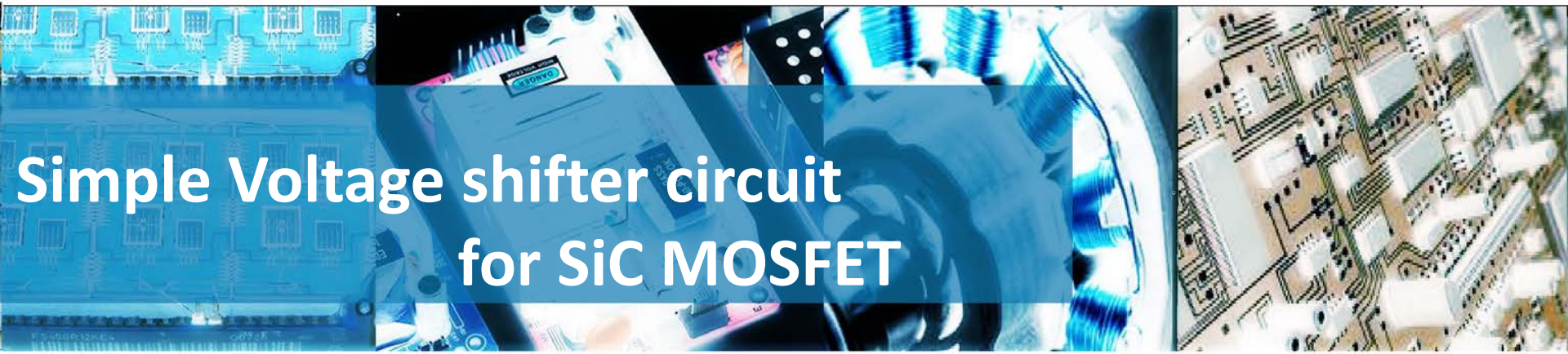
POWER

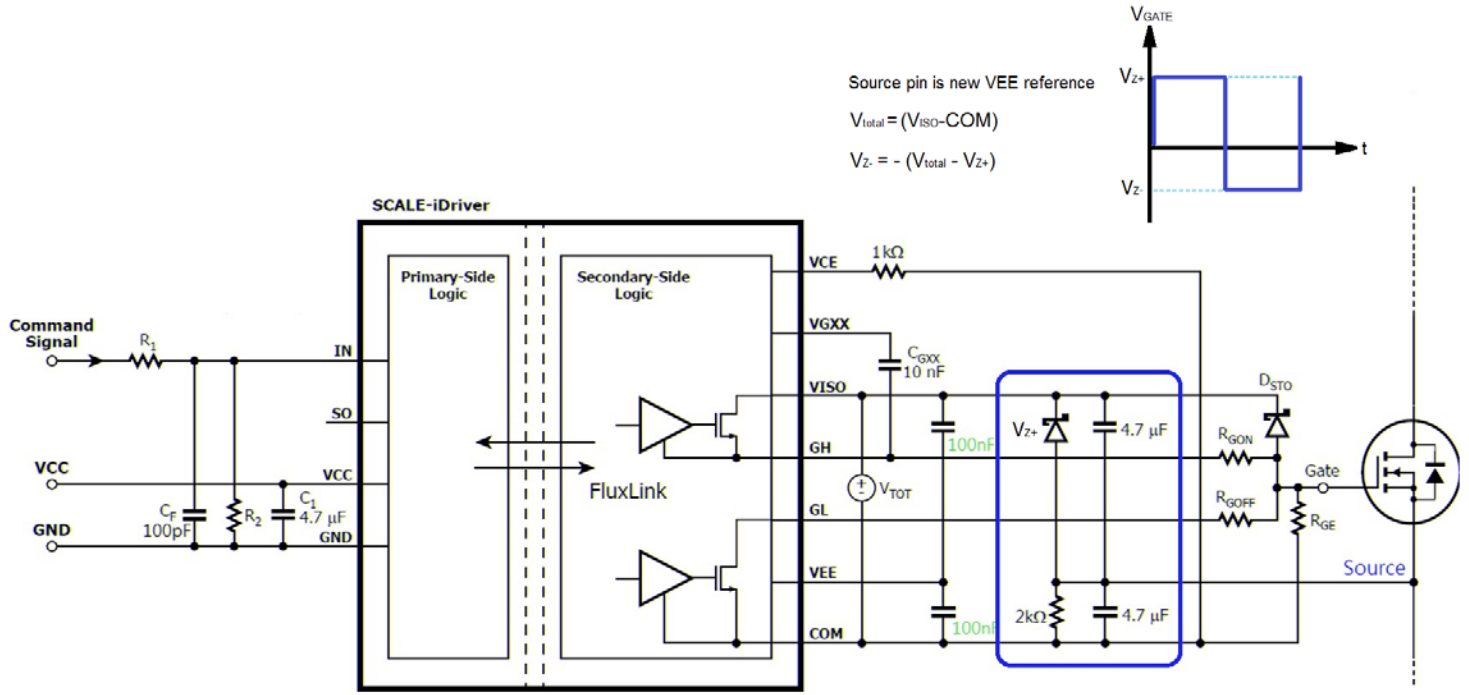


Simple Voltage shifter circuit for SiC MOSFET

2018/04/11 Romeo

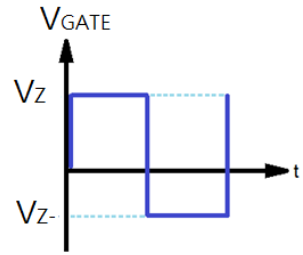
Simple Voltage shifter
Clipping with Zener diode

- Deviating gate voltages of $-(V_{TOT}-V_Z)$ / $+V_Z$ instead of -10V/15V



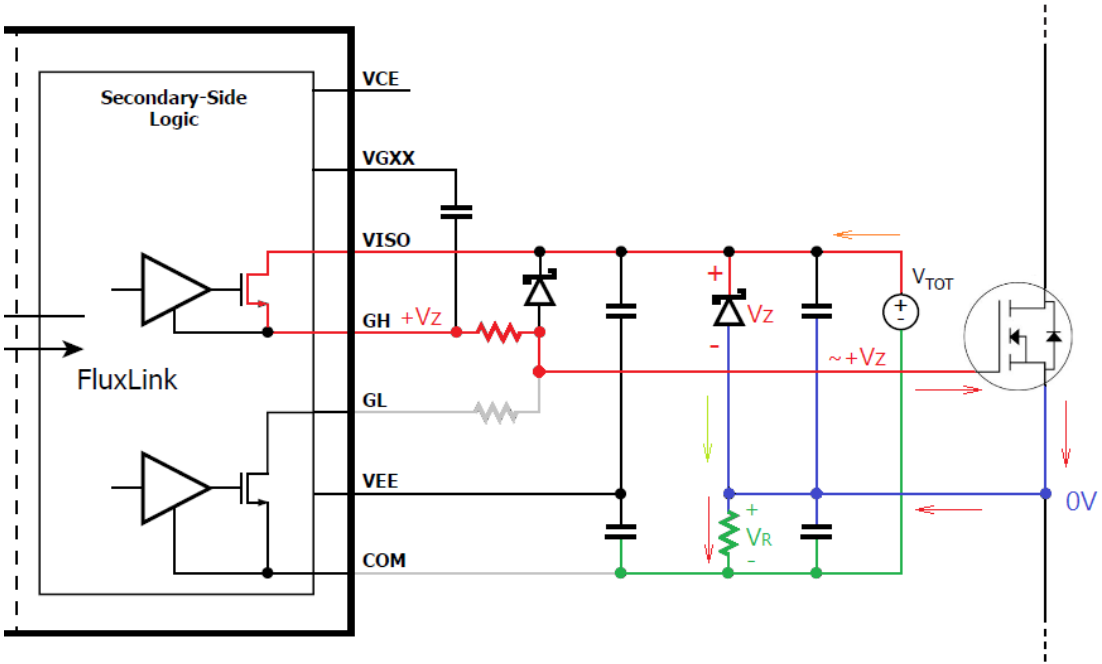
Positive Voltage control

$V_{TOT} = (V_{ISO}\text{-}COM)$
$V_{Z-} = -(V_{TOT} - V_Z)$



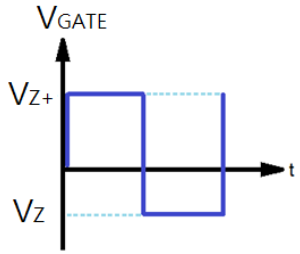
Control Positive voltage, Negative voltage is equal to -(V_{TOT}-Vz)

VISO to Source will be clamped at Vz



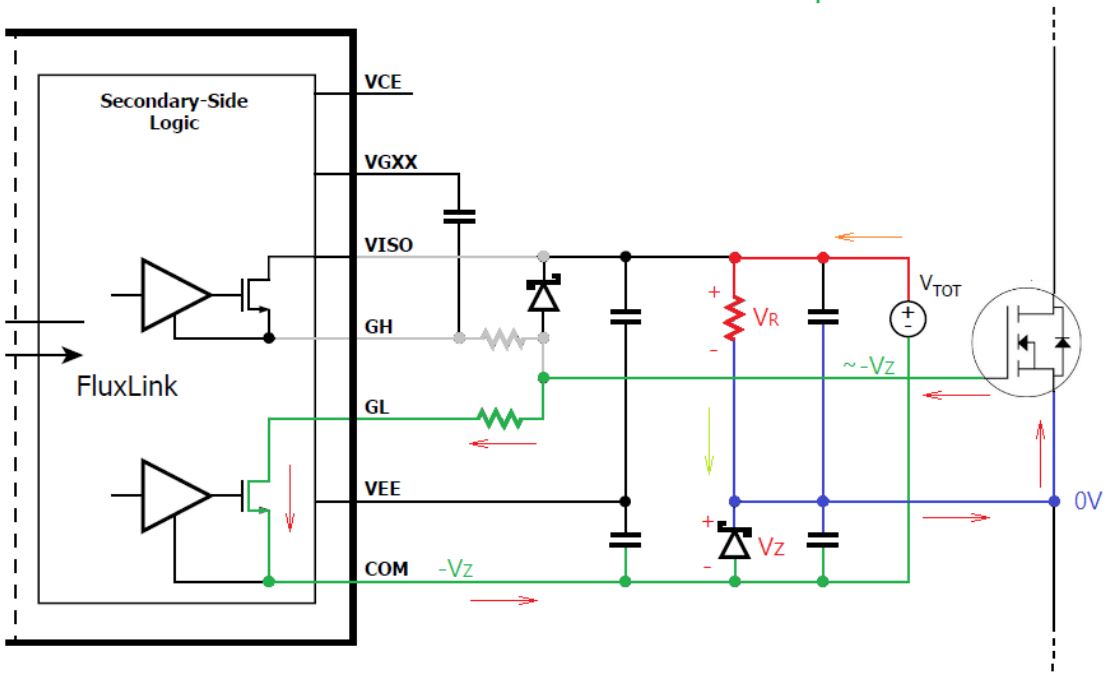
Negative Voltage control

$V_{TOT} = (V_{ISO}\text{-}COM)$
$V_{Z+} = V_{TOT} - V_Z$



Control Negative voltage, Positive voltage is equal to V_{TOT}- V_Z

Source to COM will be clamped at Vz



Selection

- **You only can choice One of Positive or Negative control circuit.**
  - You still need to follow ; $V_{VISO-COM} = V_{VISO-VEE} + V_{VEE-COM}$
  - Otherwise, you only can choose one to be controlled , positive or negative. Two voltage controlled method working against each other