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A review on plasma-etch-process induced damage of HgCdTe

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ABSTRACT

Dry etching techniques with minimal etch induced damage are required to develop highly anisotropic etch for pixel delineation of HgCdTe infrared focal plane arrays (IRFPAs). High density plasma process has become the main etching technique for HgCdTe in the past twenty years. In this paper, high density plasma electron cyclotron resonance (ECR) and inductively coupled plasma (ICP) etching of HgCdTe are summarized. Common plasma-etch-process induced type conversion and related mechanisms are reviewed particularly.

Key words: dry etching; electron cyclotron resonance (ECR); inductively coupled plasma (ICP); etch-induced damage; HgCdTe; type conversion.

1. Introduction

Dry etching of HgCdTe started in the 1980s, such as ion beam etching (IBE), reactive ion etching (RIE), electron cyclotron resonance (ECR) and inductively coupled plasma (ICP) etching [1]. High density plasma etching has become the main choice to etch HgCdTe nowadays for delineation of infrared focal plane arrays

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