Activation energy (E_a) is an empirical value that is the minimum energy required to initiate a specific type of failure mode that can occur within a technology type. Oxide defects, bulk silicon defects, mask defects, electro-migration and contamination are some examples of such failure modes, each with an unique associated E_a. In lieu of using empirical data for each individual failure mode, it is generally accepted that a standard single value of **E_a = 0.7 eV** provides a reasonably accurate average E_a value for diode type semiconductors.