

Product



Metal-organic Chemical Vapor Deposition System for GaN Epi-wafer Mass Production “UR26KCCD”

1. Introduction

Taiyo Nippon Sanso Corporation (TNSC) has been developing the UR26K MOCVD platform since 2012 for the GaN epi-wafer mass production¹⁾. In addition, TNSC had developed a dry-cleaning system for removing the post epi-growth deposition on the MOCVD reactor’s interior components²⁾ Here, a novel MOCVD system is introduced, the UR26KCCD (Fig. 1) for mass production that combines the benefits of the UR26K and component dry cleaning.



Fig.1 Picture of UR26KCCD System

2. Characteristics

The UR26KCCD MOCVD system which includes integrated wafer cassette to cassette (CtoC) and integrated dry-cleaning (Fig. 2). The CtoC and dry-cleaning systems are



Fig. 2 Picture of dry-cleaning system

optimized for highest operational efficiency (patent pending). The optimized configuration a) enables reduce foot print and b) has fully automated GaN epi-wafers handling and c) delivers increased MOCVD reactor operational efficacy. Overall, the UR26KCCD exhibits double the throughput of that of the standard UR26K.

3. Specifications

Table 1 lists UR26KCCD specifications.

MOCVD	Reactor	Type	Face up and horizontal flow
		Capacity	8” by 6 wafers or 6” by 10 wafers
		Heating system	Resistance heater
		MO line	7 lines (TMGa etc.)
		Hydride line	2 lines (NH ₃ , SiH ₄)
CtoC	Pass box for wafer		2 boxes (for in and out)
Dry-cleaning	Reactor	Type	Double-layered structure
		Capacity	1 set of MOCVD interior components
		Heating system	Infrared lamp heater
		Etching gas	HCl or Cl ₂

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Reference

- 1) TOKUNAGA Hiroki, UBUKATA Akinori, YOSHIKI Yano, YAMAOKA Yuya, TABUCHI Toshiya, YAMAGUCHI Akira, UEMATSU Kunimasa, Uchiyama Kousuke, Matsumoto Kou, TAIYO NIPPON SANSO Technical Report No.31 (2012) (Japanese)
- 2) FUKUDA Yashushi, TOMITA Nobuyasu, ORITA Takashi, AKUTSU Nakao, IKENAGA Kazutada, UEMATSU Kunimasa, KOSEKI Syuuichi, MATSUMOTO Koh, HASAKA Satoshi, TAIYO NIPPON SANSO Technical Report No.25 (2006) (Japanese)