Create amazing displays.

3M Display Enhancement Films

Improve visual quality.

Wide viewing angle and increased brightness

Improved sunlight readability

Enables use of higher resolution and higher color gamut systems

More robust.

Constructed to withstand various environments and use modes

Reduce thickness and weight.

Thinner brightness enhancement films

Smaller battery than a similarly performing unit without 3M films

Maximize power efficiency.

Adds 'virtual battery' by reducing power consumption

Longer batter life for optimal user experience

Make your notebook's performance as impressive as its design.

Enhanced Visual Quality

Weight Reduction

Thickness Reduction

Power Efficiency

Environmentally Stable

Reflective Polarizer Films

(increase in-module brightness 35% to 40% & widen viewing angles)

Product Description	Structure	Thickness (µm)	Features
3M APF-QWP On-glass reflective polarizer		28 ± 3	• Reflective polarizer for lamination to the rear absorbing polarizer with brightness boosting quarter wave plate
3M APF-V3-26 On-glass reflective polarizer		26 ± 3	• Reflective polarizer for lamination to the rear absorbing polarizer with imprint resistant surface
3M APF-T35 On-glass reflective polarizer		35 ± 3	• Reflective polarizer for lamination to the rear absorbing polarizer • Designed for tablet and notebook applications
3M DBEF6-160 Backlight matte coated reflective polarizer with anti-static property		160 ± 15	• Thinner high performance RP available through backlight channel • Matte coating provides defect hiding performance for low haze systems • Anti-static properties for improved handling and debris control

Brightness Enhancement Films

(on-axis light management)

Product Description	Structure	Thickness (µm)	Pitches (µm)	Features
3M BEF2-DT-155 Durable, high brightness transparent prism film		155 ± 10	50	• Durable high refractive index prisms with improved impact resistance • Provides similar brightness performance to BEF2-G2-MR2
3M BEF4-DT-145 Durable, high brightness transparent prism film		145 ± 10	24	• Durable high refractive index prisms with improve impact resistance. 24 micron pitch features on 5 mil substrate provides similar moire reduction as 3M™ BEF4-GT
3M BEF4-DT-90 Durable, high brightness transparent prism film		90 ± 7	24	• Durable high refractive index prisms with improved impact resistance. 3 mil substrate designed to enable thin backlights for use in small size notebooks and 2-in-1s.
3M BEF4-DMH-LS-95		95 ±- 7	24	• Durable high refractive prisms in combination with a higher haze designed matte for superior defect hiding. • Designed to enable removal of a top diffuser for thinner design.

Diffuser Films

Product Description	Structure	Thickness (µm)	Features
3M UDF2 50 Non-Beaded Diffusers		52 ± 5	• Designed matte no beads

Reflector Films

(increase in-module brightness 5% to 15%)

Product Description	Structure	Thickness (µm)	Features
3M EDR-95v2 Diffuse mid-sized MOF reflector		95 ± 8	• Improves the light recycling efficiency of a backlight across the visible spectrum • Diffuse coating for reduced wet-out and warp hiding
3M ESR-80v2 Specular mid-sized MOF reflector		100 ± 5	• Improves the light recycling efficiency of a backlight across the visible spectrum • Surface designed for reduced wet out
3M ESR-100		100 ± 4	

3M™ Advanced Polarizer Film-Quarter Wave Plate (APF-QWP)
3M™ Dual Brightness Enhancement Film (DBEF)
3M™ Brightness Enhancement Film (BEF)
3M™ Ultra Diffuse Film (UDF)
3M™ Enhanced Diffuser Reflector (EDR)
3M™ Enhanced Specular Reflector (ESR)

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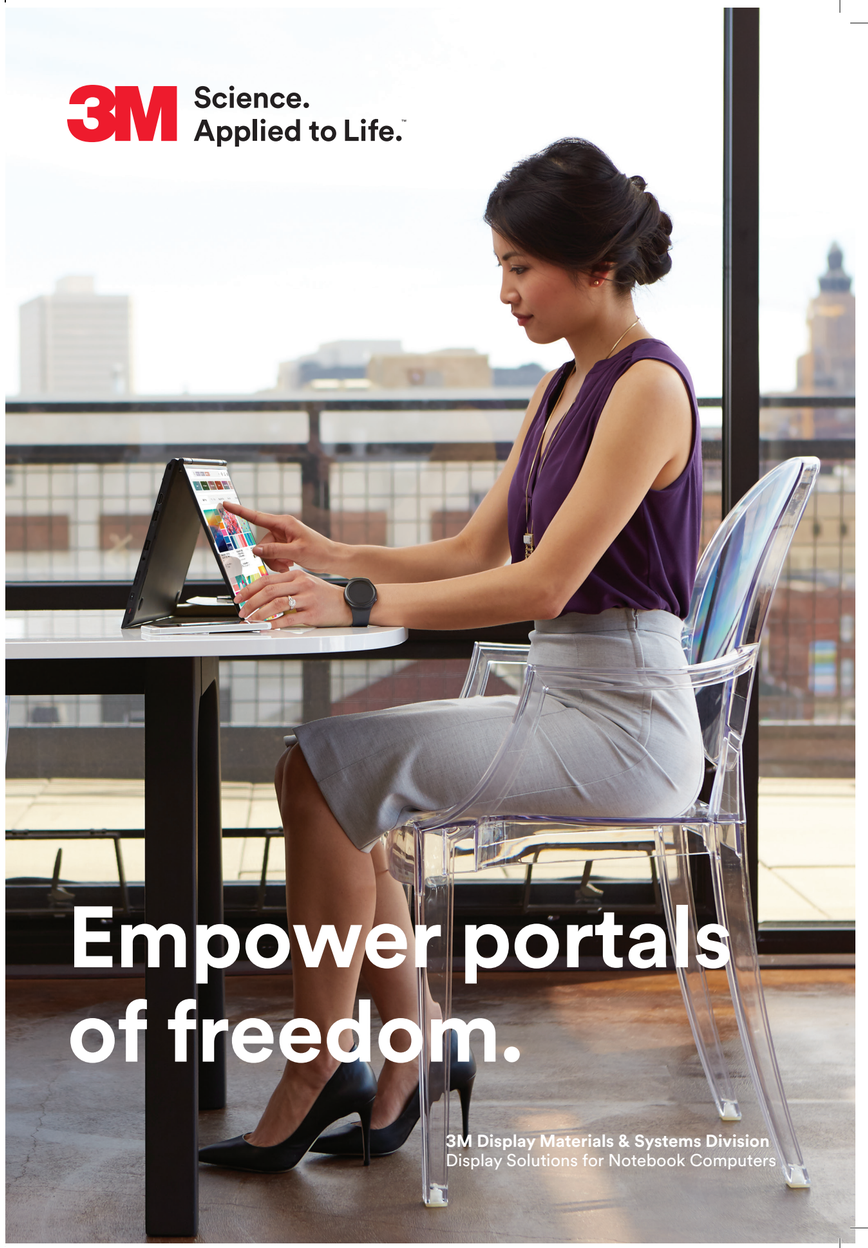


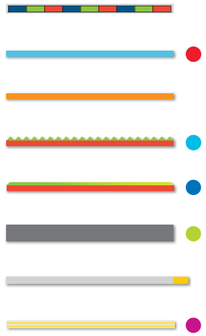
Empower portals of freedom.

3M Display Materials & Systems Division
Display Solutions for Notebook Computers

Anatomy of a notebook film stack.

Notebook Optical Films

Typical Notebook Film Stack



3M Solutions

Reflective Polarizer – On Glass / Backlight

3M APF-QWP	27 µm, on-glass
3M APF-V3-26	26 µm, on-glass
3M APF-T35	35 µm, on-glass
3M DBEF6-160	160 µm, backlight

Top 3M BEF

3M BEF2-DT-155	155 µm, durable high gain
3M BEF4-DT-145	145 µm, durable high gain
3M BEF4-DT-90	90 µm, durable high gain
BEF4-DMH-90	95 um, durable high gain, matte

Bottom 3M BEF

3M BEF2-DT-155	155 µm, durable high gain
3M BEF4-DT-145	145 µm, durable high gain
3M BEF4-DT-90	90 µm, durable high gain

Bottom Diffuser

Replaces Bottom Diffuser

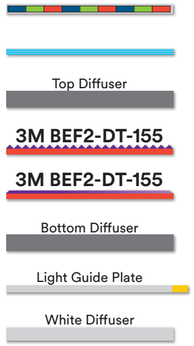
3M UDF2-50	50 µm, ultra-diffusing for even light distribution

Back Reflector

3M EDR-95v2	95 µm, diffuse
3M ESR-80v2	80 µm, specular
3M ESR-100	100 um, specular

Improved brightness and power efficiency.

Conventional



Backlight Solution

+43% Brighter
-30% Backlight Power

On-Glass Solution

+53% Brighter
-35% Backlight Power

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3M™ Enhanced Diffuser Reflector (EDR)
3M™ Enhanced Specular Reflector (ESR)

Reduce thickness.

Typical

Thin & Bright

278 um thickness reduction
Equivalent brightness