

Taiwan, Dec, 2014

Welcome to read Winstar Newsletter issue no.76. Christmas is a good time to think about all we have to be thankful for. We would like to take this opportunity to thank you for your valuable collaboration during all these years. Winstar Display would not have come this success without your support and business. And we are very proud to be and continue being part of your success.

We wish you all have a HAPPY ending of 2014 and wish you have a Merry Christmas and Happy New Year!! In this issue, we will introduce one Winstar TFT O film as well as the yearly inventory check notice and New Year Holiday notice. Welcome to read the content thru the QR code on your cell phone.

**Shipping Arrangement before Stocktaking & Holiday Notice**

Winstar Display will have yearly stocktaking from December 30 thru 31, 2014 for the Taiwan and China plants. Please note that all the shipping arrangement during this period will be forbidden. Winstar Display Taiwan and China offices will be closed from January 1 thru January 4, 2015 for the New Year Holiday. We will resume to work on January 5, 2015. Please notice the shipping date before and after holidays.

Below is the last shipping date and the first shipping date for this period as your reference. Please work with your Winstar sales closely before the stocktaking and holiday if your shipment might be affected. Thank you.

Shipping From Taiwan

- ▶ Last shipping date: December 26, 2014
- ▶ First shipping date: January 5, 2015

Shipping From China

- ▶ Last shipping date: December 26, 2014
- ▶ First shipping date: January 5, 2015



Winstar O Film TFT Introduction (1)

If your applications require a wider viewing angle, Winstar O Film TFT technology will be what you need. There are many wider view angle technology for TFT displays in the market such as MVA (Multi-domain Vertical Alignment) and IPS (In-Plane Switching). Comparing to the MVA or IPS technology, O Film TFT has the advantage of pricing. More importantly, the specifications and dimensions of MVA and IPS TFT in the market now are more suitable for consumer products (like tablets and smartphones) not for industrial products.

Most industrial application of TFT-LCD glasses that are available in the market are TN-LCD type. However, TN technology suffers from phenomenon called gray scale inversion. This means the display have one viewing side in which color of the image change suddenly after exceeding specified view angle. Therefore, the normal TFT models we offer which the viewing angle are limited. Currently, we offer a solution to enhance TN glass viewing angle and can overcome gray scale inversion. This is our TFT O-Film solution. Please see the below comparison that the Winstar O-Film TFT has improved the gray scale inversion.

» O-film Series

WF43H 

4.3" Normal TFT



4.3" O-film TFT



Winstar O Film TFT Introduction (2)

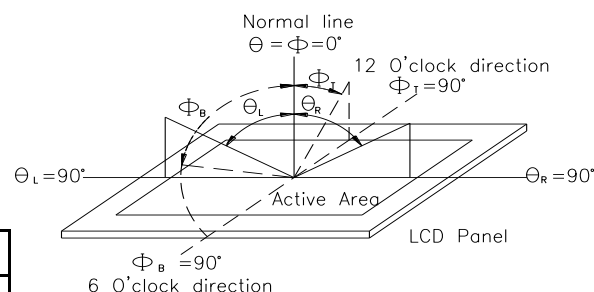
We offer a wider view angle solution for Winstar TFT displays. We add an O Film on top of the TFT TN-LCD glass to enhance the viewing angle. Below charts are the normal TFT and O Film TFT comparison, you can see the O Film TFT viewing angle improved a lot. This will be cost effectiveness solution in the industrial application for color TFT displays. We are planning to released several sizes of O Film standard TFT models in the coming year of 2015. If you need further information for product plan, please contact with us.

1.) Viewing angle for Normal TFT

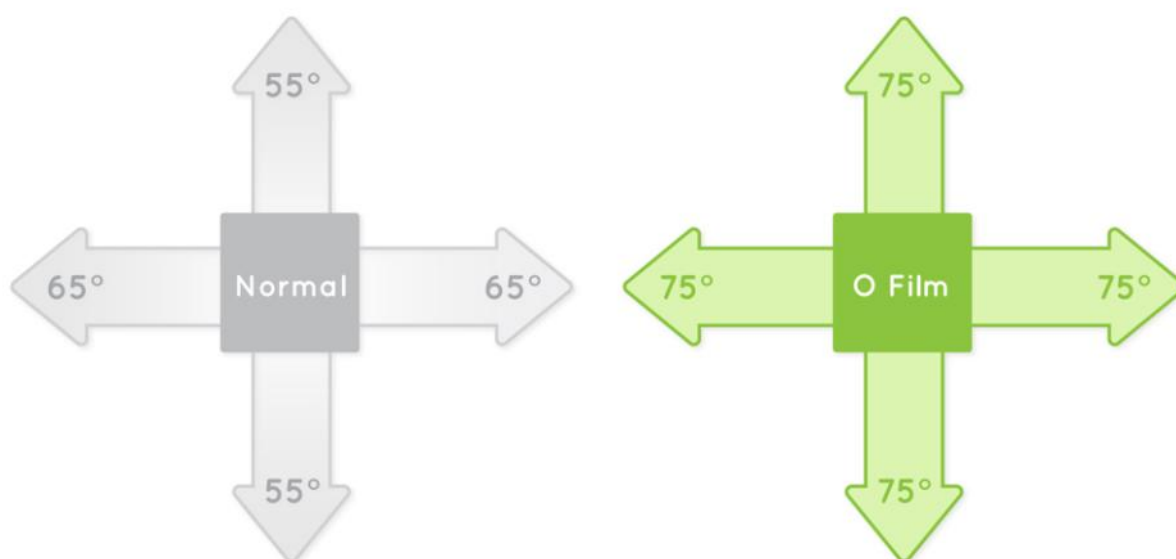
Item	Symbol	Condition.	Min	Typ.	Max.	Unit	
Viewing angle	Hor.	Θ_R	$CR \geq 10$	55	65	-	Deg.
		Θ_L		55	65	-	
	Ver.	Φ_T		45	55	-	
		Φ_B		45	55	-	

2.) Viewing angle for O Film TFT

Item	Symbol	Condition.	Min	Typ.	Max.	Unit	
Viewing angle (Gray Scale inversion Direction)	Hor.	Θ_R	$CR \geq 10$	-	75	-	Deg.
		Θ_L		-	75	-	
	Ver.	Φ_T		-	75	-	
		Φ_B		-	75	-	



Definition of viewing angle



Comparison of viewing angle for Normal TFT and O Film TFT

Product Introduction - TFT WF43H O Film

The first released Winstar O-Film TFT display is WF43H model. Currently, the available part number is WF43HTZAEDNN0#. This display is with the module dimension of 105.5 x 67.2 mm and VA size of 95.04 x 53.86 mm. This TFT module can be operating at temperatures from -20°C to +70°C; its storage temperatures range from -30°C to +80°C.

Below is the basic specification of WF43H O Film as reference. For any further information such as samples or quotation, please contact with our sales rep.

Item-WF43H	Dimension
Dot Matrix	480 x RGBx272(TFT)
Module dimension	105.5 x 67.2 x 2.95 mm
Active area	95.04 x 53.86 mm
Dot pitch	0.066 x 0.198 mm
LCD type	TFT, Transmissive
View Direction	12 o'clock
Gray Scale Inversion Direction	6 o'clock
Backlight Type	LED, Normally White

