Silicon Crystal & Compound Semiconductor

Gallium Nitride (GaN) Substrate

Gallium Nitride substrate as a cutting-edge new generation direct bandgap compound semiconductor material, adopted HVPE and MOCVD growing methods normally on Al2O3 (Sapphire) substrate, with significant higher thermal conductivity and radiation resistance, more stable chemical characteristics advantages, which can be widely used for the new type high speed and capacity LED components, power devices and RF devices. Standard 2" & 4" free-standing substrates, 2", 4" & 6" compound wafer are available.

No.	Items of Free-standing Substrate		Standard Specifications		
1	Shape		Circular	Circular	Square
2	Size	mm	(2") 50.8+/-0.5	(4") 100+/-0.5	10x10 or 10x5
3	Orientation		C-plane (0001)	C-plane (0001)	C-plane (0001)
4	Conductivity Type		N	N	N or Semi-insulating
5	Dopant		Un-doped or Si	Un-doped or Si	Un-doped or Si or Fe
6	Resistivity (at 300K)	Ω·cm	<0.1, <0.05	<0.1, <0.05	<0.1, <0.05, >1E6
7	Thickness	μm	350+/-25	350+/-25	350+/-25
8	TTV	μm max	15	15	15
9	Bow	μm max	20	20	20
10	EPD	cm^{-2}	<5E8	<5E8	<5E8
11	Surface Finish		P/E or P/P	P/E or P/P	P/E or P/P
12	Packing		Single wafer container inside, carton box outside.		

No.	Items of Compound Wafer		Standard Specifications		
1	Shape		Circular	Circular	Circular
2	Size	mm	(2") 50.8+/-0.5	(4") 100+/-0.5	(6") 150+/-0.5
3	Orientation		C-plane (0001)	C-plane (0001)	C-plane (0001)
4	Substrate Structure		Sapphire	Sapphire	Sapphire
5	Conductivity Type		N	N	N
6	Dopant		Un-doped or Si	Un-doped or Si	Un-doped or Si
7	Resistivity (at 300K)	Ω·cm	<0.5, <0.1, <0.05	<0.5, <0.1, <0.05	<0.5, <0.1, <0.05
8	Thickness	μm	4.5+/-0.5, 20+/-2	4.5+/-0.5, 20+/-2	4.5+/-0.5, 20+/-2
9	TTV	μm max	15	15	15
10	Bow	μm max	20	20	20
11	Carrier Concentration	cm^{-3}	<5E17	<5E17	<5E17
12	Hall Mobility	$cm^2/V.s$	300	300	300
13	EPD	cm^{-2}	<5E8	<5E8	<5E8
14	Effective Area		>90%	>90%	>90%
15	Surface Finish		P/E or P/P	P/E or P/P	P/E or P/P
16	Packing		Single wafer container inside, carton box outside.		

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