CLAIMS:

1. A method for producing a solar cell, in the recited order, comprising the steps of:

forming an antireflection/passivation film on a semiconductor substrate,

annealing the substrate, wherein the annealing step is at 600°C to 900°C in an atmosphere of N_2 and

then forming electrodes on the substrate and firing the electrodes.

2. The method of claim 1, further comprising ~~one or both of~~ the step of forming a diffusion layer in the semiconductor substrate ~~and the step of firing the electrodes~~before the step of forming the antireflection/passivation film.

~~3. The method of claim 1 or 2, comprising the steps of forming a diffusion layer in the semiconductor substrate, then forming an antireflection/passivation film on the diffusion layer, then annealing the substrate, and thereafter forming electrodes, the step of forming electrodes including firing the electrodes.~~

~~4~~3. The method of claim 3 wherein the semiconductor substrate is of p-type, an n-type diffusion layer is formed on a light-receiving surface of the substrate~~, and the~~ before the step of forming the antireflection/passivation film ~~is formed on the diffusion layer prior to the annealing step~~.

~~5~~4. The method of claim ~~3~~ 1 wherein the semiconductor substrate is of n-type, a p-type diffusion layer is formed on a light-receiving surface of the substrate, an n-type diffusion layer is formed on the surface of the substrate opposite to the light-receiving surface, and the antireflection/passivation film is formed on each of the diffusion layers ~~prior to the annealing step~~.

~~6~~5. The method of ~~any one of claims 3 to 5~~ claim 1 wherein the passivation film is any one of MgF_2, SiO_2, Al_2O_3, SiO, SiN, TiO_2, Ta_2O_5, and ZnS, or a stack of such layers.

~~7. The method of any one of claims 1 to 6 wherein the annealing step is at 200°C to 1,000°C.~~

~~8~~6. The method of any one of claim~~s~~ 1 ~~to 7~~ wherein the time of the annealing step is 10 seconds to 90 minutes.

~~9. The method of any one of claims 1 to 8 wherein the annealing step is in an atmosphere of air, H_2, N_2, O_2 or Ar or a mixture thereof.~~

~~10~~7. A film-forming apparatus for forming an antireflection/passivation film used in the method of any one of claims 1 to 6 comprising means for forming ~~a~~ the antireflection/passivation film and a heating chamber where the annealing step is carried out subsequent to formation of the antireflection/passivation film.