We study $A$-discriminants from a non-Archimedean point of view, refining earlier work on the tropical discriminant. In particular, we study the case where $A$ is a collection of $n + m + 1$ points in $\mathbb{Z}^n$ in general position. For general $m$, we bound the number of connected components of the complement of the amoeba closure. For fixed $m$, this bound is polynomial in $n$, whereas obvious bounds from Kapranov’s non-Archimedean theorem are exponential in $n$. (Received September 26, 2012)