

Derating

Derating is a method of reducing stress and/or making quantitative allowances for a part's functional degradation. Consequently, derating is a means of reducing failures, extending part life, and increasing reliability (not quality). In addition, derating helps protect parts from unforeseen application anomalies and overstresses.

Part derating may sometimes be difficult to achieve in some instances but is critical for systems being procured by the military today. When non-military parts are employed they often need protection from environmental conditions and/or need derating more than military parts. In addition, non-military parts are not expected to perform for as long as military parts. These concerns make derating crucial to every application.

The following definitions are adopted for this manual:

a. Derate – To reduce the voltage, current, or power rating of a part to improve its reliability or to permit operation at high ambient temperatures.

b. Derating – The reduction in rating of a part especially the maximum power-dissipation rating at higher temperatures.

c. Derating factor – The factor by which the ratings of parts are reduced to provide additional safety margins in critical applications or when the parts are subjected to extreme environmental conditions for which their normal ratings do not apply.