

# 3M™ Dual Brightness Enhancement Film (DBEF) – QV2 w/ Optically Clear Adhesive

Technical Data Sheet

July 2014

**Description** 3M DBEF-QV2 with adhesive film is a thin, multi-layer reflective polarizer designed to be laminated to the rear polarizer of an LCD panel to maximize brightness while reducing the risk of warping at higher temperatures. LCD panel efficiency is improved by reducing the amount of light normally absorbed by the panel polarizer. 3M DBEF QV2 with adhesive allows one polarization of light to pass and reflects the other. The reflected light is recycled in the backlight to boost display performance, increase end user viewing experience by improving front of the screen performance, and reducing the energy required to drive the backlight.

**Applications** 3M DBEF QV2 with adhesive is a multi-layer reflective polarizer optical film used to maximize brightness of many different size liquid crystal displays (LCDs). When used in an LCD backlight, DBEF improves brightness, contrast, and off axis color shift. Once laminated to the back of the LCD, it is one of the brightest reflective polarizer film solutions and can be used for higher temperature display applications. 3M DBEF film can be used alone or combined with other 3M™ Display Enhancement Films for even greater performance improvement.

## Typical

**Properties** Technical information provided consists of typical developmental product data and should not be used for specification purposes. Unless otherwise noted, all tests are performed at room temperature.

Property	Typical Value US units (metric)
Humidity resistance	65°C, 90% relative humidity, 1,000 hours
Heat resistance	85°C for 1,000 hours
Cold resistance	- 40°C for 1,000 hours
Thermal shock	85°C for 1 hour to -40°C for 1 hour, 100 cycles
Thickness	117.4 µm (+/- 15 µm )
Effective Transmission	Minimum 1.65
Change of Effective Transmission (Gain)	Minimum 80% vs. initial value
Change of color	Maximum 2.0 Change in Delta E

# 3M™ DBEF QV2 with optically clear adhesive

## Product Features

- Maximize the brightness of ruggedized LCD's for higher temperature applications
  - Deliver a thin optically clear non-warping reflective polarizer solution
  - Increased System Efficiency (reduce power)
  - Improve off axis color shift
  - 3M DBEF QV2 with adhesive can be used with all 3M™ BEF and ESR films
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## Shelf Life and Storage (prior to application)

Material should be stored flat in original packaging. Avoid applying pressure or resting objects on the product to prevent marking, denting or deforming the surface. Wear gloves to prevent fingerprints or nail marks. Hold product by the edges to prevent touching display area. Do not slide the product. Product must be stored away from direct sunlight.

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**Availability** For availability, please contact our customer service group at 1.800.553.9215 or visit our web site at [3m.com/displayenhancement](http://3m.com/displayenhancement)

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## Warranty Period and Storage Conditions

3M warrants that the products produced to this specification will meet this specification for twelve (12) months after the date of receipt at the purchaser location provided that the product is stored flat in accordance with the requirements in the Shelf Life and Storage section above, and in the original package under the following conditions: temperature of  $20 \pm 10^{\circ}\text{C}$  and at a relative humidity of  $45 \pm 15\%$ . If product is shown to be defective during this warranty period, 3M's sole liability and purchaser's exclusive remedy is, at 3M's option, for 3M to refund the purchase price of the product or provide replacement product in the quantity shown to be defective. **3M makes no additional warranties, express or implied, including but not limited to, any implied warranties of merchantability or fitness for a particular purpose.** In particular, but without limitation, 3M makes no representations or warranties concerning the effective life of the products or their ability to survive user's environmental testing. Purchaser is responsible for determining whether the 3M products are fit for the purchaser's particular purpose and suitable for the purchaser's method of production. **3M shall not be liable for any loss or damages, whether non-specified direct, indirect, special, incidental or consequential (including downtime, loss of profits or goodwill) regardless of the legal theory asserted.**

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