CLAIMS

1. A conducted electrical weapon (CEW), comprising:
   a plurality of electrodes configured to launch toward a target;
   a signal generator circuit electrically connected to the plurality of electrodes, and comprising:
      a current source circuit configured to generate a stimulus signal;
      a first driver circuit connected to the current source circuit and comprising:
         a first terminal electrically connected to a first electrode of the plurality of electrodes;
         a first switch device electrically connected between the current source circuit and the first terminal; and
         a charge storage circuit connected to the first switch device to provide a charge to the first switch device; and
   a processing circuit coupled to the signal generator circuit and configured to perform operations comprising:
      storing the charge in the charge storage circuit; and
      enabling the current source circuit to provide the stimulus signal through the first switch device, the first terminal, the first electrode, and the target;
      wherein the stimulus signal is provided via the first switch device in accordance with the charge.

2. The weapon of claim 1, wherein the operations further comprise providing an enable signal to the charge storage circuit.

3. The weapon of claim 2, wherein providing the enable signal to the charge storage circuit comprises providing the enable signal to the first switch device.

4. The weapon of claim 2, wherein the charge is stored in the charge storage circuit in accordance with the enable signal.

5. The weapon of claim 3, wherein the operations further comprise disabling the enable signal after the enable signal is provided to the charge storage circuit.

6. The weapon of claim 4, wherein enabling the current source circuit comprises enabling the current source circuit after the charge is stored in the charge storage circuit and the enable signal is disabled.

7. The weapon of claim 1, wherein the charge storage circuit comprises at least one capacitor.

8. The weapon of claim 7, wherein the at least one capacitor is coupled in parallel between a control terminal of the first switch device and an output terminal of the first switch device.

9. The weapon of claim 7, wherein the charge storage circuit comprises at least one resistive element coupled in parallel with the at least one capacitor.

10. The weapon of claim 9, wherein the at least one capacitor and the at least one resistive element are configured to store the charge in the first charge storage circuit for a first period of time greater than a second period of time in which the current source circuit is enabled to provide the stimulus signal through the first switch device, the first terminal, the first electrode, and the target.

11. The weapon of claim 1, further comprising a second driver circuit including:
    a second terminal electrically connected to a second electrode of the plurality of electrodes; and
    a second switch device electrically connected to the second terminal;
    wherein the stimulus signal is provided through the first switch device, the first terminal, the first electrode, the target, the second electrode, the second terminal, and the second switch device.

12. The weapon of claim 11, wherein the operations further comprise disposing the second switch device in a closed state prior to enabling the current source circuit.

13. The weapon of claim 11, wherein the operations further comprise:

disabling the current source circuit; and

disposing the second switch device in an open state after the current source circuit is disabled.

14. The weapon of claim 13, wherein the charge is stored in the charge storage circuit until after the second switch device is disposed in the open state.

15. The weapon of claim 11, wherein the first driver circuit further comprises a third switch device coupled to the first terminal.

16. The weapon of claim 15, wherein storing the charge in the charge storage circuit comprises disposing the third switch in a closed state.

17. The weapon of claim 15, wherein the operations further comprise disposing the third switch in an open state prior to enabling the current source circuit.

18. A method for operating a conducted electrical weapon, comprising:

storing a charge in a charge storage circuit of the conducted electrical weapon in accordance with an enable signal;

selectively turning on a first switch device;

disabling the enable signal; and

delivering a stimulus signal through the first switch device, a first terminal of the conducted electrical weapon electrically coupled to the first switch device, and an electrode of the conducted electrical weapon electrically coupled to the first terminal;

wherein the first switch device remains turned on according to the charge after the enable signal is disabled.

19. The method of claim 18, further comprising, after the enable signal is disabled, selectively turning on a second switch device of the conducted electrical weapon electrically coupled to a second terminal of the conducted electrical weapon, wherein the stimulus signal is further delivered through a second electrode, the second terminal, and the second switch device.

20. A signal generator circuit for a conducted electrical weapon, comprising:

a current source circuit configured to generate a stimulus signal;

a first driver circuit connected to the current source circuit and comprising:

a first terminal configured to be electrically coupled to a first electrode deployed by the conducted electrical weapon toward a target;

a first switch device electrically connected in series between the current source circuit and the first terminal; and

a charge storage circuit connected to the first switch device to provide a charge to the first switch device; and

a second terminal configured to be electrically coupled to a second electrode deployed by the conducted electrical weapon;

wherein the signal generator circuit is configured to perform operations comprising:

storing the charge in the charge storage circuit; and

after the charge is stored in the charge storage circuit, providing the stimulus signal through the first switch device, the first terminal, the first electrode, the target, the second electrode, and the second terminal according to the charge.

21. A signal generator circuit, comprising:

a current source circuit comprising one of: a charge storage device, a high-side driver module, and a transistor;

a first driver circuit connected to the current source circuit at a first node and comprising:

a first switch device connected in series with a second switch device at a second node; and

a first charge storage device connected between the first and second switch devices; and

a second driver circuit connected to the current source circuit at the first node and comprising:

a third switch device connected in series with a fourth switch device at a third node; and

a second charge storage device connected between the third and fourth switch devices.

22. The signal generator circuit of claim 21, further comprising:
a first output terminal connected at the second node; and
a second output terminal connected at the third node.

23. The signal generator circuit of claim 21, wherein each of the first, second, third, and fourth switch devices comprise a metal oxide silicon field effect transistor.

24. The signal generator circuit of claim 21, wherein each of the first, second, third, and fourth switch devices comprise a silicon controlled rectifier.

25. The signal generator circuit of claim 21, wherein:
each of the first and third switch devices comprise a metal oxide silicon field effect transistor; and
each of the second and fourth switch devices comprise a silicon controlled rectifier.

26. The signal generator circuit of claim 21, wherein the second switch device and the fourth switch device are connected to each other at a fourth node.

27. The signal generator circuit of claim 26, further comprising a current sense circuit connected to the first and second driver circuits at the fourth node.

28. The signal generator circuit of claim 21, wherein:

the first driver circuit is responsive to a first control signal and a second control signal;

the second driver circuit is responsive to a third control signal and a fourth control signal; and

the current source circuit is responsive to a fifth control signal.

29. The signal generator circuit of claim 21, wherein:

the first driver circuit further comprises a first diode connected to a first terminal of the first charge storage device; and

the second driver circuit further comprises a second diode connected to a first terminal of the second charge storage device.

30. A method for operating a conducted electrical weapon, comprising:

generating a stimulus signal at a first terminal comprising:

charging a charge storage device;

selectively turning on a first switch device according to a charge of the charge storage device;

selectively turning off a second switch device according to the charge of the charge storage device, wherein the first and second switch devices are connected in series with each other and connected to the first terminal; and

selectively turning on a third switch device having a polarity opposite that of the first switch device, wherein the third switch device is connected to a second terminal and connected in parallel with the first and second switch devices; and

flowing current through a current path comprising the first switch device, the first terminal, the second terminal, and the third switch device according to a first control signal and the charge of the charge storage device.

31. The method of claim 30, wherein charging the charge storage device and turning on the first switch device comprises enabling a second control signal and a third control signal substantially simultaneously.

32. The method of claim 31, wherein selectively turning off the second switch device comprises disabling the second and third control signals substantially simultaneously.

33. The method of claim 30, wherein flowing current through the current path comprises discharging the charge storage device.

34. The method of claim 30, further comprising:
selectively turning off the third switch device; and
turning off the first switch according to the charge of the charge storage device.

35. A conducted electrical weapon (CEW), comprising:
at least three electrodes configured to launch toward a target in response to activation of a trigger of the CEW;
a signal generator circuit electrically connected to the electrodes and responsive to the activation of the trigger of the CEW, and comprising:
a current source circuit configured to generate a constant current;
a first driver circuit connected to the current source circuit at a first node and comprising:
a first switch device connected in series with a second switch device at a second node;
a first charge storage device connected between the first and second switch devices; and
a first terminal connected at the second node and electrically connected to a first electrode from the at least three electrodes; and
a second driver circuit connected to:
the current source circuit at the first node; and
the first driver circuit at a third node;
wherein the second driver circuit comprises:
a third switch device connected in series with a fourth switch device at a fourth node;
a second charge storage device connected between the third and fourth switch devices; and
a second terminal connected at the third node and electrically connected to a second electrode from the at least three electrodes;

wherein the current source circuit generates a current flow path through the first switch device, the first terminal, the target, the second terminal, and the fourth switch device.

36. The conducted electrical weapon of claim 35, wherein each of the first, second, third, and fourth switch devices comprise a metal oxide silicon field effect transistor.

37. The conducted electrical weapon of claim 35, wherein each of the first, second, third, and fourth switch devices comprise a silicon controlled rectifier.

38. The conducted electrical weapon of claim 35, wherein:
each of the first and third switch devices comprise a metal oxide silicon field effect transistor; and
each of the second and fourth switch devices comprise a silicon controlled rectifier.

39. The conducted electrical weapon of claim 35, wherein:
the first driver circuit further comprises a first diode connected to a first terminal of the first charge storage device; and
the second driver circuit further comprises a second diode connected to a first terminal of the second charge storage device.

40. The conducted electrical weapon of claim 35, wherein:
the first and second switch devices are responsive to a first control signal and a second control signal;
the third and fourth switch devices are responsive to a third control signal and a fourth control signal; and
the current source circuit is responsive to a fifth control signal.