

# **Abstract**

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## **Optimisation of the Key SOA Parameters for Amplification and Switching**

This paper presents the effects of the input signal on the gain and carrier density response of a semiconductor optical amplifier (SOA). The SOA is modelled using segmentation method. The optimum bias current required by the SOA for amplification and switching functions are investigated. The operation principle is simulated and the results show the input boundry conditions and requirements in which the SOA can be used as an amplifier and a switch.