

Title (en)  
RADIATION EMITTER DEVICES AND METHOD OF MAKING THE SAME

Title (de)  
STRAHLUNGSEMISSIONSEINRICHTUNGEN UND VERFAHREN ZU IHRER HERSTELLUNG

Title (fr)  
DISPOSITIFS EMETTEURS DE RAYONNEMENTS ET LEUR PROCEDE DE FABRICATION

Publication  
**EP 1358668 A2 20031105 (EN)**

Application  
**EP 02709127 A 20020123**

Priority  
• US 0201761 W 20020123  
• US 26548901 P 20010131

Abstract (en)  
[origin: WO02061803A2] A radiation emitting device of the present invention includes at least one radiation emitter, first and second electrical leads electrically coupled to the radiation emitter, and an integral encapsulant configured to encapsulate the radiation emitter and a portion of the first and second electrical leads. The encapsulant has at least a first zone and a second zone, where the second zone exhibits at least one different characteristic from the first zone. Such different characteristics may be a physical, structural, and/or compositional characteristic. Preferably, the at least one different characteristic includes at least one of the following: mechanical strength, thermal conductivity, thermal capacity, coefficient of thermal expansion, specific heat, oxygen and moisture impermeability, adhesion, and transmittance with respect to radiation emitted from the radiation emitter. The radiation emitter may be in a form of an emitter, and is preferably an LED.  
[origin: WO02061803A2] A radiation emitting device of the present invention includes at least one radiation emitter (35), first and second electrical lead (16-14) electrically coupled to the radiation emitter (35), and an integral encapsulant (12) configured to encapsulate the radiation emitter (35) and portions of the electrical leads. The encapsulant (12) has at least a first zone (30) and a second zone (32), where the second zone exhibits at least one different characteristic from the first zone. This different characteristics is one selected from the group consisting of mechanical strength, thermal conductivity, thermal expansion coefficient, specific heat, oxygen permeability, moisture permeability, adhesive strength, and transmittance. The radiation emitter is preferably a LED.

IPC 1-7  
**H01L 21/00**

IPC 8 full level  
**H01L 33/56** (2010.01); **H01L 33/48** (2010.01); **H01L 33/64** (2010.01); **H01L 51/52** (2006.01)

CPC (source: EP)  
**H01L 24/97** (2013.01); **H01L 33/56** (2013.01); **H01L 33/483** (2013.01); **H01L 33/641** (2013.01); **H01L 2224/48091** (2013.01); **H01L 2224/48247** (2013.01); **H01L 2924/01033** (2013.01); **H01L 2924/01322** (2013.01); **H01L 2924/01327** (2013.01); **H01L 2924/014** (2013.01); **H01L 2924/12041** (2013.01); **H01L 2924/12042** (2013.01); **H01L 2924/12044** (2013.01); **H01L 2924/181** (2013.01); **H01L 2924/351** (2013.01)

C-Set (source: EP)  
1. **H01L 2224/48091 + H01L 2924/00014**  
2. **H01L 2924/01327 + H01L 2924/00**  
3. **H01L 2924/01322 + H01L 2924/00**  
4. **H01L 2924/351 + H01L 2924/00**  
5. **H01L 2924/181 + H01L 2924/00**  
6. **H01L 2924/12042 + H01L 2924/00**  
7. **H01L 2924/12044 + H01L 2924/00**

Designated contracting state (EPC)  
AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE TR

DOCDB simple family (publication)  
**WO 02061803 A2 20020808; WO 02061803 A3 20021003**; AU 2002243628 A1 20020812; CA 2430747 A1 20020808; CA 2430747 C 20080520; CN 1502128 A 20040602; EP 1358668 A2 20031105; EP 1358668 A4 20060419; JP 2004524681 A 20040812; KR 20030095391 A 20031218; MX PA03006413 A 20040420

DOCDB simple family (application)  
**US 0201761 W 20020123**; AU 2002243628 A 20020123; CA 2430747 A 20020123; CN 02804289 A 20020123; EP 02709127 A 20020123; JP 2002561259 A 20020123; KR 20037009965 A 20030728; MX PA03006413 A 20020123