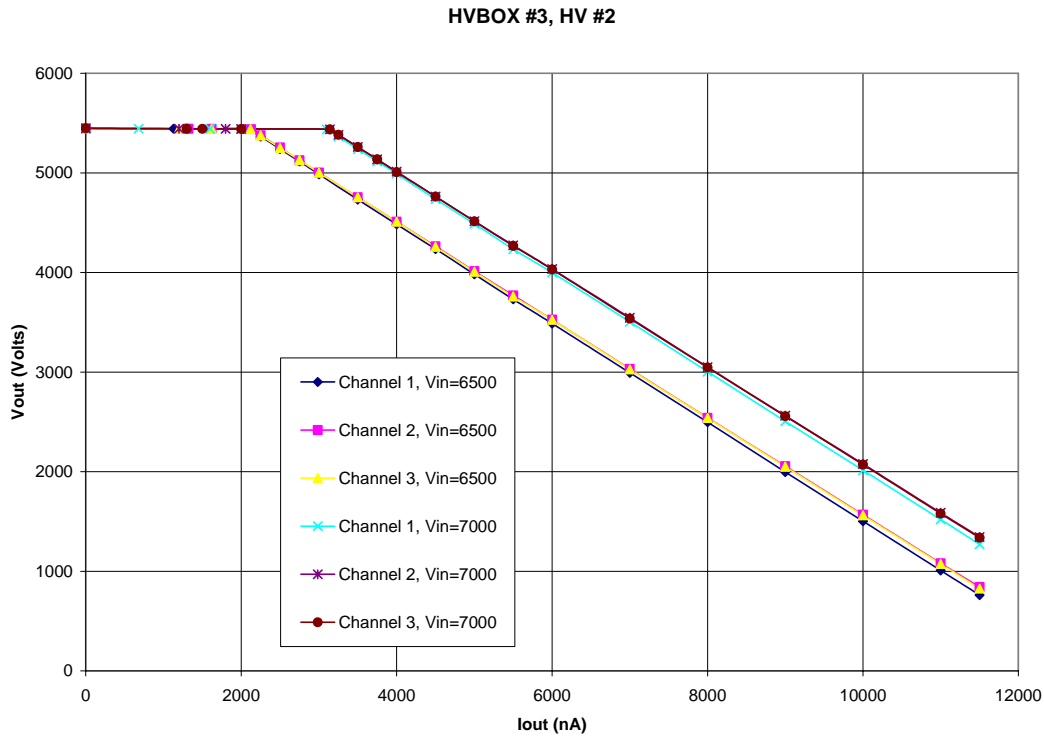


## Quick Reminder: Automatic Current Limit (aka ZEUS Circuit)

- Each output channel has built in over current protection.
- As the current increases the output voltage is reduced to prevent damage to the LST tube



- The limit circuit kicks in when the current increases beyond
 
$$I_{Knee} = (HV_{Brick} - HV_{Set}) / 500M\Omega$$
- Current configuration:  $HV_{Brick} - HV_{Set} = 1000 \text{ V} \rightarrow I_{Knee} = 2000 \text{ nA}$
- Possible adjustments
 

○ max output Voltage (Ultravolt module)	10 KV
○ max internal voltage (resistor divider)	7.5 KV
○ max $HV_{Brick}$ (low bits of DAC set to 0)	7.3 KV
○ max $I_{Knee}$ with $HV_{Set} = 5.5 \text{ KV}$	3600 nA
- Proposal
  - Set  $HV_{Brick}$  to  $HV_{Set} + 1500 \text{ V}$
  - $I_{Knee}$  (at 5.5 KV) = 3000 nA
  - Passed 100 hrs test at OSU