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Sommario	<p>Silicone gel is commonly employed in electrical insulation, especially in power module encapsulation. In the recent years, the increase of the operation voltage of this application led to a higher electrical stress on the silicone gel, thus, electrical treeing has become a serious issue to the reliability of power modules. In this research, the degradation produced by the electrical treeing has been evaluated dividing it into two main parts: the tree inception and the tree growth, which have been assessed for different waveforms of the applied voltage. The tree inception, the preliminary stage of this phenomenon, has been tested and an innovative model has been proposed explaining this stage. The tree growth has been evaluated in function of the waveform voltage obtaining useful comparisons between the possible electrical stresses. This thesis highlights the peculiar behavior of silicone gel under high electric field and furnishes useful guidelines for designing and testing the electrical insulation made by silicone gel.</p>
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