

This characteristic is desirable because it parallels the characteristics of conductors, motors, transformers and other electrical apparatus. These components can carry low level overloads for relatively long times without damage. However, under high current conditions damage can occur quickly. Because of its inverse time current characteristic, a properly applied fuse can provide effective protection over a broad current range, from low level overloads to high level short circuits.

HOW TO READ A TIME-CURRENT CURVE

A time-current characteristic curve, for any specified fuse, is displayed as a continuous line representing the average melting time in seconds for a range of overcurrent conditions. The melting time is considered nominal unless noted otherwise. Several curves are traditionally shown on one sheet to represent a family of fuses. The family shown here is the Time Delay Class J AJT Amp-Trap 2000® fuse.

Information can be accessed from these curves in several ways:

- If a fuse has been selected, the designer can use the curve for that fuse to check its opening time versus a given overcurrent. Example: Using the 30 ampere fuse curve, what is the fuse opening time in seconds at a current of 160 amperes? At the bottom of the sheet (Current in Amperes) find 160 amperes (Pt. A) and follow that line straight up until it intersects the 30A curve (Pt. B). Then follow that line to the left edge (Time in Seconds) and read 10 seconds. (Pt. C). This tells us that the AJT30 will open in 10 seconds on a current of 160 amperes.
- Likewise, for the same fuse we might want to know what current will open the fuse in 0.1 second. On the vertical axis (Time in Seconds) find 0.1 second (Pt. D) and follow that line to the right until it intersects the 30A curve (Pt. E). Then follow that line straight down to the horizontal axis (Current in Amperes) and read 320 amperes (Pt. F). This shows that the AJT30 requires an overcurrent of 320 amperes to open in 0.1 second.
- The curves can be used in other ways by the designer. For example, if a family has been chosen (i.e. Time Delay Class J AJT) and an opening time of approximately 1 second is required at 3000 amperes, what fuse in the

family best meets this need? Find the 3000 ampere line on the horizontal axis (Pt. G) and follow it up to the 1 second line (Pt. H). The nearest curve to the right is the AJT400. If the point is not near a curve shown, other intermediate curves are available from the factory.

Sometimes the fuse family or type has not been chosen, so a design requirement can be presented to several family characteristic curves. One fuse type will emerge as a good choice. Voltage rating, interrupting rating, physical size, time delay, etc. are all considerations in the final choice.

AJT TIME DELAY / CLASS J

Melting Time -Current Data 1-600 Amperes, 600 Volts AC

