

## Supplementary Information

for

### **The impact from the thermal conductivity of dielectric layer on the self-heating effect of graphene transistor**

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#### **I. The time-domain thermoreflectance measurement of Au/graphene/SiO<sub>2</sub> and Au/SiO<sub>2</sub> structure**

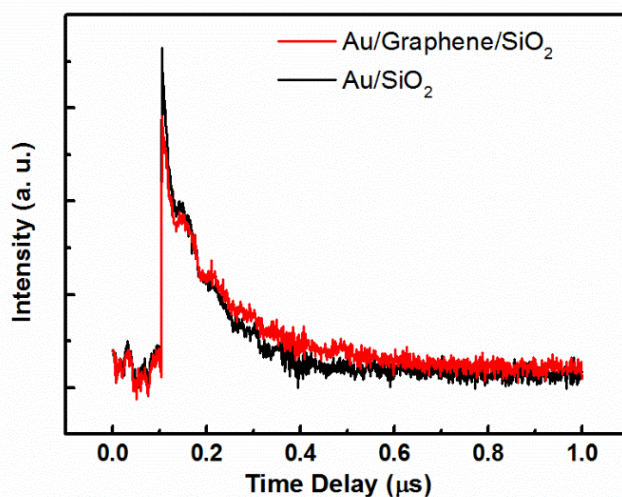


Figure S1. Thermoreflectance signal of Au/graphene/SiO<sub>2</sub> and Au/SiO<sub>2</sub> structures as a function of time.

The thermoreflectance measurements (Nano TR, Japan) were used to characterize the influence of interface thermal resistance on the thermal transport of Au/graphene/SiO<sub>2</sub> structure. Ni (10 nm)/Au (100 nm) metal thin film was deposited on the top surface of the samples as the reflection layer. As shown in Fig. S1, no significant difference between the signals of Au/graphene/SiO<sub>2</sub> and Au/SiO<sub>2</sub> was observed, which indicated that the interface thermal resistance between graphene and SiO<sub>2</sub> has no obvious influence on the thermal transport along vertical direction.