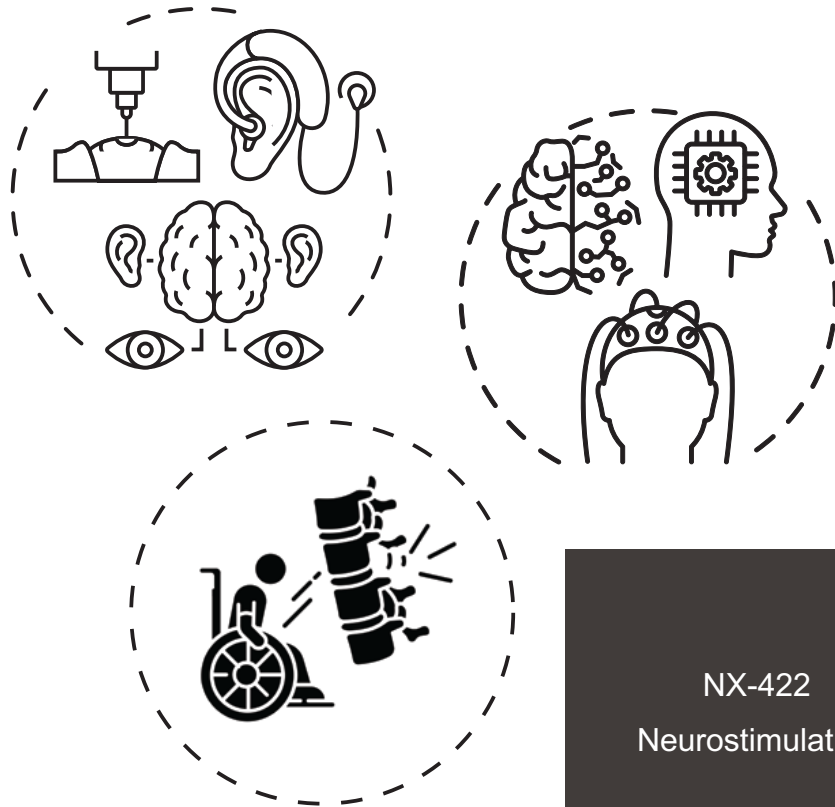


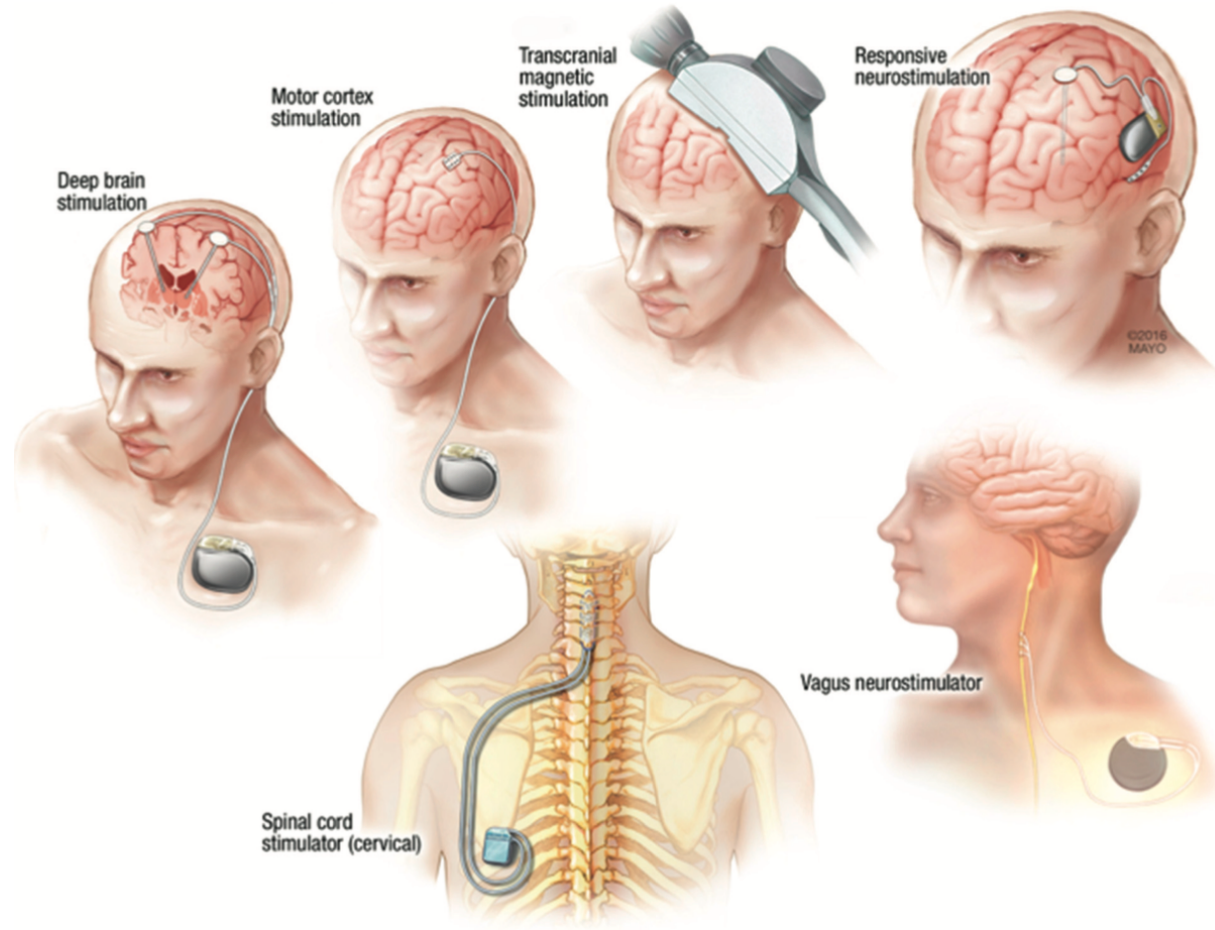


Neural Interfaces

NX-422
Neurostimulation

Mahsa Shoaran
IEM and Neuro-X Institutes

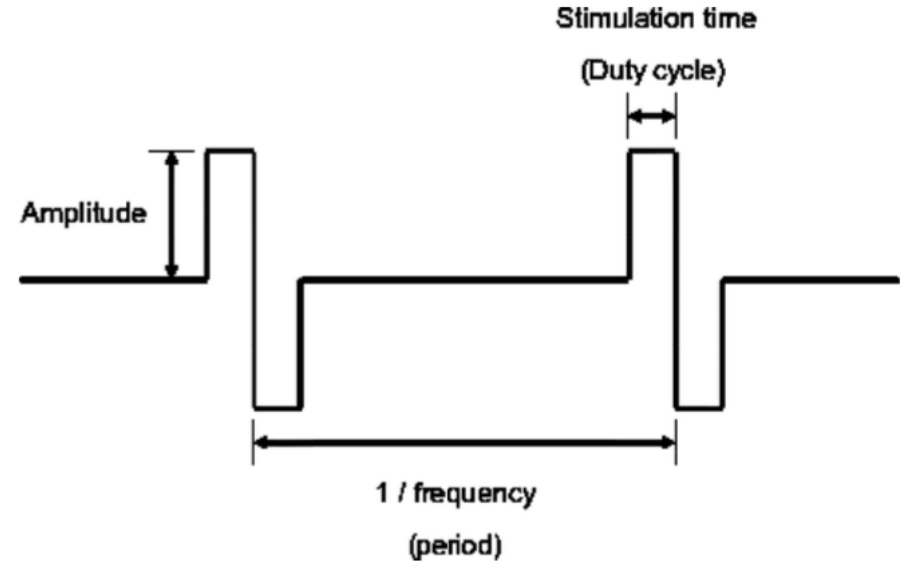
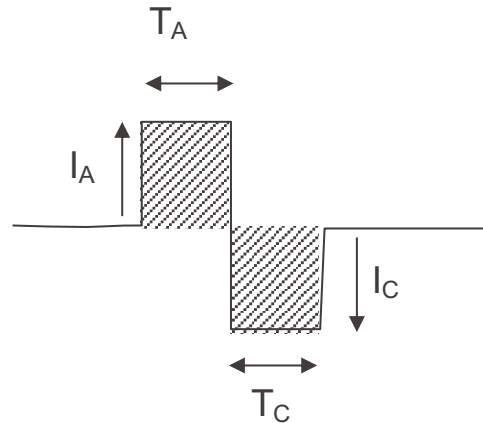
Neurostimulation (Neuromodulation)



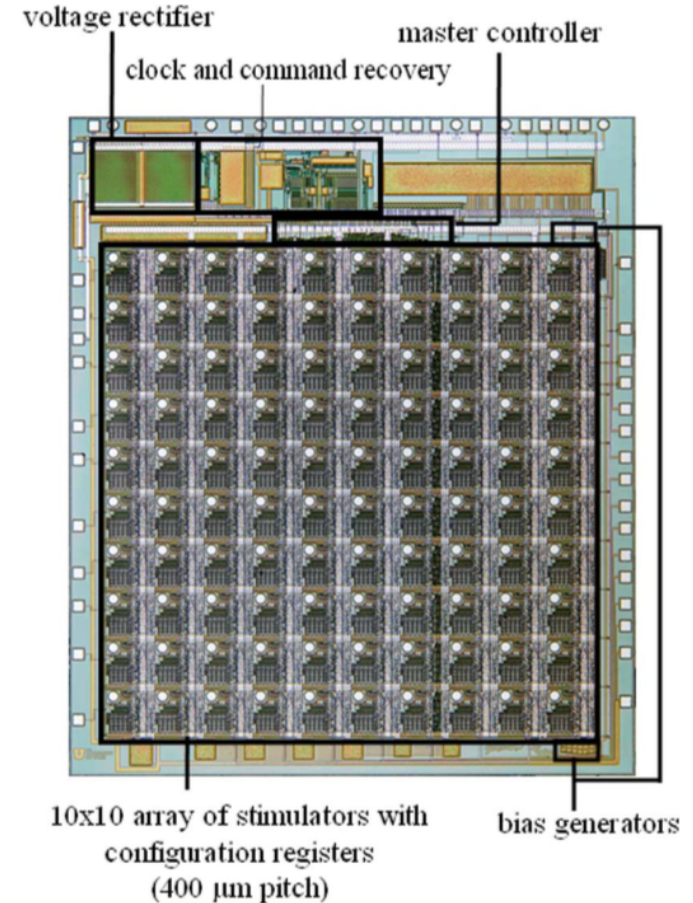
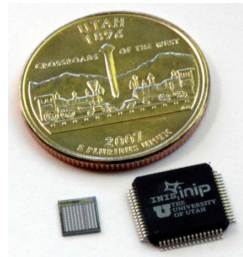
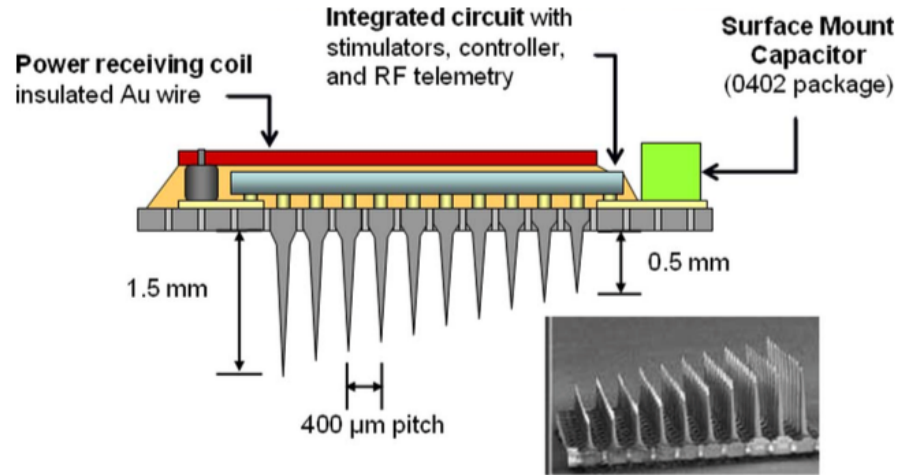
- To prevent electrode corrosion, charge balanced pulses used
- Can be either cathodic or anodic first
- Need not be same length as long as:

$$Q_A = Q_C$$

$$T_A I_A = T_C I_C$$



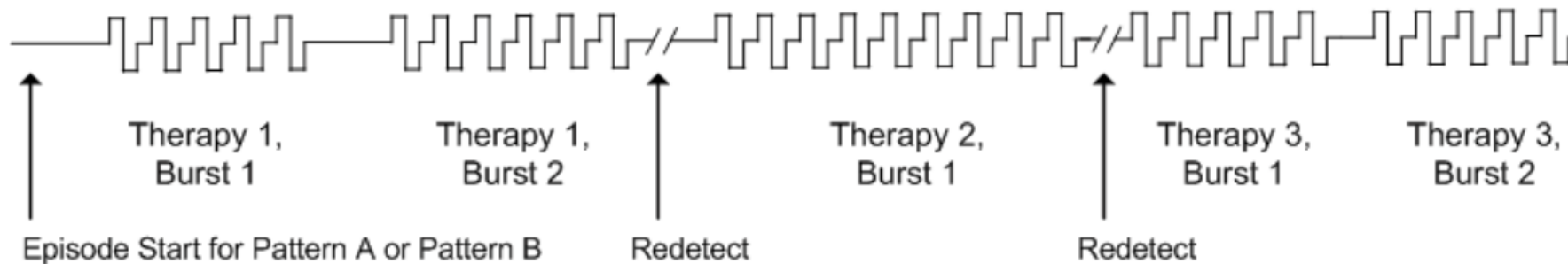
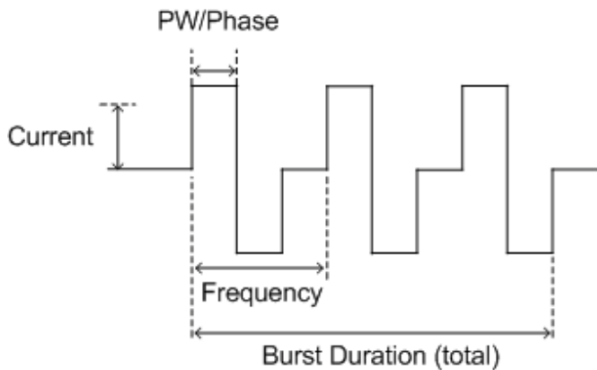
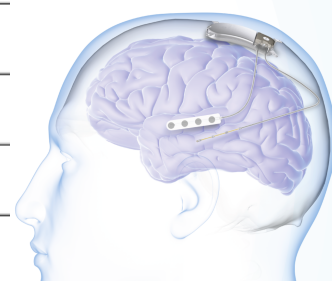
- Voltage-controlled stimulation (VCS)
- **Constant-current stimulation (CCS)**

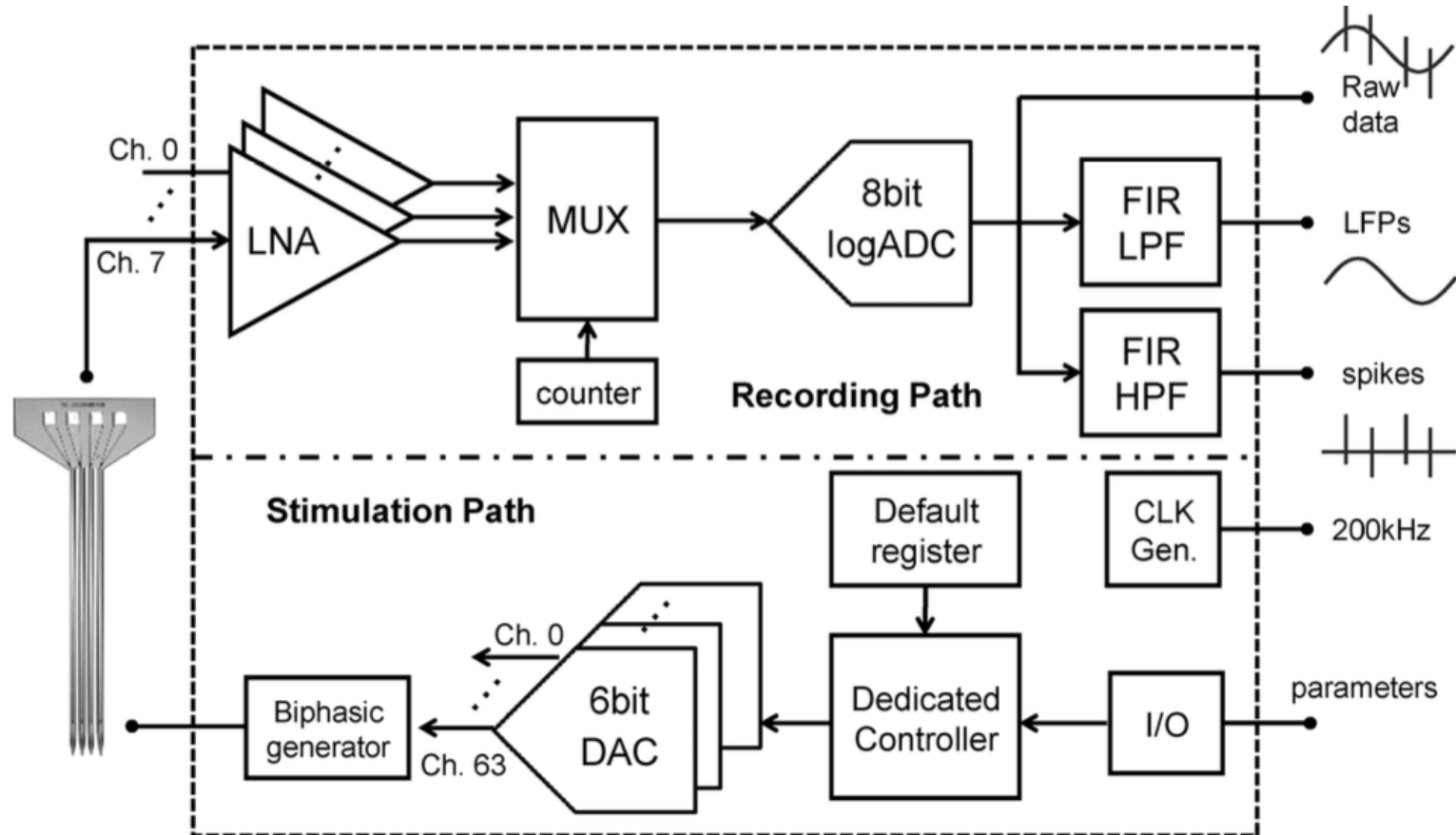


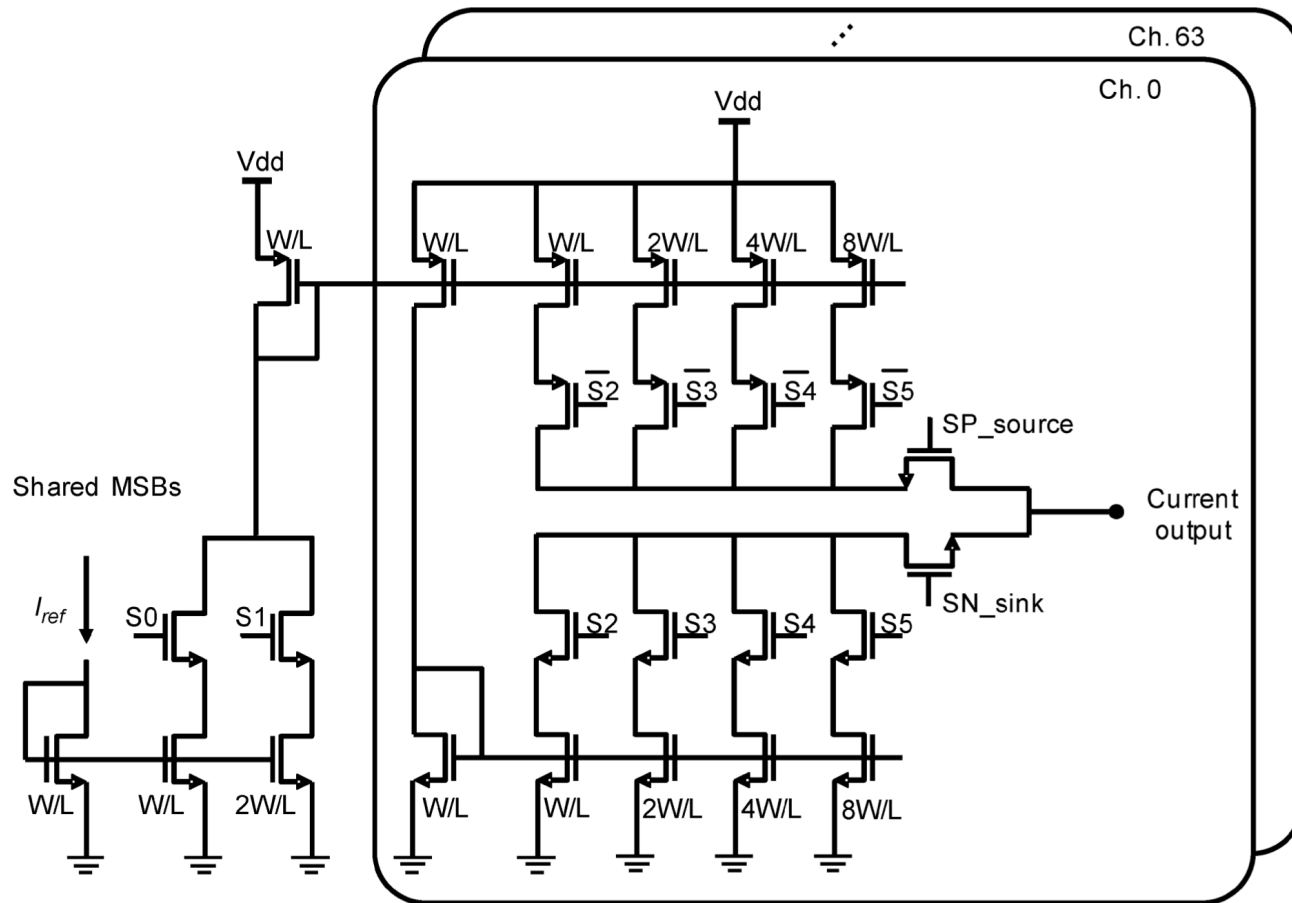
Responsive Neurostimulator (RNS)

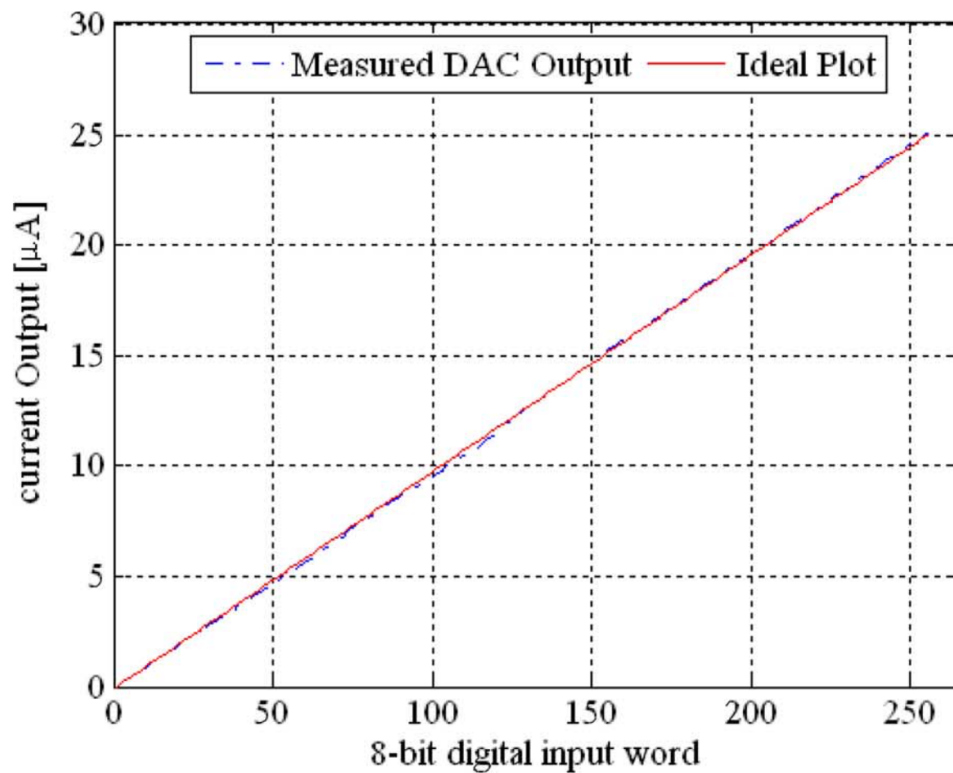
Recommended Initial Responsive Therapy Settings

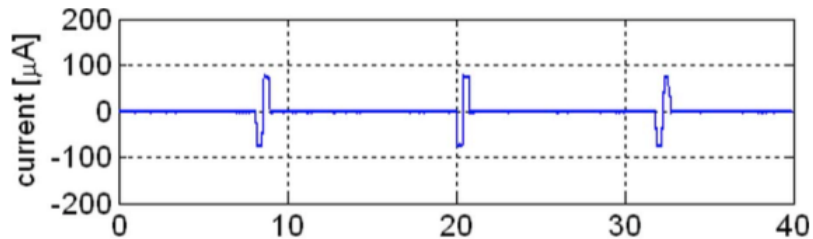
Frequency	200 Hz
Pulse Width	160 μ s
Burst Duration	100 ms
Current	1.0 mA and adjusted as necessary
Electrodes	Those from which patterns of interest are observed



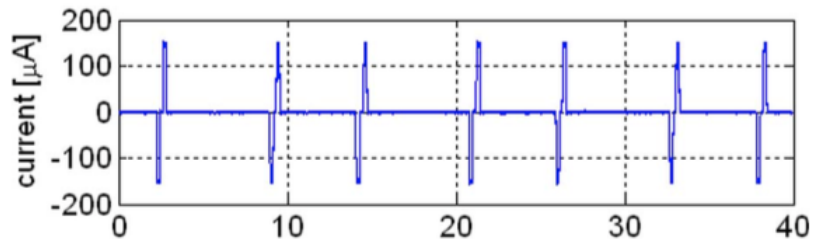






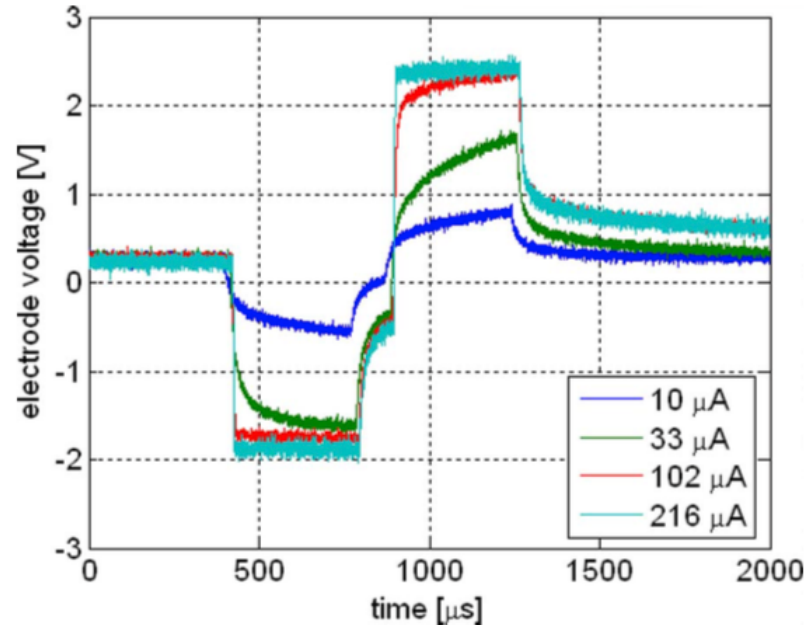


(a)



(b)

time [ms]



Stimulator frequency range	31	130	1000	Hz	1 ms period step
Stimulator amplitude range	0	99	135	μA	3 μA step
Stimulator pulse-width range	5	60	320	μs	5 μs step

