# Marx Generator Circuit Output

PSPICE Simplified Circuit:

Here C1 and L1 are the equivalent Capacitance and equivalent Inductance of a 7-stage Marx generator circuit which is simplified into the below circuit using the equivalent values. Switches with calculated close time(for simulating breakdown) are used instead of spark gaps.
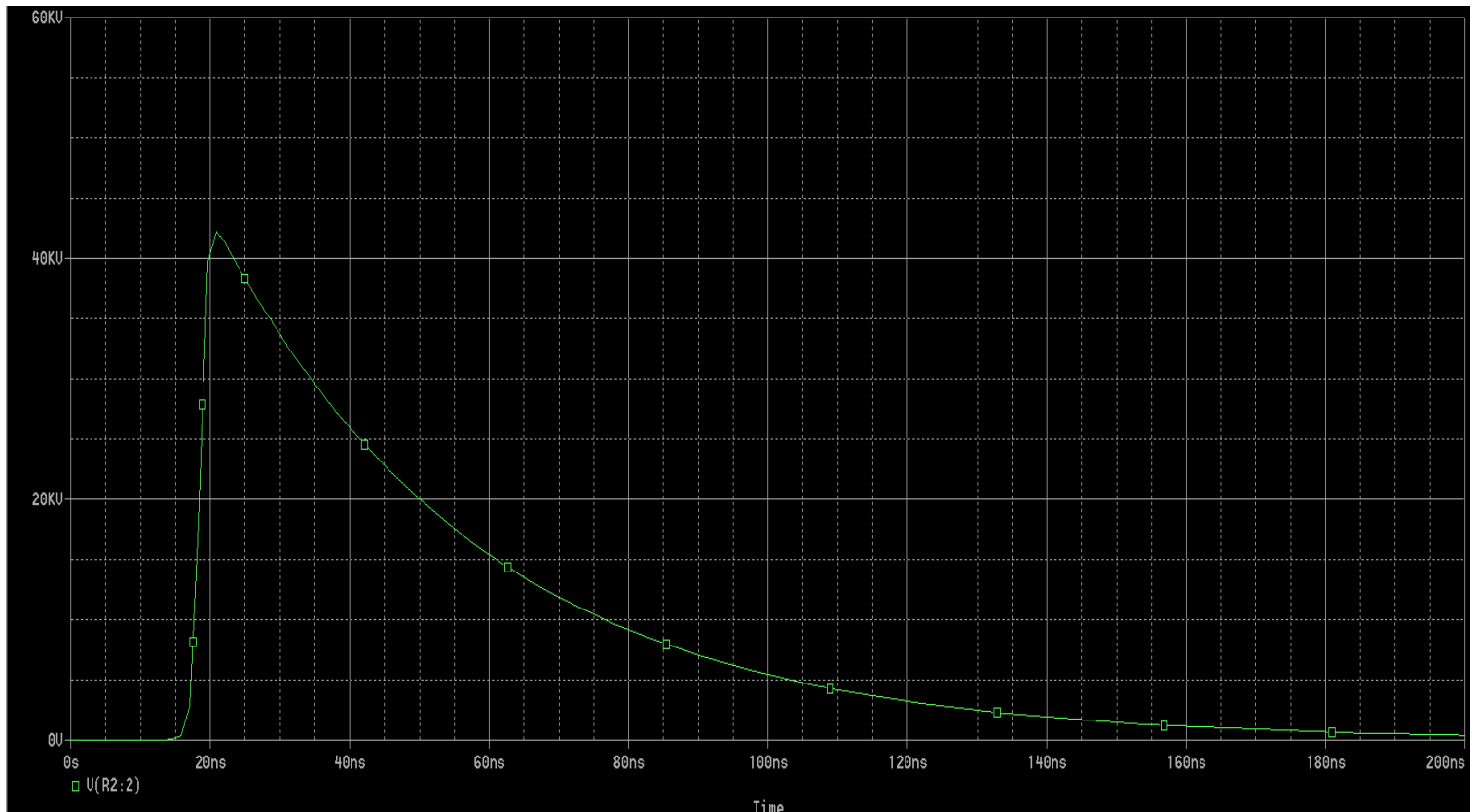
Equivalent charge at the Capacitor C1: 50KV
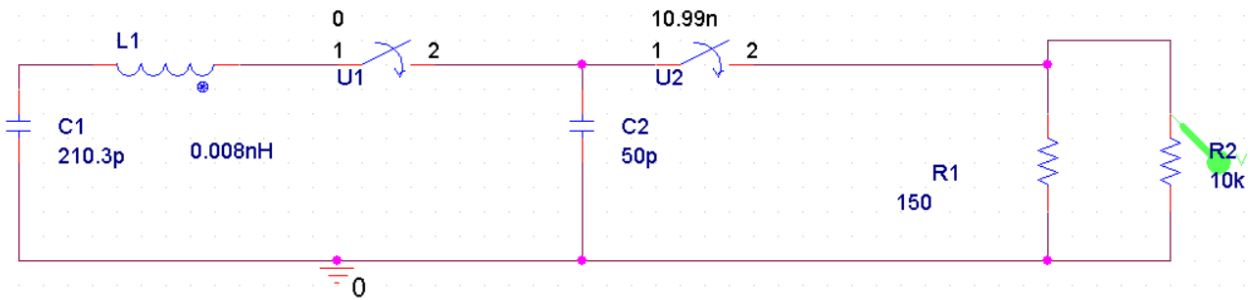
PSPICE Output Waveform:

Rise time t_r=2.3ns

Full wave half max time t_{fwhm}=29.45ns

**Note:** The rise time and FWHM can be modified accordingly based on the requirements.

Spark gap modelling

Spark gap modelling was tried in LTSPICE and PSPICE respectively and was not completed due to some limitations in both the software. Still work is being done to get the model of spark gap.

EMP filter Output

PSPICE Simplified Circuit:

PSPICE model for E2 EMP pulse which is simulated as a surge pulse in a normal household AC supply of 230V 50Hz.
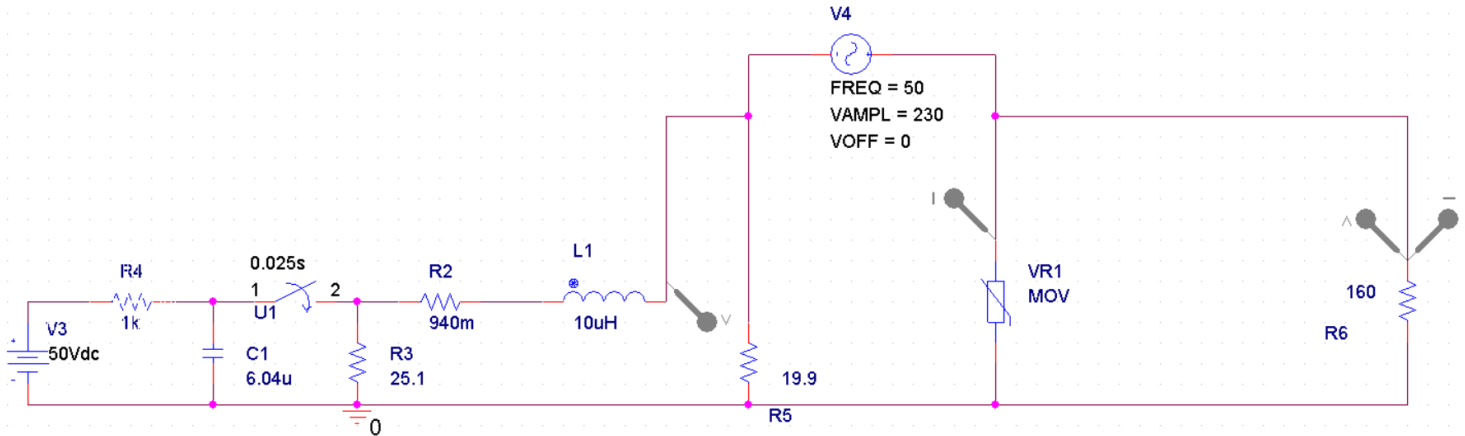
*Surge generator circuit^*   *Surge Suppression Circuit^*

PSPICE Output Waveform:

Suppressed current depends on the I_1, I_2, V_1 and V_2 values given to the Metal Oxide Varistor (MOV). The values are taken such a way that the output load current does not exceed 2A. The normal load current without surge is 1.5A and with the surge the excess current is drawn by the MOV.

🟥 Suppressed current

🟩 Load current