------------------|-------------------|-------|
| • Backing material | none | • Total thickness | 50 µm |
| • Type of adhesive | nitrile rubber /
phenolic resin | • Colour | amber |
| • Type of liner | glassine | | |

Properties/Performance Values

- | | | | |
|--------------------------|---------------------|----------------------------------|----------|
| • Activation temperature | 120 °C | • Contact resistance z-direction | 200 mOhm |
| • Bonding strength | 4 N/mm ² | | |

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Additional Information

Technical Recommendations:

The following values are recommendation for machine parameters to start with. Please note that optimum parameters strongly depend on the type of machine, particular materials for card bodies and chip-modules as well as customer requirements.

1. Pre-lamination:

During pre-lamination, the adhesive tape is laminated onto the module belt. This step can be performed inline or offline. The pre-lamination step does not effect the shelf life time of the adhesive tape. Pre-laminated module belts can be stored over the same period of time as the adhesive tape.

Machine setting:

- Temperature 130 – 150 °C
- Pressure 4 – 6 bar
- Time 1,5 – 3,0 s

2. Module Embedding:

During module embedding, the pre-laminated modules are die cut from the module belt, positioned into the card cavity and permanently bonded to the card body by heat. For this step, the exact handling depends on the type of the implanting line used. Today, two different ways are most common:

Single step process - Machine setting (low temperature):

- Temperature¹ 160 – 180 °C
- Pressure 80 - 130 N/module
- Time 2,0 – 4,0 s

Single step process - Machine setting (high temperature):

- Temperature¹ 180 – 200 °C
- Pressure 80 - 130 N/module
- Time 1,0 – 1,5 s

Multiple step process (2 or more heating stamps) - Machine setting:

- Temperature¹ 170 – 200 °C
- Pressure 80 - 130 N/module
- Time (for each step) 0,7 – 1,2 s

¹ Temperature as measured inside the heating stamp

Storage conditions according to tesa[®] HAF shelf life concept.



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