Optimized for the embedding of functional modules such as dual interfaces and fingerprint sensors in smartcards

Anisotropic Conductive Film (ACF) for smart cards

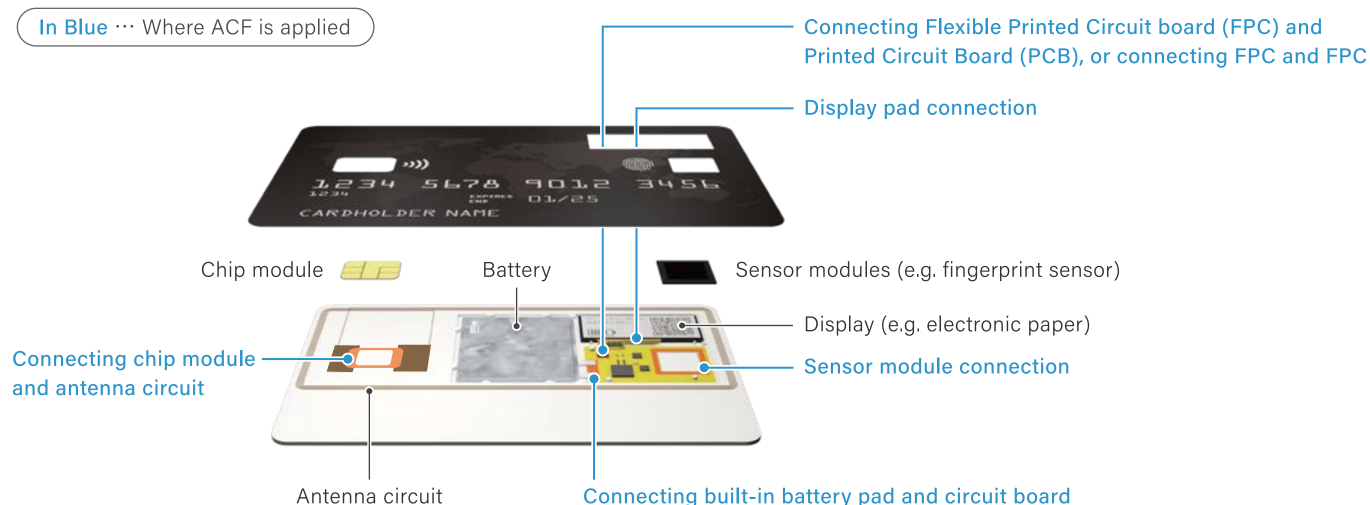
Product Name

EH2035H-40 EH1038-40

Features

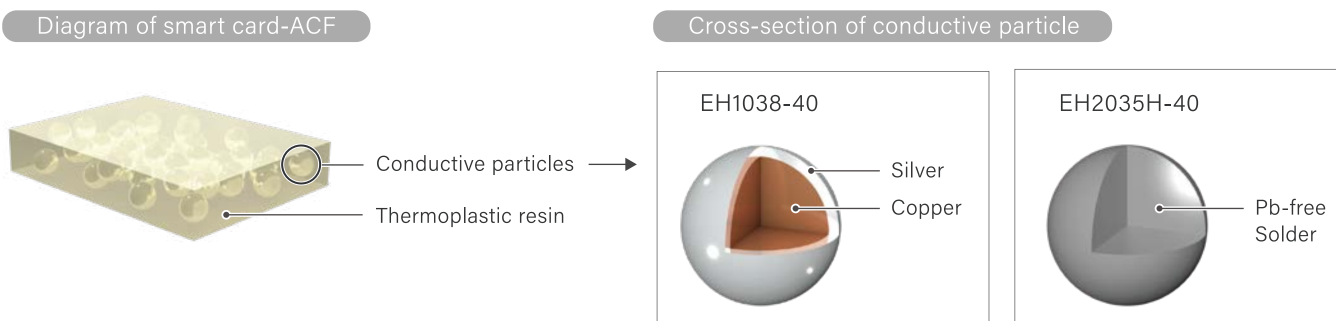
- Performs mounting functional modules by adhesion and forming electrical conduction (electric circuits) simultaneously on substrates with low heat-resistance such as PVC, PC, and PET-G.
- Using ACFs as module-embedding materials instead of solder or Ag paste reduces the number of processes and improves production efficiency.
- Modules can be embedded on dual interface cards and smart cards with fingerprint identification by using typical equipment (milling and embedding apparatuses) commonly used in smart card assembly processes.

Example of ACF implementation in smart cards



Structure

Hotmelt film with electrically conductive particles which allows easy embedding of modules in smartcards.
The embedding and electrical connection are achieved in one step.



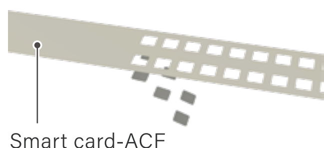
Example of usage process

Lamination

Can be processed using the same equipment as general hot melt tapes.

1. IC hole punching process

Create holes for IC modules



2. Lamination of ACF

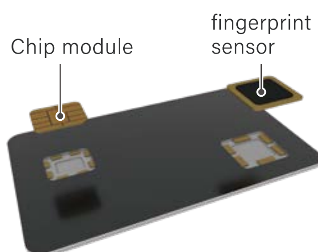
Attach ACF to the modules

Embedding

The IC chip part can be heated and pressurized by general chip embedding equipment.
No need to fill with solder or conductive paste.

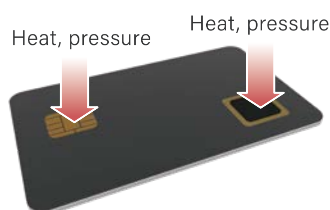
Chip placement

Mount in the cavity



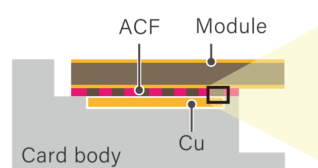
ACF bonding

Apply heat and pressure to ACF

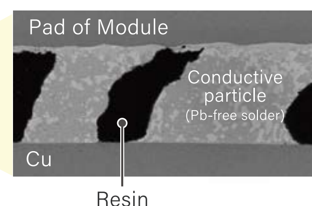


Structure

Module assembling structure in a smart card with ACF



Cross-sectional image of a connection area



Specifications

Product name		EH2035H-40	EH1038-40
Connection material		Dual interface module, Fingerprint sensor module	
		Card substrate (such as PVC, PC, and PET-G)	
Standard length [m]		100	100
Standard width [mm]		29 / 29.5	29 / 29.5
Thickness [µm]		40	40
Conductive particles	Type	Pb-free solder particles	Silver-plated copper particles
	Mean particle diameter [µm]	35	38
Pasting conditions	Temperature [℃]*1	120 to 140	120 to 150
	Time [sec.]	1.5 to 3.0	1.5 to 3.0
	Pressure [N/module]	3.0 to 20	3.0 to 20
Main bonding conditions	Temperature [℃]*1	140 to 160	120 to 160
	Time [sec.]*2	0.5 to 1.2	0.5 to 1.2
	Pressure [N/module]*3	60 to 120	60 to 120

*1: Temperature of ACF *2: each step *3: 1.5 - 3.5 bar

Product inquiry Dexerials Europe B.V. Tel : +31-85-401-7120 https://www.dexerials.jp/en

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