

PHOTO-RESIST, POLYIMIDE ETCH

Vertical etch (Tri-levelmask)	Gases	O ₂	10 sccm
		He.....	10 sccm
	Pressure	.....	< 10mT
	Power	.....	200W
	d.c.	.....	500 +
	Susceptor	.....	Ardel
	Endpoint	.....	laser
	Gas Channels	0-100 N ₂	(O ₂)
		0-100 N ₂	(He)
	Resist etch rate	.....	approx. 1000Å/min.
Selectivity to mask (SiO ₂)	.....	>> 10:1	
Profile	.....	vertical	

POWER

Etch rate is power dependent and increases with increase in power.

PRESSURE

Etch rate is pressure dependent and increases with increase in pressure. Etch profile is also pressure dependent with a vertical profile only obtained at low pressure. At higher pressure the profile becomes isotropic and re-entrant

GAS FLOW

Both etch rate and profile are dependent on O₂/He ratio. Profile is best at low O₂ flows, etch rate is highest at high O₂ flows.

Sloped Etch (via hole)	Gases	O ₂	40 sccm
		CHF ₃ or CF ₄	4-10 sccm
	Pressure	.....	200-300mT
	R.F.	.....	200-300W
	d.c. bias	.....	300V
	Susceptor	.....	Ardel
	Endpoint	.....	laser
	Gas Channels	0-100 N ₂	(O ₂)
		0-100 N ₂	(CHF ₃ or CF ₄)
	Etch rate (polyimide)	.....	5000 + Å/min.
Selectivity to mask (SiO ₂)	.....	20:1	
Profile	.....	60-70° slope	

PROFILE

The profile is primarily determined by the CF_4/O_2 ratio and the pressure. At low CF_4 flows the profile is re-entrant: at high flows the profile is more isotropic but the selectivity to mask (SiO_2) decreases. CF_4 flow is as high as possible while leaving sufficient mask intact. Generally the profile is more vertical at lower pressures, but is also difficult to prevent becoming re-entrant.