polishing.

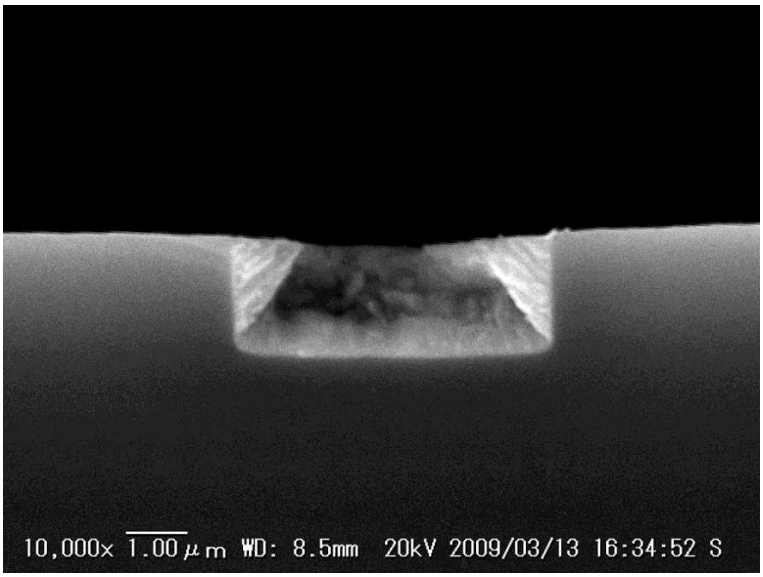

Figure 9: A 5 μm-wide trench made by damascene process

Using this striped pattern, the differences in the spatial resolution with respect to the read out directions are measured. Fig. 10 shows the hit position distribution measured with the pattern, and Fig. 11 shows the their projections onto the horizontal and vertical direction.

The spatial resolution is evaluated by fitting. The fitting function is expressed by the sum of an error function and a complementary error function:

$$f(x) = p_1 \cdot \sum_{n=1}^{12} \left[\mathrm{erfc}\left(\frac{x - d_n}{\sqrt{2}\sigma} + p_2 \right) + \mathrm{erf}\left(\frac{x - (d_n + w_n)}{\sqrt{2}\sigma} + p_2 \right) \right] + p_3, \quad (4)$$

where x is the hit position, σ is the spatial resolution, d_n is the distance from the initial position of the pattern to the n_{th} stripe, w_n is the width of the n_{th} stripe and p_1, p_2 and p_3 are free fitting parameters. The 12 widest stripes,