# ng



# Jth



# dE



# dB

, if P1=2P0, 

If P1=10\*P0, dB=10; if P1=100\*P0, dB=20; if P1=1000\*P0, dB=20;

# Rth, Rsth, Gth

We can’t directly measure the temperature of active region in CW mode, which could only be inferred by the same threshold current/lasing wavelength in pulse mode operation. The threshold current in active region has an exponential dependence with T.







Thermal resistance Rth, Specific thermal resistance and thermal conductance Gth relationship:



# Tsink, cw max and Ith,Tmax

Assume Uth, Rth , I0 and T0 are constant, (independent on T)

, 



, (assume U is independent on I after lasing)

, This is the maximum operating temperature in CW mode.

This is the estimated temperature in active region.

in the fitting 

e.g. for R145NR\_1, Jth,max=1.7 kA/cm2, Tcw,max=314K

Both values are overestimated. Because the assumption doesn’t hold. So these predictions are only a upper bound, with very limited guidance.