



US 20240213409A1

(19) **United States**(12) **Patent Application Publication**
ALTAZIN et al.(10) **Pub. No.: US 2024/0213409 A1**(43) **Pub. Date: Jun. 27, 2024**(54) **METHOD FOR MANUFACTURING
MICRO-LEDS***H01L 33/00* (2006.01)*H01L 33/20* (2006.01)*H01L 33/38* (2006.01)*H01L 33/42* (2006.01)(71) Applicant: **Commissariat à l'énergie atomique et
aux énergies alternatives**, Paris (FR)(52) **U.S. Cl.**CPC *H01L 33/32* (2013.01); *H01L 25/0753*(2013.01); *H01L 33/007* (2013.01); *H01L**33/20* (2013.01); *H01L 33/382* (2013.01);*H01L 33/42* (2013.01); *H01L 2933/0016*

(2013.01)

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(FR)(73) Assignee: **Commissariat à l'énergie atomique et
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Dec. 21, 2022 (FR) 22 14156

Publication Classification(51) **Int. Cl.***H01L 33/32* (2006.01)*H01L 25/075* (2006.01)(57) **ABSTRACT**Method for manufacturing micro-LEDs comprising the fol-
lowing steps:i) providing a stack comprising at least one strongly
n-doped GaN layer (**104**), an n-doped GaN layer (**105**),
quantum wells (**106**) and a p-doped GaN layer (**107**),ii) porosifying the GaN layer (**104**), to obtain a porosified
GaN layer (**104'**),

iii) forming mesas in the stack,

iv) covering the porosified GaN layer (**104'**) with a second
electrode (**301**) or with an encapsulation layer (**302**),
the second electrode (**301**) or the encapsulation layer
(**302**) being in direct contact with the porosified GaN
layer (**104'**).step ii) being carried out so that the optical index of the
porosified GaN layer (**104'**) does not vary by more than
10% with respect to the optical index of the second
electrode (**301**) and/or with respect to the optical index
of the encapsulation layer (**302**).