

NEW

Ag積層型透明導電性フィルム

Ag-stacked Transparent Conductive Film

省・創エネルギーにも貢献する機能性フィルム

A functional film that contributes to the conservation and creation of energy

Features

- 高透過率を維持しつつ、さらなる低抵抗化と優れた屈曲性を実現
Realizes lower resistance and excellent flexibility, while maintaining transparency
- 面内均一な連続膜構造. 結晶化処理不要
The continuous layer structure with in-plane uniformity. Crystallization not necessary.
- 遮熱性を実現する赤外線領域での高反射率
High reflectivity in infrared region that realizes high heat shielding.

Applications

- 透明電極（調光フィルム、有機EL照明、有機薄膜太陽電池）
Transparent electrode (Light control film, Organic EL lighting, OPV)
- 透明機能膜（アンテナ、ヒーター、ノイズシールド）
Transparent functional film (Antenna, Heater, Noise shield)

Characteristics

- Transparent conductive film on which a thin Ag alloy layer and original protective layer are stacked.

Structure of Ag-stacked film



Specifications (representative)			
Structure		Type A	Type B
Substrate		PET	PET
Surface Resistivity	Ω/\square	10	4
Total Light transmittance	%	87	82
Haze	%	0.5	0.5
Value of b* (CIE Lab, transmission)		2.5	5.5

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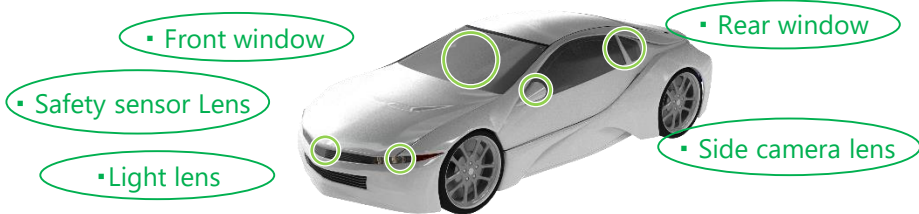
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結露防止/氷解用途ヒーター向けAg-stackフィルム

Ag-stacked film on transparent heater for Defogger or Defrost

Application example

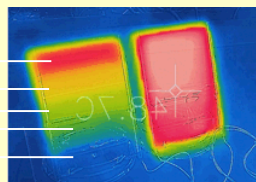
- Heater for window of automobile
- Heater for plastics lens (Light lens, Safety camera lens)



Demonstrations of the transparent heater



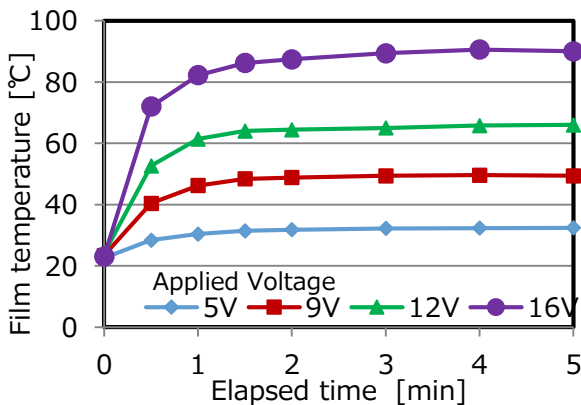
4Ω/sq
8Ω/sq
15Ω/sq
25Ω/sq
Non conduction



● Test result

Voltage [V]	Current [A]	Power [W]	Power density [W/cm ²]
5	0.75	3.75	0.0148
9	1.35	12.15	0.0480
12	1.78	21.36	0.0844
16	2.31	36.96	0.1461

Sample size :148×210mm



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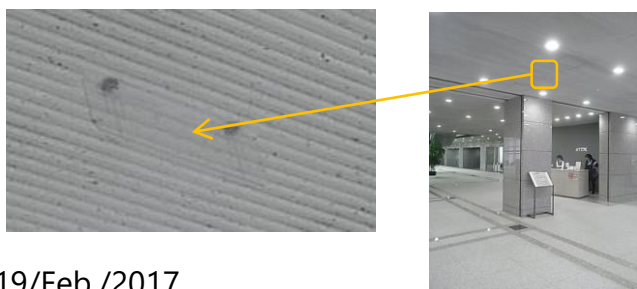
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透明フィルムアンテナ用 Ag-stackフィルム

Ag-stacked film for transparency film antenna

Application example

- Improvement of reception level using transparent antenna
- DENGYO developed the MIMO antenna.



From 19/Feb./2017 ,
Implementation of the field tests at TDK Technical center

- Benchmarks of the Transparent conductive film

Characteristic			
Film type	Ag-stacked film	ITO film	Metal mesh film
Crystallization	No necessary	Necessary	No necessary
Surface Resistivity	4 [Ω/\square]	150 [Ω/\square]	1.2 [Ω/\square]
Total Light transmittance	82%	89[%]	82[%]
Haze	0.6	0.6	1.6
Appearance	○	◎	X
Radiation Efficiency *1	66 [%]	<<1[%]	76 [%]
Workability	Various shape is possible by etching.		Surface is easy to damage or detach.

*1 Radiation Efficiency : 1.8GHz , monopole antenna.

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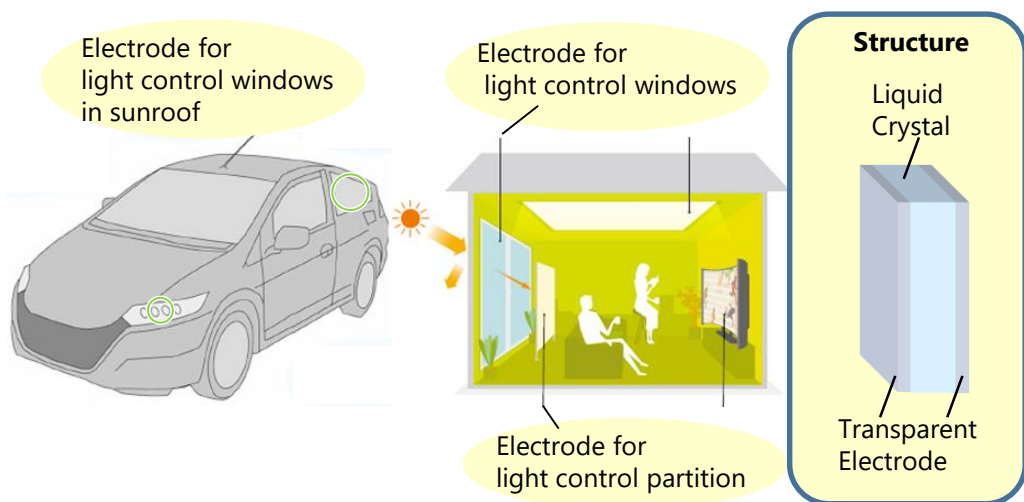
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調光フィルム用透明電極

Transparent Electrode for Light control film

Application example



● Demonstrations of the light control film

High reflectivity in infrared region that realizes high heat shielding.



Switches between transparent and opaque