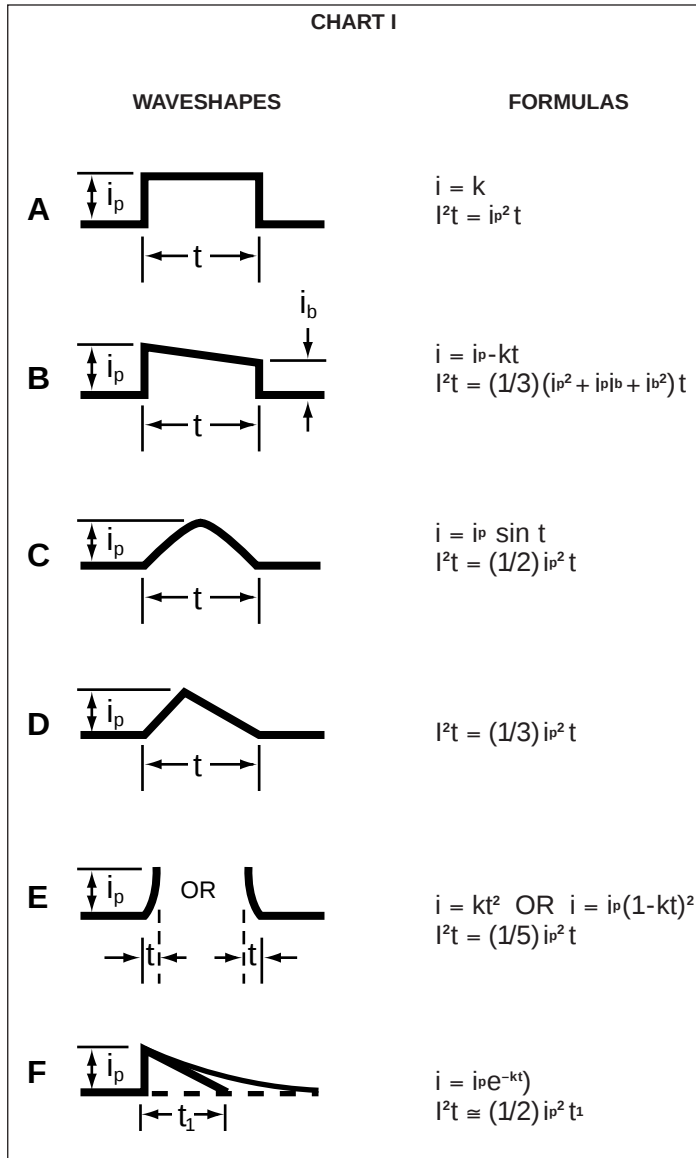


Introduction to Circuit Protection

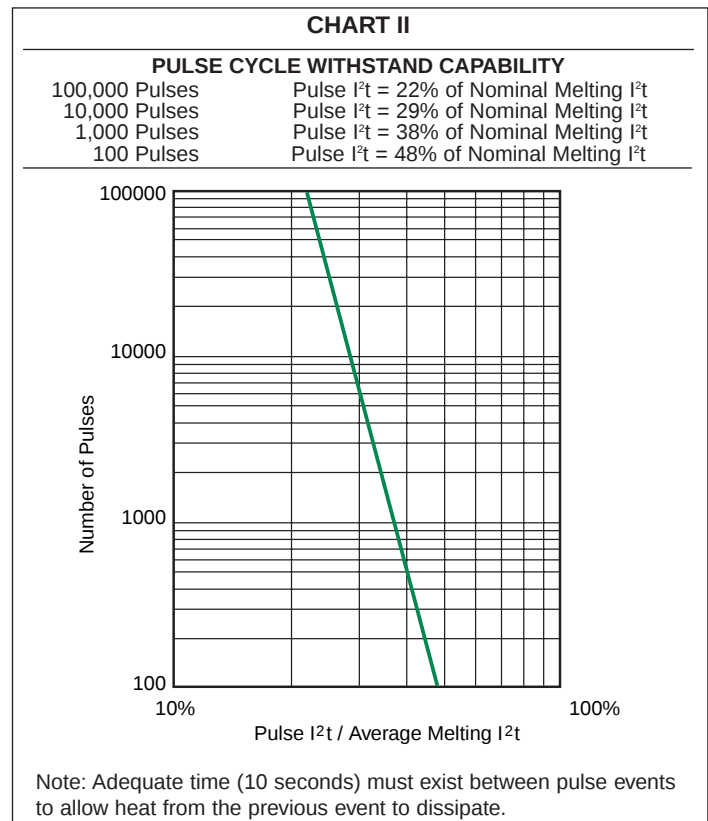
Fuseology

Fuse Selection Guide



Step 3 — Examine the I^2t rating data for the PICO® II, 125V, very fast-acting fuse. The part number 251001, 1 ampere design is rated at 0.256 $A^2 \text{ Sec.}$, which is the minimum fuse rating that will accommodate the 0.2327 $A^2 \text{ Sec.}$ value calculated in Step 2. This 1 ampere fuse will also accommodate the specified 0.75 ampere normal operating current, when a 25% derating factor is applied to the 1 ampere rating, as previously described.

TESTING: The above factors should be considered in selecting a fuse for a given application. The next step is to verify the selection by requesting samples for testing in the actual circuit. Before evaluating the samples, make sure the fuse is properly mounted with good electrical connections, using adequately sized wires or traces. The testing should include life tests under normal conditions and overload tests under fault conditions, to ensure that the fuse will operate properly in the circuit.



FUSEHOLDER SELECTION GUIDE

DERATING: For 25°C ambient temperatures, it is recommended that fuseholders be operated at no more than 60% of the nominal current rating established using the controlled test conditions specified by Underwriters Laboratories. The primary objective of these UL test conditions is to specify common test standards necessary for the continued control of manufactured items intended for protection against fire, etc. A copper dummy fuse is inserted in the fuseholder by Underwriters Laboratories, and then the current is increased until a certain temperature rise occurs. The majority of the heat is produced by the contact resistance of the fuseholder clips. This value of current is considered to be the rated current of the fuseholder, expressed as 100%

of rating. Some of the more common, everyday applications may differ from these UL test conditions as follows: fully enclosed fuseholders, high contact resistance, air movement, transient spikes, and changes in connecting cable size (diameter and length). Even small variations from the controlled test conditions can greatly affect the ratings of the fuseholder. For this reason, it is recommended that fuseholders be derated by 40% (operated at no more than 60% of the nominal current rating established using the Underwriter Laboratories test conditions, as previously stated).