## DGD8-Power Transistor-MOSFET Switch-(Ref to Muhammard <Power Electronics> Third Edition Chapter 4)

Q1.(Example 4.5) Two MOSFET that are connected in parallel as below figure, carry a total current of $I_T = 20A$. The drain-to-source voltage of MOSFET M_1 is $V_{DS1} = 2.5V$ and that of MOSFET M_2 is $V_{DS2} = 3V$. Determine the drain current of each transistor I_{D1}, I_{D2} and difference in current ΔI_D, if the current sharing series resistances are (a) $R_{s1} = 0.3\Omega$ and $R_{s2} = 0.2\Omega$, and (b) $R_{s1} = R_{s2} = 0.5\Omega$.
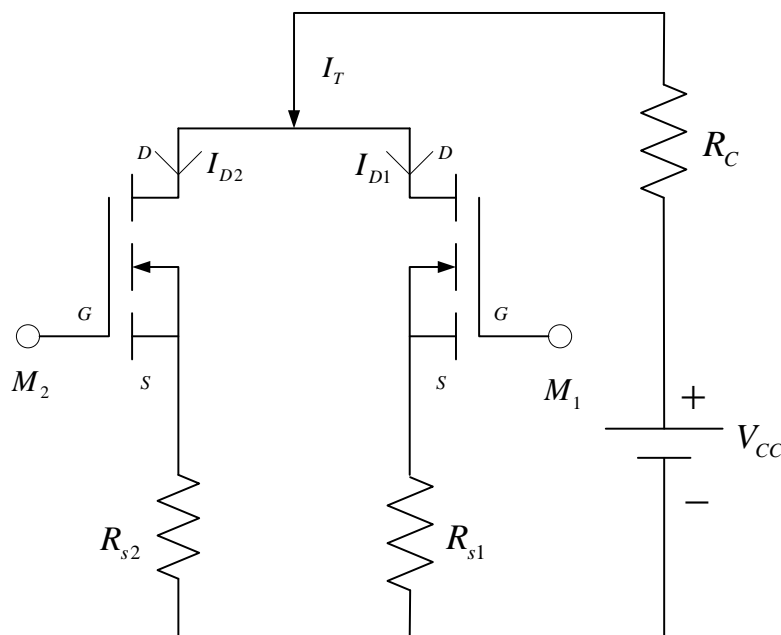
Solution: $I_{D1} + I_{D2} = I_T, V_{DS1} + I_{D1}R_{S1} = V_{DS2} + I_{D2}R_{S2}$

(a) $I_{D1} = 9A, I_{D2} = 11A, \Delta I_D = 2A$;(b) $I_{D1} = 10.5A, I_{D2} = 9.5A, \Delta I_D = 1A$