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Title:Chalcogenide glass surface passivation of a GaAs bipolar transistor for unique avalanche terahertz emitters and picosecond switches
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Abstract:The ultra-narrow “collapsing” field domains discovered recently in avalanching GaAs bipolar junction transistor provide a physical basis for designing unique THz emitters and superfast switches. Reliability in devices operating near their volume breakdown voltage requires decisive suppression of premature surface breakdown. We demonstrate here complete, durable surface breakdown suppression through simple deposition of a massive chalcogenide glass layer on the mesa surface by means of a negative charge formed at the interface.
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Uncontrolled terms:chalcogenide glass surface passivation - unique avalanche THz emitters - picosecond switches - bipolar junction transistor - reliability - volume breakdown voltage - premature surface breakdown - surface breakdown suppression - GaAs
Inspec classification codes:B2560J Bipolar transistors - B2550E Surface treatment (semiconductor technology) - B0170N Reliability
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