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Study on the time characteristics of fast MPPC based on 40GS/s real-time oscilloscope

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The time characteristics of fast Multi-pixel Photon Counter (MPPC) are important features that affect its application. The fast timing detector is widely used for picosecond (ps) level time detection, some fast MPPCs with about 100ps@SPE. The time characteristics of fast MPPC refer to the rise time (RT), fall time (FT) and electron transition time (TT)of the output signal. Fast MPPC has an excellent time resolution, and the transition time spread (TTS) of MPPC can reach tens of picoseconds. This paper studies the time characteristics of several typical fast MPPCs by using a high-speed real-time oscilloscope. The relationship between the rise time, fall time and transition time spread of fast MPPC and the operational voltage as well as the relationship between the number of incident photons and the transition time spread of the fast MPPC are measured. The results show that the time characteristics of fast MPPC are better than ordinary MPPC and as the number of incident photons increases, the transition time spread of fast MPPC decreases, finally reaches a static value.

Minioral

No

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No

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