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Hall effect in Plasma

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Pressure/torr	I_d/mA	V_d/V	B I_m/Amp	V_H/V	Input High voltage	noise on scope
8.4 ± 0.1	$1.5 \pm .2$	-0.55 ± 0.01 (250 μV)	$-21.23 \pm 0.02 \text{ mT}$ $-40.2 \text{ mT} \pm 0.1$	-1.85 ± 0.01 (2.5V)	2.5 meas: 2.2kV	(5mV p+p)
(4.5 ± 0.1)	0.95 ± 0.05	-0.55 ± 0.01 (250 μV)	$-21.54 \pm 0.02 \text{ mT}$ $-40.0 \pm 0.1 \text{ mT}$	-1.85 ± 0.01 (2.5V)	same	40mV
14.6 ± 0.1	0.91 ± 0.05	-0.55 ± 0.01 (250 μV)	$-24.88 \pm 0.02 \text{ mT}$ $-36.6 \pm 0.1 \text{ mT}$	-1.71 ± 0.01 (2.5V)	same	30mV

noise on
supply

40mV

input
high voltages

read: 2.2kV
~~5.2kV~~
set: 2.5kV

V_H

-1.95 ± 0.01

I_m / Amp

0.10 ± 0.05

0.20 ± 0.05

B/mT | I_m forward
reverse

-27.35 ± 0.02

-24.64 ± 0.02

-33.9 ± 0.1

-36.6 ± 0.1

V_d

-0.50 ± 0.01
(250mV)

I_d / mA

0.92 ± 0.05

Reverse / hour

19.7 ± 0.1

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HAL

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Pressure: 20.0 ± 0.1 torr

Input high voltage:

wait ~3min before I_d, V_d, V_H readings 2.5kV, read 2.2kV

B / mT	I_{reverse}	I_m / Amp	I_d / mA	V_d / V	V_H / V	noise on scp (p+p) 40mV
I_{forward} measure on forward						
-28.9 ± 0.1	-33.8 ± 0.1	0.1 ± 0.02	0.9 ± 0.02	-50 ± 2	-2.3 ± 0.2	
-17.1	-45.2 ± 0.1	0.5 ± 0.07	0.85 ± 0.02	52 -52 ± 2	-4.5 ± 0.2	50mV
-2.6	-61.8	1.05 ± 0.01	0.85 ± 0.02	-52 ± 2	-5.1 ± 0.2	80mV
-24.4	-39.3	0.3 ± 0.01	0.87 ± 0.02	-52 ± 2	-4.3 ± 0.2	60mV
-8.7	-54.8	0.85 ± 0.01	0.87 ± 0.02	-51 ± 2	-5.9 ± 0.2	50mV

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Pressure: 25.0 ± 0.1 torr

Input high voltage: 2.5kV, read 2.2kV

-29.0	-33.6	0.1 ± 0.02	0.63	-60	-2.3	60mV
-24.65 ± 0.02	36.8 -37.1	0.2	0.64	-60	-3.7	70mV
-21.9	-39.6	0.3	0.62	-60	-4.0	70mV
-19.4	-42.5	0.4	0.59	-63	-3.8	70mV
-16.3	-45.2	0.5	0.57	-62	-4.8	80mV
-13.2	-48.6	0.65	0.55	-58	-4.8	80mV
-11.9	-51.1	0.7	0.55	-60	-4.9	80mV

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Pressure: 15.0 ± 0.1 torr high voltage = 2.5 kV; read 2.3 kV
2-25?
noise on scope

B/mT		I_m /Amp	I_d /mA	V_d /V	V_H /V	
$I_{forward}$	$I_{reverse}$					
-29.0	-34.4	0.1	1.60	-42	-4.5	40mV
-24.4	-37.5	0.2	1.61	-42	-4.9	30mV
-21.8	-40.5	0.3	1.61	-39	-4.8	30mV
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-18.9	-43.2	0.4	1.80	-38	-4.9	50mV
-16.6	-45.9	0.5				
20.0 to 1 torr						
-27.1	-36.9	0.2	1.34	-46	-4.2	40mV
-19.8	-42.8	0.4	1.33	-50	-5.8	40mV
-13.5	-48.4	0.6	1.32	-49	-5.9	40mV
-11.0	-51.6	0.7	1.32	-49	-6.2	40mV
-4.50	-59.5	0.95	1.31	-48	-6.8	45mV