Supplementary Information for

Prospective Application of Graphene/ MoS$_2$ Heterostructure in Si-HIT solar cell for Higher Efficiency

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S.1: Calculation of maximum power and series resistance:

The series (R$_s$) of 2.5Ω.cm^2 was achieved, using a simple method as prescribed in the previous literature. This value is compatible with the value (8.8 Ω.cm^2-30 Ωcm^2) of the experimentally demonstrated graphene/MoS$_2$/silicon-based solar cell [2]. Likewise, a maximum power (P$_{max}$) of 25.4 mW/cm^2 was achieved using the formula as described in ref.3.

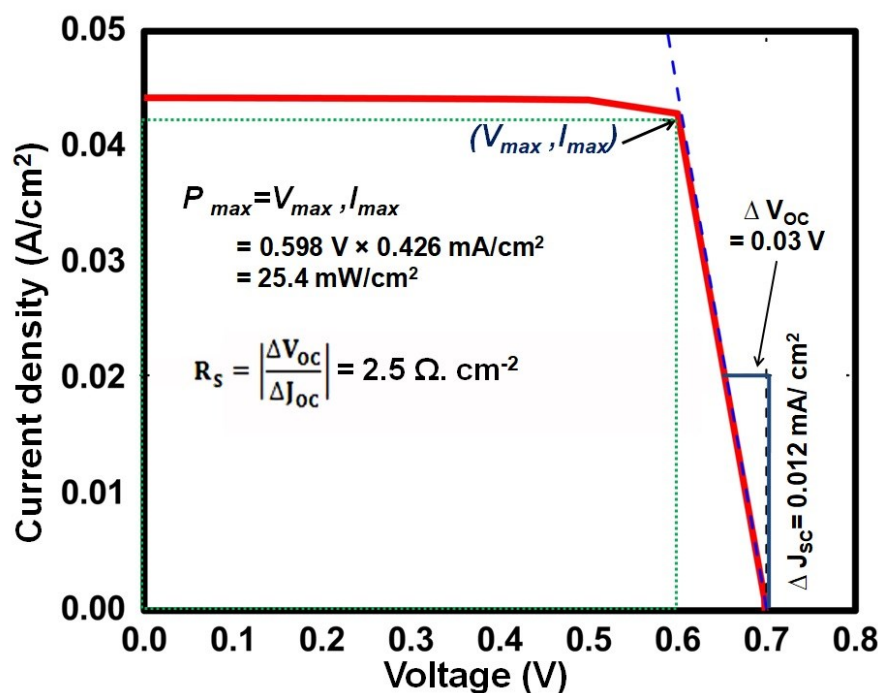**Fig. S1**: Calculation of maximum power (P$_{max}$) and series resistance (R$_s$) of the best optimized cell

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References:

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2. Y. Tsuboi, F. Wang, D. Kozawa, K. Funahashi, S. Mouri, Y. Miyauchi, T. Takenobub and K. Matsuda, *Nanoscale*, 2015,**7**, 14476-14482

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