**20-Sep-2023**

**User Forum Engagement – Question on Qoss, Eoss**

* Vac of 25mV is applied to Vds. Vgs =0V.
* Capacitance value for all voltages (including Vdc) as shown in datasheet is applicable. It is not just small signal capacitance, although a small signal AC voltage perturbation between drain and source is applied to measure capacitance.
* Ques: Can I use the values provided so that at an 800V bus we should expect Cds ~= 100pF (fig 17) and therefore if soft switching is achieved in a two level converter that Qds ~= 80nC will be moved every switching cycle?
  + Answer: Q= CV is not the correct indicator of the stored/ withdrawn charge.
  + Incorrect assumption: Q(0V to 800V) = C(800V) x 800V = 130pF x 800V = 104nC.
  + Correct calculation of charge (shaded in orange) is given by:
  + The actual Qoss for Vds swing from 0 to 800V will be approximately 200nC.
  + Similarly, energy stored Eoss is given by:

