

# Exhibit 1002 (continued)

conducting film by selectively leaving the dielectric film;  
a second conducting film covering said opening portion;  
a third conducting film formed over a second substrate;  
and a plurality of conducting spacers held between said first and second substrates and maintaining a gap between first and second substrates;  
wherein said opening portion, said first conducting film and said second conducting film are connected;  
and wherein said insulator on the said opening portion, said conducting spacers and said third conducting film are connected in turn on said second dielectric film, wherein said conducting spacers maintain a gap between said first and second substrates.

[Claim 5]

The contact structure of claim 4 wherein said dielectric film and said insulator are substantially identical in thickness.

[Claim 6]

The contact structure of claim 4 or 5 wherein each of said parts of said opening portion has an area larger than an area occupied by each of said conducting spacers.

[Claim 7]

The contact structure of claim 4 or 6 wherein said insulator has a surface larger than an area occupied by each of said conducting spacers.

[Claim 8]

The contact structure of claim 1 or 7 further comprising a fourth conducting film placed between said second substrate and said third conducting film and being in contact with said third conducting film.

[Claim 9]

The contact structure of claim 8 wherein said second substrate and said third conducting film are transparent to light, and wherein said fourth conducting film has at least one opening.

[Claim 10]

A contact structure of an electro-optical device comprising:  
a second substrate opposite to said first substrate;

a pixel electrode formed over said first substrate;  
a counter electrode formed over said second substrate;  
a first conducting film formed over said first substrate and under said pixel electrode;

a interlayer dielectric film covering at least a portion of said first conducting film and having at least one opening portion formed in the dielectric film to expose parts of said first conducting film by selectively leaving the dielectric film;

a third conducting film covering said interlayer dielectric film and said opening portion, said third conducting film and said pixel electrode comprising same material;

a plurality of conducting spacers held between said first and second substrates and maintaining a gap between said first and second substrates;

and wherein said first and second conducting films are contacted at said opening portion, wherein said dielectric film, said conducting spacers and said third conducting film are connected in turn on said second conducting film, wherein said conducting spacers maintain a gap between said first and second substrates.

[Claim 11]

The contact structure of claim 10 wherein said opening portion occupies an area larger than an area occupied by each of said conducting spacers.

[Claim 12]

The contact structure of claim 10 or 11 said interlayer dielectric film a surface larger than an area occupied by each of said conducting spacers.

[Claim 13]

A contact structure of an electro-optical device comprising:

a second substrate opposite to said first substrate;

a pixel electrode formed on said first substrate;

a counter electrode formed over said second substrate;

a first conducting film formed over said first substrate and under said pixel electrode;

a interlayer dielectric film covering at least a portion of said first conducting film and having an opening portion to expose a portion of said first conducting film,

and said opening portion formed in the dielectric film to expose parts of the

first conducting film by selectively leaving the dielectric film;

a second conducting film covering said first and second dielectric film and said opening portion, said second conducting films and said pixel electrode comprising same material;

a plurality of conducting spacers held between said first and second substrates and maintaining a gap between said first and second substrates;

wherein said first and second conducting films are contacted at said parts of said opening portion,

and wherein said insulator, said conducting spacers and said third conducting film are contacted at said parts of said second dielectric film, wherein said second conducting film, said conducting spacers and said counter electrode are connected in turn on said second dielectric film, wherein said conducting spacers maintain a gap between said first and second substrates.

[Claim 14]

The contact structure of claim 13 wherein said interlayer dielectric film and said insulator are substantially identical in thickness.

[Claim 15]

The contact structure of claim 13 or 14 wherein each of said parts of said opening portion has an area larger than an area occupied by each of said conducting spacers.

[Claim 16]

The contact structure of claim 13 or 15 wherein said insulator has a surface larger than an area occupied by each of said conducting spacers.

[Claim 17]

The contact structure of claim 13 or 16 further comprising a fourth conducting film placed between said second substrate and said third conduction film and being in contact with said third conducting film.

[Claim 18]

The contact structure of claim 17 further comprising a black matrix, wherein said third conducting film and said black matrix comprise same material.

[Claim 19]

The contact structure of claim 17 or 18 wherein said second substrate and said third conducting film are transparent to light, and wherein said fourth conducting film has at least one opening.

[Claim 20]

A contact structure of an electro-optical device comprising:

a first conducting film formed over a first substrate;

a dielectric film covering at least a portion of said first conducting film and having at least one opening portion to expose parts of said first conducting film;

a second conducting film covering said opening portion;

a third conducting film formed over a second substrate;

a fourth conducting film formed between said second substrate and said third conducting film and being in contact with said third conducting film;

and a plurality of conducting spacers held between said first and second substrates, wherein said conducting spacers maintain a gap between said first and second substrates;

wherein said opening portion, said second conducting film, said conducting spacers, said third conducting film and said fourth conducting film are connected in turn on the first conducting film.

[Detailed Description of the Invention]

[0001]

[Technical Field to which the Invention pertains]

The present invention relates to a contact structure for electrically connecting together conducting lines formed on two opposite substrates, respectively, via conducting spacers and, more particularly, to a contact structure used in common contacts of an electro-optic device such as a liquid crystal display.

[0002]

[Prior Art]

In recent years, liquid crystal displays have been extensively used in the display portions of mobile intelligent terminals such as mobile computers and portable telephones including PHS (personal handyphone system). Also, active-matrix liquid crystal displays using TFTs as switching elements are well known.

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