FTMRS SOLAR

Solar glass stress adjustment

Overview

Does surface compressive stress affect the mechanical stability of PV modules?

In particular, the aim is to validate the SCALP measurement method for the use on PV modules. Furthermore, a potential correlation between the surface compressive stress and the mechanical stability of various common module designs with 2 mm and 1.6 mm glass is investigated.

Are glass-glass PV modules a problem?

Unfortunately, glass-glass PV modules are, similar to regular PV modules, subject to early life failures. A failure of growing concern are defects in the glass layer (s) of PV modules. The scale of decommissioned PV modules with glass defects will increase with the development of solar PV energy [7].

Does the compressive surface stress affect the stability of glass panes?

Furthermore, it seems that the residual compressive surface stress of the glass as one major parameter that determines the stability of glass panes has not been considered in this context in the PV module industry yet. In this work, we focus on the glass thickness in combination with the compressive surface stress.

Which glass is considered a superstrate for a PV module?

We consider specialty thin glass (Corning Eagle XG®) as superstrate of the PV module, while a standard tempered Soda-Lime-Silica Glass (SLG) is considered as bottom support. The reliability calculations for the module were performed based on the stress magnitudes obtained from the FEA computations.

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