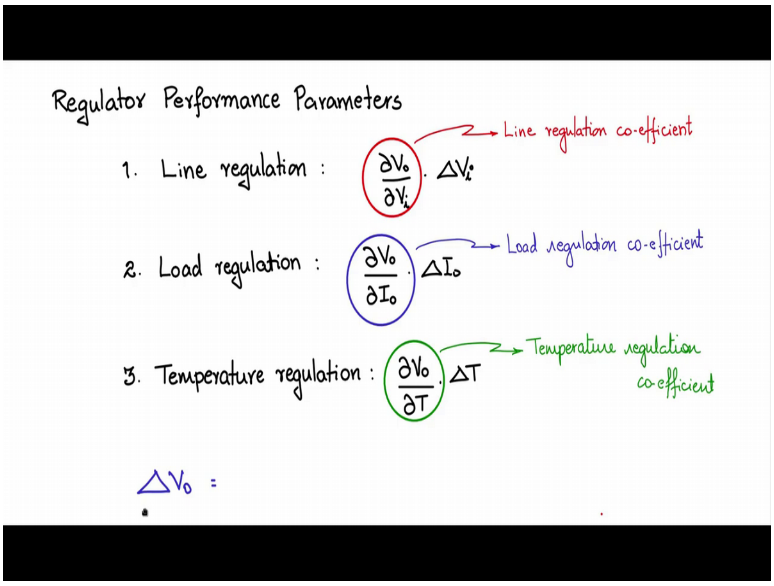
Fundamentals of Power Electronics
Prof. L. Umanand
Department of Electronics System Engineering
Indian Institute of Science, Bengaluru

Lecture - 41
Regulator performance parameters

(Refer Slide Time: 00:27)

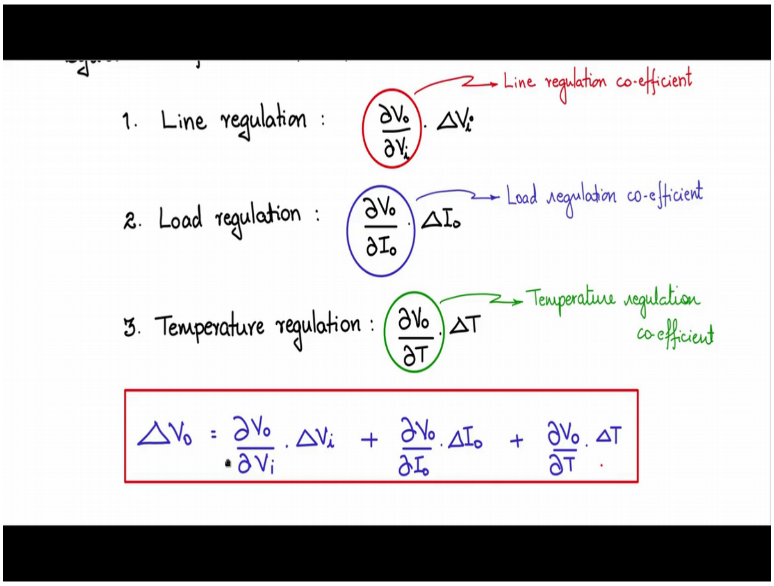


Regulator performance parameters, these are important parameters that actually characterize the various regulators, linear regulator that are available in the market. You can find them in the data sheet in one form or the other. First one of the important parameters the line regulation parameter, it is actually given as the partial differentiation of V naught with respect to V i, del V naught by del V i into change in V i. What is basically means is the variation in V naught with respect to variation in V i for a given absolute variation difference variation in delta V i. So, this parameter is called the line regulation parameter or the line regulation coefficient.

The second important one is the load regulation. What is the effect of load on V naught? So, that is what is given by del V naught by del I naught, the effect of I naught on V naught. And this value into delta I naught change in I naught or change in load will give you the total load regulation, this is called the load regulation coefficient.

And the third one is the thermal or the temperature regulation, which gives the effect on V naught due to change in temperature del V naught by del T for a given absolute change in temperature. So, the effect of change in temperature on V naught multiplied by the actual change in the temperature gives you the regulation due to temperature variations. So, this is the temperature regulation coefficient.

(Refer Slide Time: 02:46)



Overall, if you put all of these together, you can get the overall output voltage regulation or delta V naught at the output is delta V naught, the change in V naught with respect to line into the amount of line change deviation. Keeping now this is keeping load and these values keeping load and temperature constant plus you have the effect of change in V naught to the changes in I naught into delta I naught. Here you are keeping line voltage constant and temperature constant.

Next you have the effect of change in temperature on V naught due to change in temperature keeping input line and the load constant. So, this becomes the important regulation equation for the for the output voltage for any regulator. And this can also be a good comparison or a bench mark bench can be used for as benchmarking for various regulators. You will find these regulation coefficients in the data sheets.