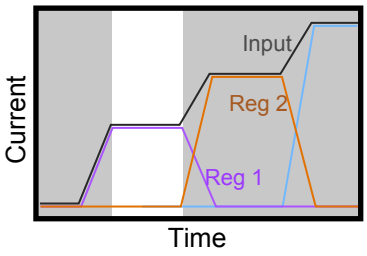
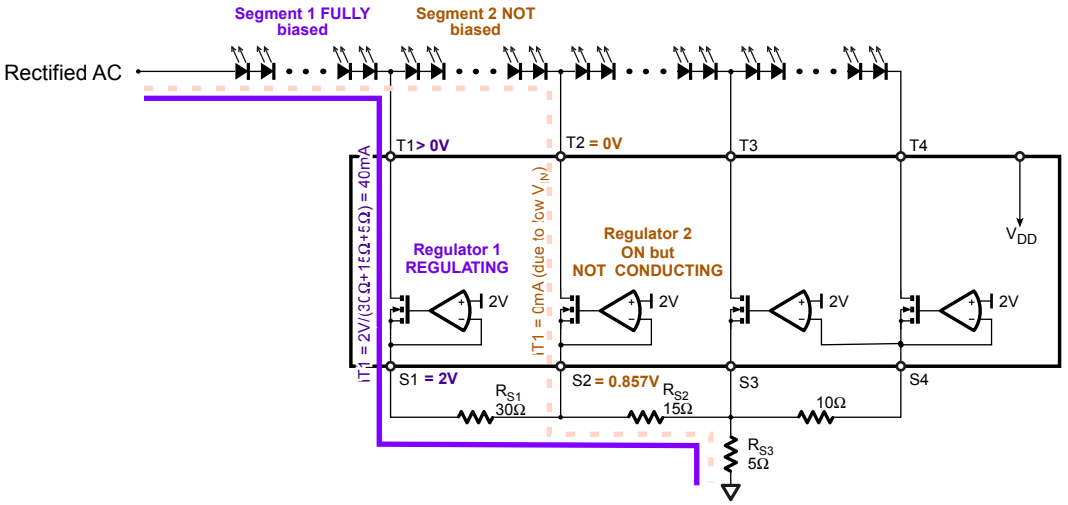
CL880x Self-Commutating Operation

Upstream Regulator Active

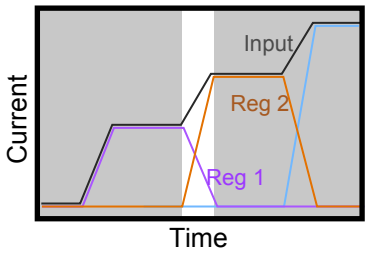
Input voltage is high enough to forward bias segment 1 but not enough to even partially bias segment 2.



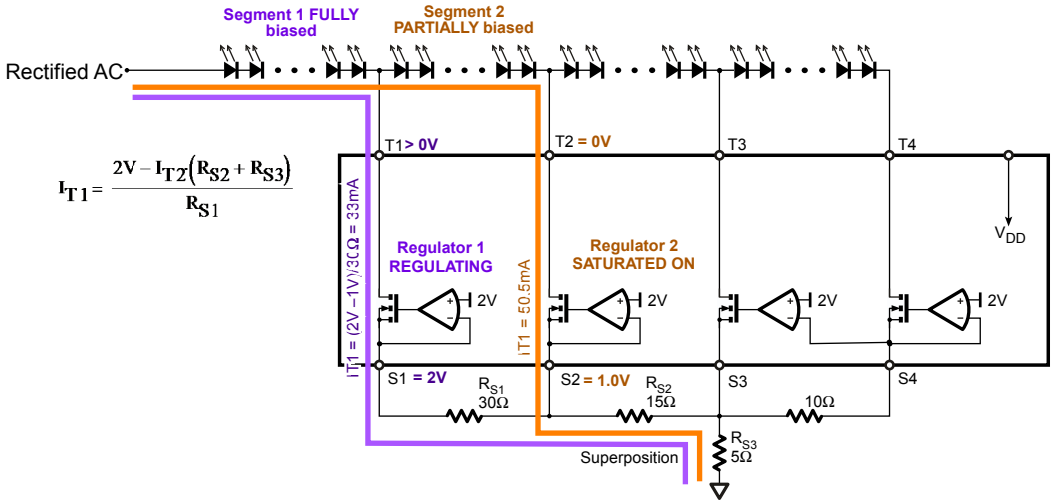


Transition

Input voltage is high enough to partially bias segment 2. Pin S2 below regulation point leaves residual voltage for S1. This allows regulator 1 to continue regulating as segment 2 comes up to speed.

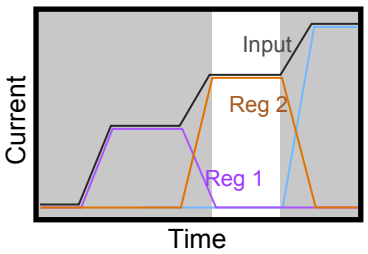


$$I_{T1} = \frac{2V - I_{T2}(R_{S2} + R_{S3})}{R_{S1}}$$



Downstream Regulator Takes Over

Input voltage is high enough to fully bias segment 2. Regulator 2 is out of saturation and regulating. S2 at regulation point (2V) leaves no residual voltage for S1, choking-off regulator 1.



In cases where adjacent regulators have the same setpoint, additional circuitry in the CL880x shuts off the upstream regulator when the downstream regulator achieves regulation.