What is claimed is:

1. A micro light emitting diode having a high light extraction efficiency comprising:

a bottom conductive layer;

a light emitting layer on the bottom conductive layer;

a top conductive structure on the light emitting layer;

a bottom dielectric layer positioned between the bottom conductive layer and the light emitting layer; and

a conductive side arm connecting a sidewall of a bottom layer of the light emitting layer and the bottom conductive layer.

2. The micro light emitting diode according to claim 1, further comprising an ohmic contact layer positioned between the top conductive structure and the light emitting layer.

3. The micro light emitting diode according to claim 2, wherein lateral width of the ohmic contact layer is much narrower than that of the light emitting layer.

4. The micro light emitting diode according to ~~any one of claims 2-3~~claim 2, wherein the top conductive structure directly covers the ohmic contact layer and a substantial portion of the light emitting layer is unshielded by the ohmic contact layer.

5. The micro light emitting diode according to ~~any one of claims 2-4~~claim 2, wherein the ohmic contact layer is a metal film.

6. The micro light emitting diode according to ~~any one of claims 2-5~~claim 3, wherein thickness of the ohmic contact layer is less than 20 nm, and the lateral width of the ohmic contact layer is less than 0.5 μm.

7. The micro light emitting diode according to ~~any one of claims 2-6~~claim 2, wherein material of the ohmic contact layer includes at least one or more selected from of the group

consisting of group I, group II, group III, group IV, group VI, and group VIII of metals from a periodic table.

8. The micro light emitting diode according to ~~any one of claims 2-7~~claim 2, wherein the top conductive structure is transparent and the ohmic contact layer is transparent.

9. The micro light emitting diode according to ~~any one of claims 1-8~~claim 1, wherein the bottom dielectric layer is a composite reflective layer.

10. The micro light emitting diode according to claim 9, wherein the composite reflective layer includes multiple layers comprising at least an insulating reflective dielectric layer and a composite metal reflective layer, and the composite metal reflective layer is positioned at bottom of the insulating reflective dielectric layer and contacts the bottom conductive layer.

11. The micro light emitting diode according to claim 10, wherein the composite metal reflective layer has multiple layers.

12. The micro light emitting diode according to ~~any one of claims~~claim 10~~-11~~, wherein the insulating reflective dielectric layer further comprises a top insulating dielectric layer and a bottom Bragg mirror.

13. The micro light emitting diode according to claim 12, wherein the top insulating dielectric layer has no less than three layers.

14. The micro light emitting diode according to ~~any one of claims~~claim 12~~-13~~, wherein material of the top insulating dielectric layer is metal oxide.

15. The micro light emitting diode according to ~~any one of claims 1-14~~claim 1, wherein lateral width of the bottom conductive layer is larger than that of the bottom dielectric layer, so that the bottom conductive layer has a protruded top extending outside of the bottom dielectric layer; and one end of the conductive side arm is connected to a bottom layer of the light emitting

layer and at least part of another end of the conductive side arm is connected to and supported on the protruded top of the bottom conductive layer.

16. The micro light emitting diode according to ~~any one of claims~~claim 1~~-15~~, wherein lateral width of the bottom dielectric layer is not less than width of bottom of the light emitting layer.

~~17. The micro light emitting diode according to any one of claims 1-16, wherein:~~

~~the light emitting layer further comprises a first type of semiconductor layer, an active layer and a second type of semiconductor layer in turn from top down,~~

~~the second type of semiconductor layer has a protruded top extending outside of the active layer and the first type of semiconductor layer, and~~

~~an end of the conductive side arm covers and contacts the protruded top of the second type of semiconductor layer, and another end of the conductive side arm contacts the bottom conductive layer.~~

~~18.~~ The micro light emitting diode according to claim ~~17, wherein:~~

~~lateral width of the bottom conductive layer is larger than that of the second type of semiconductor layer and that of the bottom dielectric layer, so that the bottom conductive layer has a protruded top extending outside of the second type of semiconductor layer and the bottom dielectric layer, and~~

~~at least part of the conductive side arm is supported on the protruded top of the bottom conductive layer.~~

~~19. The micro light emitting diode according to claim 18, wherein the lateral width of the bottom conductive layer is less than 2 μm.~~

~~20. The micro light emitting diode according to any one of claims 18-19, wherein width of the protruded top of the bottom conductive layer is not more than width of the protruded top of the second type of semiconductor layer.~~

~~21. The micro light emitting diode according to any one of claims 17-20, wherein the second type of semiconductor layer further comprises a second type of top semiconductor layer and a second type of bottom semiconductor layer, and the second type of bottom semiconductor layer extends outside relative to the second type of top semiconductor layer, thereby forming a protruded top.~~

~~22. The micro light emitting diode according to claim 21, wherein material of the second type of top semiconductor layer is different from that of the second type of bottom semiconductor layer.~~

~~23. The micro light emitting diode according to any one of claims 21-22, wherein the second type of top semiconductor layer is AlGaInP and the second type of bottom semiconductor layer is GaP; and the first type of semiconductor layer is AlInP.~~

~~24. The micro light emitting diode according to any one of claims 21-23, wherein, the end of the conductive side arm:~~

~~is in electrical contact with the protruded top of the second type of bottom semiconductor layer,~~

~~is not in electrical contact with the second type of top semiconductor layer, and~~

~~is not in electrical contact with the light emitting layer and the first type of semiconductor layer.~~

~~25. The micro light emitting diode according to any one of claims 17-24, wherein lateral width of the first type of semiconductor layer is equal to or larger than that of the active layer.~~

~~26. The micro light emitting diode according to any one of claims 17-24, wherein lateral width of the first type of semiconductor layer is much narrower than that of the active layer.~~

~~27.~~17. ~~The micro light emitting diode according to any one of claims 1-26~~1, wherein the conductive side arm has an inverted L shape.

~~28.~~18. The micro light emitting diode according to ~~any one of claims~~claim 1~~-27~~, wherein the conductive side arm is attached and connected to a sidewall of the bottom dielectric layer.

~~29. The micro light emitting diode according to any one of claims 1-28, wherein lateral width of the bottom conductive layer is larger than that of the bottom dielectric layer, and a sidewall of the bottom conductive layer protrudes outside and beyond a sidewall of the conductive side arm.~~

~~30. The micro light emitting diode according to any one of claims 17-29, further comprising:~~

~~a transparent isolation layer, which at least covers the protruded top of the second type of semiconductor layer, a top and a side wall of the conductive side arm, a sidewall of the light emitting layer, and a sidewall of the first type of semiconductor layer, and~~

~~the top conductive structure is positioned on top of the transparent isolation layer.~~

~~31. The micro light emitting diode according to any one of claims 1-30, wherein material of the conductive side arm is conductive metal.~~

~~32. The micro light emitting diode according to any one of claims 17-31, wherein the first type of semiconductor layer is an N type semiconductor layer and the second type of semiconductor layer is a P type semiconductor layer.~~

~~33. The micro light emitting diode according to any one of claims 17-31, wherein the first type of semiconductor layer is a P type semiconductor layer and the second type of semiconductor layer is an N type semiconductor layer.~~

~~34. The micro light emitting diode according to any one of claims 1-33, wherein material of the bottom conductive layer includes one or more types of conductive metal.~~

~~35. The micro light emitting diode according to any one of claims 1-34, further comprising an electric circuit base at bottom of the bottom conductive layer, wherein the bottom conductive layer is used as a bonding layer that is bonded with a surface of the electric circuit base.~~

~~36. The micro light emitting diode according to claim 35, wherein the electric circuit base at least comprises a driving circuit that controls emission of the light emitting layer.~~

~~37.~~19. ~~The micro light emitting diode according to any one of claims 1-36~~1, wherein the micro light emitting diode has a light extraction efficiency of at least 20%.

~~38.~~20. The micro light emitting diode according to ~~any one of claims~~claim 1~~-36~~, wherein the micro light emitting diode has a light extraction efficiency of at least 40%.

~~39. The micro light emitting diode according to any one of claims 1-36, wherein the micro light emitting diode has a light extraction efficiency of at least 60%.~~