

## TRION MINILOCK-PHANTOM III ICP/RIE

### ETCH SPECIFICATIONS

Material	Gas Used	Pressure	Turbo	ICP	RIE Power Range	ICP Power Range	Selectivity	Etch Rate
Aluminum (Al) - anisotropic	Cl <sub>2</sub> +BCl <sub>3</sub>	30 mTorr	Yes	No				4-5000 A/min
Aluminum (Al) - isotropic	Cl <sub>2</sub> +BCl <sub>3</sub>	180 mTorr	No	No				5-10000 A/min
Aluminum Nitride (AlN)	Cl <sub>2</sub> +BCl <sub>3</sub>	0-200	Yes	Yes	0-250	0-500		300-2200 A/min
Black Diamond	CF <sub>4</sub>	50 mTorr	Yes	Yes				2100A/min
BPSG	CHF <sub>3</sub> /(O <sub>2</sub> or Ar)	5-75 mTorr	Yes	No				1500A/min
Carbon (C)	O <sub>2</sub> +Ar	250 mTorr	No					600 A/min
Chrome (Cr)	Cl <sub>2</sub> +O <sub>2</sub>	50 mTorr	Yes	No				1000 A/min
Chrome (Cr)	Cl <sub>2</sub> +O <sub>2</sub>	10 mTorr	Yes	Yes	0-50	0-900	PR:Cr(2.5:1)	
Copper (Cu)	BCl <sub>3</sub> +Cl <sub>2</sub> (heat)	180 mTorr	No	No				2000 A/min
Epoxy	O <sub>2</sub> +%5 CF <sub>4</sub>	250 mTorr	No	Yes				10,000 A/min
Gallium Antimonide (GaSb)	Ar+Cl <sub>2</sub> (5:1)	10 mTorr	Yes	Yes	40-200	0-900	PR:GaSb(1:4-8)	4200-5600 A/min
Gallium Arsenide (GaAs) - thinning	Cl <sub>2</sub> +BCl <sub>3</sub> (isotropic)	30-200 mTorr	Yes	Yes	20-200	0-500		30000 A/min
Gallium Arsenide (GaAs) - profile	Cl <sub>2</sub> +BCl <sub>3</sub> (anisotropic)	5 mTorr	Yes	Yes	20-70	0-250	PR (4 - 16:1)	15000-20000 A/min

<b>Gallium Arsenide (GaAs)</b>	Cl <sub>2</sub> +BCl <sub>3</sub>	10 mTorr	Yes	Yes	20-100	0-600		5200 - 40000 A/min
<b>GaAs/AlGaAs - selective etch</b>	SF <sub>6</sub> +BCl <sub>3</sub>	40 mTorr			0-20	0-500	GaAs:AlGaAs (150:1)	25000 A/min
<b>Gallium Nitride (GaN)</b>	Cl <sub>2</sub>	5 mTorr	Yes	Yes	20-100	0-500		5000-6500 A/min
<b>Graphite (C)</b>	O <sub>2</sub> +Ar							
<b>Indium Phosphide (InP)</b>	CH <sub>4</sub> +H <sub>2</sub>	5 mTorr	Yes	Yes	20-200	0-300	SiN (50:1)	3-500 A/min
<b>Iridium (Ir)</b>	SF <sub>6</sub>	50 mTorr	Yes	No				
<b>Molybdenum (Mo)</b>	SF <sub>6</sub>							
<b>Oxynitride</b>	CF <sub>4</sub> +5% O <sub>2</sub>	150 mTorr	Yes	No				1800 A/min
<b>Photoresist</b>	O <sub>2</sub>	50 mTorr	Yes	Yes				800 A/min
<b>Platinum</b>	Cl <sub>2</sub> , Ar (90°C)	5 mtorr	Yes	No				1600 A/min
<b>Polyimide</b>	O <sub>2</sub> +Ar	20 mTorr	Yes	Yes				5000 A/min
<b>Polysilicon - isotropic</b>	Cl <sub>2</sub>	180 mTorr	Yes	Yes	50-250		SiO (20:1)	5000 A/min
<b>Polysilicon - anisotropic</b>	Cl <sub>2</sub>	30 mTorr	Yes	Yes	20-100	0-500	SiO (20:1)	3000 A/min
<b>PSG</b>	CF <sub>4</sub> /(O <sub>2</sub> or Ar)	5-75 mTorr	Yes	Yes	300-500			1500 A/min
<b>Quartz</b>	CHF <sub>3</sub> +CF <sub>4</sub>	5 mTorr	Yes	Yes				1500 A/min
<b>Sapphire (Al<sub>2</sub>O<sub>3</sub>)</b>	BCl <sub>3</sub>	10 mTorr	Yes	Yes	0-250	0-900	PR(1:2)	600 A/min
<b>Silicon (Si)</b>	CF <sub>4</sub> +2% O <sub>2</sub>	25 mTorr	Yes	No				10000 A/min
<b>Silicon Dioxide (SiO<sub>2</sub>)</b>	CF <sub>4</sub> +CHF <sub>3</sub>	50 mTorr	Yes	No				1500 A/min
<b>SiLK (Pr)</b>	CF <sub>4</sub>	50 mTorr	Yes	Yes				1450 A/min
<b>SU8 (Pr)</b>	O <sub>2</sub> +CF <sub>4</sub>	100 mtorr	Yes	Yes	20-70	500		13000 A/min
<b>SU8 (Pr)</b>	O <sub>2</sub> +Ar+CF <sub>4</sub>	250 mtorr	No	Yes				5000 A/min

<b>Silicon Nitride (Si3N4)</b>	SF <sub>6</sub> /O <sub>2</sub> or CF <sub>4</sub> /O <sub>2</sub>	150 mTorr	No	No				2200 A/min
<b>Tantalum - anisotropic</b>	CF <sub>4</sub> +O <sub>2</sub>	20 mTorr	Yes	No				2000 A/min
<b>Tantalum - isotropic</b>	CF <sub>4</sub> +O <sub>2</sub>	150 mTorr	No	Yes				3,000 A/min
<b>Tantalum Nitride (TaN)</b>	CF <sub>4</sub> +O <sub>2</sub>		No	No				
<b>Titanium (Ti)</b>	Cl <sub>2</sub> +BCl <sub>3</sub>	5 mTorr	Yes	Yes	20-70	0-500		600 A/min
<b>Tinitride (TiN)</b>	CF <sub>4</sub> +O <sub>2</sub>	100 mTorr	Yes	No				1500 A/min
<b>Titanium Tungsten (TiW) - isotropic</b>	SF <sub>6</sub>	200 mTorr	No	No				5000 A/min
<b>Titanium Tungsten (TiW) - anisotropic</b>	SF <sub>6</sub>	5 mTorr	Yes	No				10000 A/min
<b>Tungsten (W) - isotropic</b>	SF <sub>6</sub>	250 mTorr	No	Yes				6000 A/min
<b>Tungsten (W) - anisotropic</b>	SF <sub>6</sub>	5 mTorr	Yes	Yes				10000 A/min