

### High Quality Test Wafer and Analysis Support To Help R&D Work On CMP Process, Consumables and Materials

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### ADVANCED MATERIALS TECHNOLOGY INC.

- AMT (Advanced Materials Technology) has been contributing to the field of CMP technology for over 20 years as a Test Wafer Supplier.
- Supporting over 150 customer companies all over the world
- Dealing with about 100 supplier companies
- Head Quarter, Sales Office and Distribution Warehouse in Fukuoka Japan.
- Customer Support Office in Taiwan (R.O.C.)



# Customer Benefit

- Highly controlled quality test wafers
- Stable supply of test wafers mainly in 12inch and 8inch.

AMT has good relationships with mass production fabs in Japan.

• Find high end test wafers

AMT has access to the state of art R&D lines.

• Analysis support

We show you technical data of quality test wafers and analysis support from next slide.

# AMT STI Pattern Wafers

### HDP Oxide complete filling into STI trenches

Center (0.5/0.5um)







不

22nm

100nm

Si-sub

SEI

Center(1000/1000um)





# AMT a-Si/SiN Pattern Wafers

### We've developed amorphous-Si stopper/ LP-SiN fill pattern.

Center (0.5/0.5um)

 $\mathsf{Edge}\;(0.5/0.5\mathsf{um})$ 



**AMT Proprietary** 

## AMT CD50nm STI Pattern Wafers

#### We've developed advanced node of STI pattern.

Center (50/50nm) Edge(50/50nm)HDP Oxide HDP Oxide SiN SiN 100 10nm 49nm 9nm 48nm 10nm 9nm 49nm 48nm Si-sub Si-sub SEI X100,000 100nm SEI 100nm

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## AMT W-CVD Pattern Wafers

#### Mass production technology of TiN/W-CVD fill

Center (180nm)





#### Center(250nm)







## Pattern Edge Cut less than 1mm

Full Shot including Edge Chips EE less than 1mm

**TEOS** Patterning

W-CVD fill Pattern



# 12inch W-CVD Film Roughness Analysis

186

-75

-50

-25

-Õ

-25

-1862

-75

-50

25

-0

-25

-50

-75

W-CVD grain growing depends on thickness.

Sq

Sa

Sz

Sz

Sq

Sa

Sz

Sz

٦m

表面の10点平均高さ

#### 3D-Image W-CVD 400nm Thick ISO 25178 高さパラメータ 23.50 nm 表面の自義平均高さ 19.08 nm 表面の算術平均高さ Sa= Ra: 166.68 nm 表面の最大高さ Arithmetic Mean Roughness EUR 15178N 振幅ペラメータ Sq = RMS: 155.20 nm 表面の10点平均高さ Root Mean Square (Rq) 3D-Image W-CVD 500nm Thick ISO 25178 高さパラメータ 27.15 ٦m 表面の自乗平均高さ 21.39 Sa= Ra: ٦m 表面の重新平均高さ 186.11 表面の最大高さ ٦m Arithmetic Mean Roughness EUR 15178N 振幅パラメータ Sq = RMS: Root Mean Square (Rq) 181.92

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## 12inch TiN-CVD film composition analysis

We can provide composition-confirmed CVD-TiN film.



• Ion sputtering rate = 1.05 Å/sec (Based on SiO<sub>2</sub>)

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# Any Questions?

AMT helps customers R&D works all around wafer process by providing test wafers and analysis support.

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