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## **Technical data** Time current trip curves

## Description

Many different time-current trip characteristics are available from ABB in the various versions of miniature circuit breakers. These various trip characteristics may meet the special electrical standards of specific countries and agencies or be specially suited for application oriented protection systems.

The three most common and UL approved trip curves are the types "B", "K"and "Z". These are shown below for a typical 16 through 25 ampere rated breaker. Curves apply to both AC and DC versions.

The "B"curve is for cable protection, with an instantaneous trip point of approximately 3.3 to 5 times breaker continuous rating.

The "K"curve is cable and equipment protection including motors, transformers and other inductive loads where significant levels of in-rush current are possible. Most industrial applications are best protected with the "K" type trip characteristic. The instantaneous trip point is approximately 8 to 12 times the continuous rating of the breaker.

The "Z"curve is designed for the protection of semi-conductors or other devices

## **Time-current trip curves**

Type B Type K Type Z 120 1.05 1.2 1.05 1.2 1.13 1.45 195 120 60 60 ĸ٨ 40 40 40 20 20 20 10 10 10 54 6 4 Virutes 4 Minnes ŝ ŝ 2 ş 2 2 Mus Budduj Integring time **Priddy** \_ 40 40 4D 20 20 20 58 Ð 10 10 ÿ 4 6 ļ 4 4 2 ż 2 0.6 0.6 0.6 0.4 0.4 0.4 ÷ AC 1 <u>\*</u>C 6.2 0.2 DC DC 0.2 DC a.1 0.1 0.1 Е 0.06 0.06 0.06 Е 0.04 0.04 0.04 1 0.02 0.02 0.02 0.01 0.01 0.01 15 56 15 20 5 6 , 8 10 4 8 10 1 30 1.5 2 4 15 20 30 ì 15 20 1.5 à ŝ ŝ 8 30 10 Multiple of rated current -> Trip characteristic Type "Z" Trip characteristic Type"K' Trip characteristic Type "B" I = 0.5...63A I = 0.5...63A I = 6...63A

| Version                   | Ratings                    | Trip Curve |
|---------------------------|----------------------------|------------|
| S270K<br>10-40A<br>50-63A | 0.5-8A<br>TD9706<br>TD9707 | TD9705     |
| S280K<br>10-40A<br>50-63A | 0.2-8A<br>TD9709<br>TD9710 | TD9708     |
| S280Z                     | 0.5-63A                    | TD9711     |
| S260B                     | 6-63A                      | TD9723     |

