

GaAs

• • • • •

The Ag-Ge-In contacts to GaAs n-type conductivity epitaxial layer with thickness of several micrometers, which is grown on high-alloy substrate, are investigated. The questions of heat treatment influence on specific contacts transfer resistance are depicted. The contact Ag-Ge-In/GaAs annealing mode, that providing specific transitional contact resistance $r_k = (5...7) \cdot 10^{-5} \text{ Ohm} \cdot \text{cm}^2$ and shallow occurrence of the metal-semiconductor interface, is recommended. The resulting contacts do not change their properties from 273 K to 453 K temperature range, and they have linear current-voltage characteristic.

Keywords: ohmic contact, silver-germanium-indium, gaas, specific transitional resistance.

A₃ 5, (10^{19} cm^{-3}) [1-5]. GaAs -

1. - , - GaAs n- [1-3]. GaAs [3]. GaAs (GaAs, - , Ag , Ge - , In - 773). [6-8]

2. Ag-Ge-In 5000 GaAs $2/(\text{cm}^2 \cdot \text{s})$ ($\sim 10^{18} \text{ cm}^{-3}$). $6 \cdot 10^{15} \dots 2 \cdot 10^{16} \text{ cm}^{-3}$,

Ag-Ge-In 873 (: Au-Ge-Ni (80%-12%-5%) 573).

GaAs [1-3]

Ag-Ge-In GaAs
(1:2), $3\text{H}_2\text{SO}_4-1\text{H}_2\text{O}_2-1\text{H}_2\text{O}$, 823

1-2 10^{-5} 10^{-2} 473-523

$1,2 \cdot 10^{-5}$

(In - 2273 , Ag - 2483 K, Ge - 3103 K).
(~ 0,5)

823-873 $(2...6) \cdot 10^{-5}$ 45...60

$(5...7) \cdot 10^{-5} \cdot 2$

Ag-Ge-In/n-GaAs, 873
45...60

GaAs 673...773

453 273

Ag-Ge-In/GaAs - 45-60 (873 ,
-100

Ag, Ge, In.

1. Ag-Ge-In/n-GaAs . -
 2. , 873 45...60 . -
1. :
1. , . - / . , . - . :
, 1975. – 432 .
2. , . : 2- . / . . - . : , 1984. – 456 .
3. , . . : / . . ,
. . , . . - . : , 1975. – 706 .
4. , . / . . - . : , 1972. – 300 .
5. , . / . . - . : ,
1991. – 632 .
6. , . . // I : XV
. . , . . 1. – . : . – 2011. – . 46-47.
7. , . . -
/ . . , . . // : . – 2011. –
. 2 (25). – . 120-124.

28.03.2013 .

E-mail: vd.zp.ua@mail.ru

E-mail: shej@zgia.zp.ua