



US 20240237492A1

(19) **United States**

(12) **Patent Application Publication**
CHOI et al.

(10) **Pub. No.: US 2024/0237492 A1**

(43) **Pub. Date: Jul. 11, 2024**

(54) **WINDOW AND DISPLAY DEVICE
INCLUDING THE SAME**

Publication Classification

(71) Applicant: **SAMSUNG DISPLAY CO., LTD.,**
YONGIN-SI (KR)

(51) **Int. Cl.**
H10K 59/80 (2006.01)

(52) **U.S. Cl.**
CPC **H10K 59/873** (2023.02); **H10K 59/8792**
(2023.02)

(72) Inventors: **SEONGSIK CHOI**, YONGIN-SI (KR);
JAHO LEE, YONGIN-SI (KR);
CHAEKYEONG LEE, YONGIN-SI
(KR); **SUNGWOO KIM**, YONGIN-SI
(KR); **JAEHONG KIM**, YONGIN-SI
(KR); **WON-JONG BEAK**,
YONGIN-SI (KR); **JONGSEOK JOO**,
YONGIN-SI (KR)

(57) **ABSTRACT**

A window includes a base layer, a first layer disposed on the base layer, a second layer disposed on the first layer, a third layer disposed on the second layer, and a fourth layer disposed on the third layer. The second layer includes silicon dioxide (SiO₂), fused silica, fluorine-doped fused silica, magnesium fluoride (MgF₂), calcium fluoride (CaF₂), aluminum fluoride (AlF₃), yttrium fluoride (YF₃), ytterbium fluoride (YbF₃), aluminum oxide (Al₂O₃), and/or magnesium oxide (MgO). The third layer includes iron (Fe), copper (Cu), nickel (Ni), zirconium (Zr), hafnium (Hf), aluminum (Al), silver (Ag), gold (Au), chromium (Cr), tin (Sn), zinc (Zn), indium (In), and/or titanium (Ti).

(21) Appl. No.: **18/481,221**

(22) Filed: **Oct. 4, 2023**

(30) **Foreign Application Priority Data**

Jan. 10, 2023 (KR) 10-2023-0003686

