

Title (en)

EUV PROJECTION LENS WITH MIRRORS MADE FROM MATERIALS WITH DIFFERING SIGNS FOR THE RISE IN TEMPERATURE DEPENDENCE OF THE THERMAL EXPANSION COEFFICIENT AROUND THE ZERO TRANSITION TEMPERATURE

Title (de)

EUV-PROJEKTIONSOBJEKTIV MIT SPIEGELN AUS MATERIALIEN MIT UNTERSCHIEDLICHEM VORZEICHEN DER STEIGUNG DER TEMPERATURABHÄNGIGKEIT DES WÄRMEAUSDEHNUNGSKOEFFIZIENTEN NAHE DER NULLDURCHGANGSTEMPERATUR

Title (fr)

OBJECTIF DE PROJECTION POUR EUV COMPORTANT DES MIROIRS CONSTITUES DE MATERIAUX PRESENTANT DES SIGNES DE GRADIENT DE LA DEPENDANCE VIS-A-VIS DE LA TEMPERATURE DU COEFFICIENT DE DILATATION THERMIQUE A PROXIMITE DE LA TEMPERATURE DE PASSAGE PAR ZERO DIFFERENTS

Publication

**EP 1664933 A1 20060607 (DE)**

Application

**EP 03755564 A 20030927**

Priority

EP 0310761 W 20030927

Abstract (en)

[origin: WO2005040925A1] The invention relates to a projection lens (1) for short wavelengths, in particular, for wavelengths  $\lambda < 157$  nm, provided with several mirrors (M1, M2, M3, M4, M5 and M6), arranged in a precise position with relation to an optical axis (5). The mirrors (M1, M2, M3, M4, M5 and M6) comprise multi-layer coatings. At least two different mirror materials are provided which differ in the rise in thermal expansion coefficient as a function of temperature around the zero transition of the thermal expansion coefficient, in particular, in the sign of the value.

IPC 1-7

**G03F 7/20**; **G02B 17/06**; **G21K 1/06**

IPC 8 full level

**G02B 5/08** (2006.01); **G02B 7/18** (2006.01); **G03F 7/20** (2006.01); **G21K 1/06** (2006.01)

CPC (source: EP KR US)

**B82Y 10/00** (2013.01 - EP US); **G02B 1/00** (2013.01 - EP US); **G02B 5/0891** (2013.01 - EP US); **G02B 7/181** (2013.01 - EP US); **G02B 17/06** (2013.01 - KR); **G03F 7/20** (2013.01 - KR); **G03F 7/70891** (2013.01 - EP US); **G03F 7/70958** (2013.01 - EP US); **G21K 1/06** (2013.01 - KR); **G21K 1/062** (2013.01 - EP US); **G21K 2201/065** (2013.01 - EP US)

Citation (search report)

See references of WO 2005040925A1

Designated contracting state (EPC)

DE FR GB NL

DOCDB simple family (publication)

**WO 2005040925 A1 20050506**; AU 2003273409 A1 20050511; EP 1664933 A1 20060607; JP 2007524214 A 20070823; JP 4817844 B2 20111116; KR 101052386 B1 20110728; KR 20060107523 A 20061013; US 2007035814 A1 20070215; US 7557902 B2 20090707

DOCDB simple family (application)

**EP 0310761 W 20030927**; AU 2003273409 A 20030927; EP 03755564 A 20030927; JP 2005509784 A 20030927; KR 20067008015 A 20030927; US 57716303 A 20030927