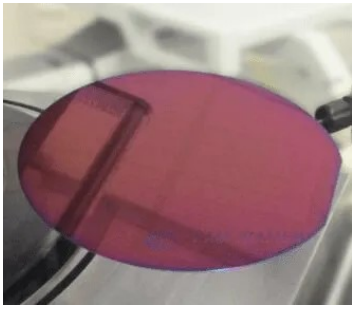
Positive LED Wafer Based on GaAs Substrate

GaAs-based AlGaInP red LED epi-wafer is a common visible light LED material that has been widely developed in recent years. AlGaInP quaternary red LED has many advantages such as strong current bearing capacity, high luminous efficiency and high temperature resistance. It has an irreplaceable position in the application of lighting, display and indicator lights, and is widely used in various fields of lighting. PAM-XIAMEN (https://www.powerwaywafer.com/) supplies positive polarity AlGaInP / GaInP LED wafer at 620nm wavelength. The specific parameters of positive LED wafer for sale are listed in the table as follows:



1. Positive LED Wafer Spec.

PAMP19226-620LED

Positive Polarity Red LED Structure (W_D=620nm)			
	Layers	Thickness(nm)	Carrier Density(cm^{-3})
P Contact	p+ GaAs	20	–
	p- AlGaInP	–	1.00E+18
	p- AlInP	–	–
WG	u- AlGaInP	–	
MQW	AlGaInP/InGaP	–	–
WG	u- AlGaInP	100	
	n- AlInP	–	
	n- AlGaInP	–	–
ESL	n- InGaP	–	3.00E+18
N Contact	n+ GaAs	30	–
	u- AlGaInP	–	–
	AlAs	–	
	GaAs substrate		

2. What Is the Positive Polarity of LED Wafer?

The polarity of LED wafer is divided into N/P and P/N type (P: positive; N: negative) according to the polarity of LED chips. Therein, P/N stands for the positive polarity of LED wafer, which means the positive electrode is on the epitaxial film and the negative electrode is under the substrate.

For the AlGaInP light-emitting diode epitaxial material from us, it is directly grown on the GaAs substrate, and then the N electrode is directly prepared on the back of the GaAs substrate, and the P electrode is prepared on the upper surface of the epi thin film, which is shown as figure 1. This is the positive LED wafer technology. The production process of positive led wafer fabrication is relatively mature, and the production efficiency is high.

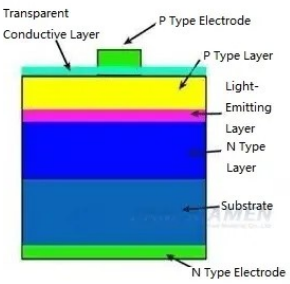


Fig.1 Schematic Diagram of PN Type Structure of LED Positive Polarity Wafer

In contrast to the reversed LED wafer, there is a transparent conductive film placed over the positive LED wafer epi. This is because the conductivity of P-type material layer is lower than that of N-type material layer, and conductive film needs to be deposited to diffuse electrons and improve the luminescence efficiency of positive LED wafer chip.

Remark：

The Chinese government has announced new limits on the exportation of Gallium materials (such as GaAs, GaN, Ga2O3, GaP, InGaAs, and GaSb) and Germanium materials used to make semiconductor chips. Starting from August 1, 2023, exporting these materials is only allowed if we obtains a license from the Chinese Ministry of Commerce. Hope for your understanding and cooperation!

(https://www.powerwaywafer.com/)

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