

Gallium-arsenide (GaAs) VGF-n type Wafer

The gallium-arsenide (GaAs) VGF-n type wafer is widely used for LED applications and laser applications such as DVD, etc.

Feature

- Single-crystal growth by VGF method
- High carrier concentration control
- Low EPD
- High cleavage accuracy
- Epi-ready available

Application Examples

- High output LD
- VCSEL
- Micro LED
- LED chips for display

Characteristic introduction

		VGF-n type LD grade				VGF-n type LED grade			
Crystal growth method		VGF (Vertical Gradient Freezing) method				VGF (Vertical Gradient Freezing) method			
Dopant, Conduction type		N-type: Si doped				N-type: Si doped			
Carrier concentration		N-type (0.4-4) E18 cm ⁻³ (adjustable within the above range)				N-type (0.4-4) E18 cm ⁻³ (adjustable within the above range)			
Dislocation density (cm ⁻²)		EPD average ≤ 200 (LD) EPD max ≤ 2,000 (LD)				EPD average ≤ 500 (LED) EPD max ≤ 5,000 (LED)			
Size		6 inches	4 inches	3 inches	2 inches	6 inches	4 inches	3 inches	2 inches
Orientation		1. (100)0° ~ 15° off ± 0.3° 2. Upon request				1. (100)0° ~ 15° off ± 0.3° 2. Upon request			
Diameter (mm)		150.0 ± 0.3	100.0 ± 0.3	76.0 ± 0.3 76.2 ± 0.3	50.0 ± 0.3 50.8 ± 0.3	150.0 ± 0.3	100.0 ± 0.3	76.0 ± 0.3 76.2 ± 0.3	50.0 ± 0.3 50.8 ± 0.3
Thickness (μm)		625/675 ± 25	450/625 ± 25	350/450 ± 25	350/450 ± 25	625/675 ± 25	450/625 ± 25	350/450 ± 25	350/450 ± 25
OF/IF length	OF (mm)	48.0 ± 1.0	32.5 ± 1.0	22.0 ± 1.0	16.0 ± 1.0	48.0 ± 1.0	32.5 ± 1.0	22.0 ± 1.0	16.0 ± 1.0
	IF (mm)	30.0 ± 1.0	18.0 ± 1.0	12.0 ± 1.0	8.0 ± 1.0	30.0 ± 1.0	18.0 ± 1.0	12.0 ± 1.0	8.0 ± 1.0
		(adjustable upon request)				(adjustable upon request)			
OF/IF orientation	OF position IF position	EJ (Dove-Tail): [OF] (0-1-1) ± 0.05° / [IF] (0-11) ± 0.5° or SEMI US (V-Groove): [OF] (01-1) ± 0.05° / [IF] (011) ± 0.5° (cleavage and beveling are also possible)				EJ (Dove-Tail): [OF] (0-1-1) ± 0.05° / [IF] (0-11) ± 0.5° or SEMI US (V-Groove): [OF] (01-1) ± 0.05° / [IF] (011) ± 0.5°			
Notch		OK	Not available	Not available	Not available	OK	Not available	Not available	Not available
Edge		Beveling				Beveling			
Flatness	TTV (μm)	≤ 10.0	≤ 10.0	≤ 10.0	≤ 10.0 (TV)	≤ 10.0	≤ 10.0	≤ 10.0	≤ 10.0 (TV)
	Warp (μm)	≤ 10.0	≤ 10.0	≤ 10.0	≤ 10.0	≤ 15.0	≤ 15.0	≤ 15.0	≤ 15.0
Surface finish	Front surface	Mirror Polished				Mirror Polished			
	Back surface	Etching after Lapping (Mirror Polished is also available)				Etching after Lapping (Mirror Polished is also available)			
Surface treatment		Epi-ready				Epi-ready			
Laser marking		Option				Option			
Package		Cassette	Cassette or Individual Container			Cassette	Cassette or Individual Container		

