RTS

Reflowable
Thermal
Switch

The solution against “Thermal Runaway”

SCHURTER
ELECTRONIC COMPONENTS

RTS – Problem: Thermal Runaway

Thermal Runaway...

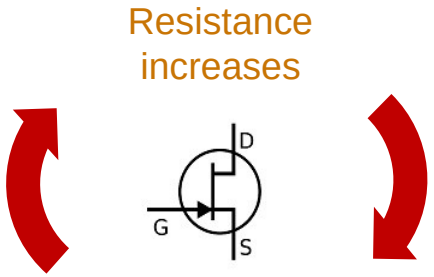
... may happen to power semiconductors which go beyond regular operation. A simplified explanation is: higher temperature causes higher resistance which again causes higher temperatures....

What are the causes?

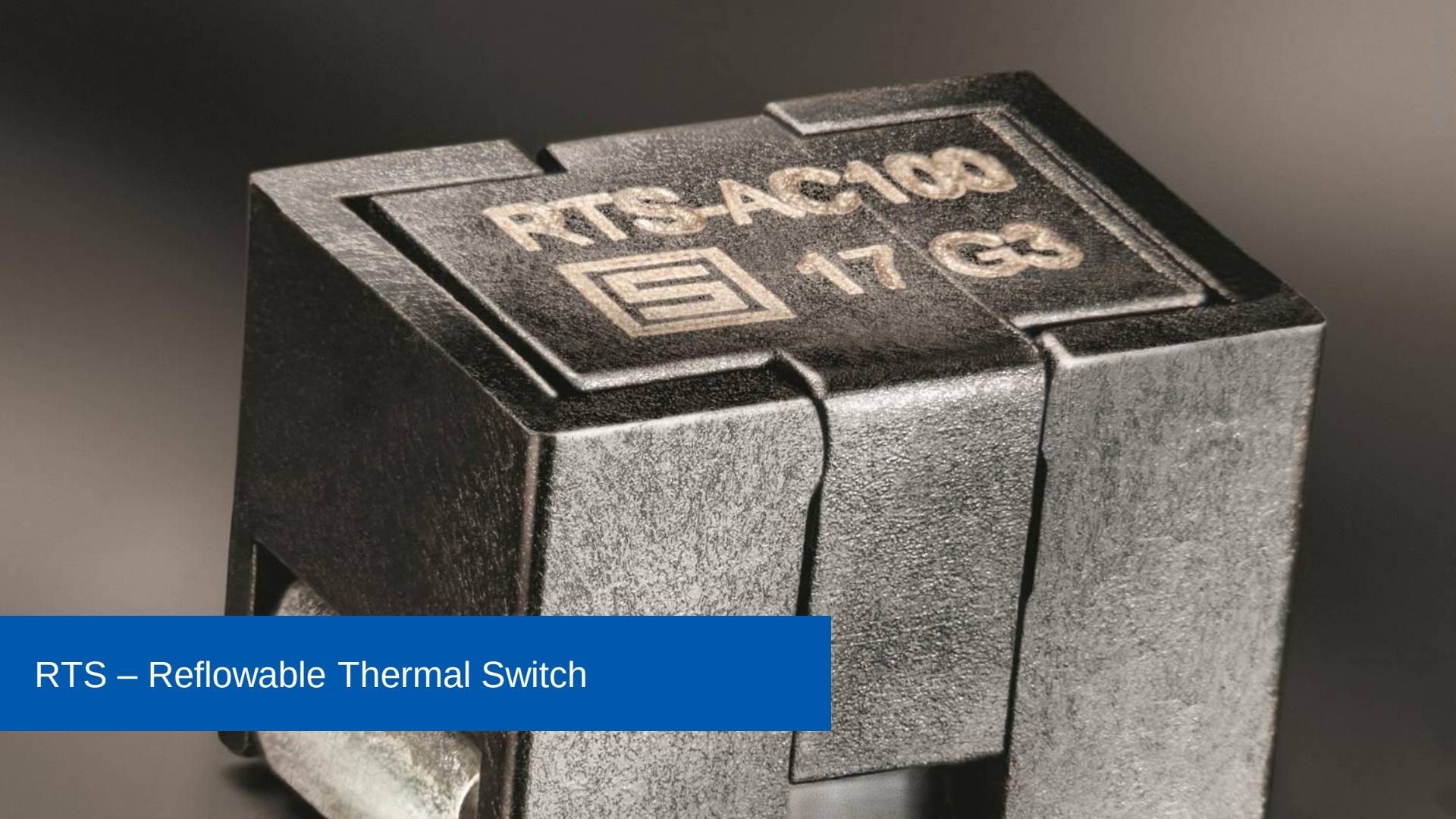
> **Miniaturization & high power applications** cause software-based safety measures, like IC regulators, to fail from time to time.

> Additionally, **harsh environments** may cause cracked, rusty or fatigued components, which increase the risk for a thermal runaway.

→ *For those rare cases a protection based on the **basic laws of physics** is needed.*

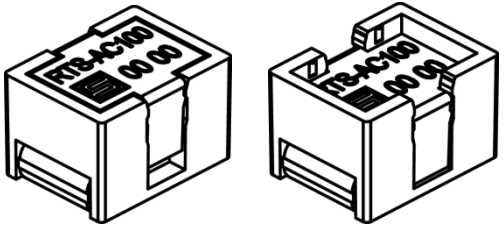


SCHURTER ELECTRONIC COMPONENTS



RTS – Reflowable Thermal Switch

RTS – Reflowable Thermal Switch USP's



Before Reflow

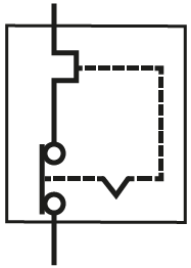
Activation After Reflow

Production cost reduction:

> The RTS can get soldered by **Reflow** @ **260°C**. Through mechanical activation still able to **trip** @ **210°C**

> Optimized for standard SMD processes like pick and place

Circuit Diagram:



Unmatched electrical values:

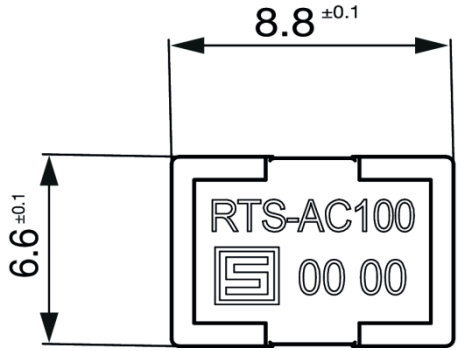
> High rated voltage **60 VDC** → competition: just 16VDC

> High operating current up to 100 A

> Low resistance: < 120µOhm

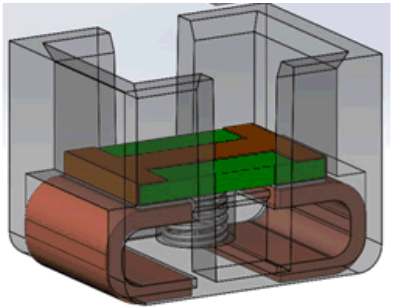
> Very high Breaking Capacity

RTS – Reflowable Thermal Switch USP's



Smallest dimensions:

> Small footprint: 6.6 x 8.8 mm
> Just two contacts are needed on the PCB



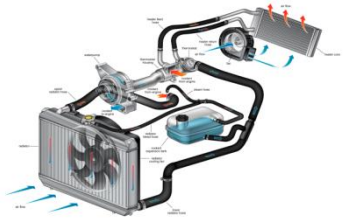
Added value:

> Versions with integrated shunt / fuse → less space on PCB
> Designed to withstand harsh environments according automotive standards: AEC-Q200, MIL-STD

RTS – Automotive Applications

Fulfilling the AEC-Q200 Standard, the RTS is most suited for use in harsh environments such as those found in automotive vehicles. Automotive applications where **high currents** have to be **controlled** using, for example, MOSFET's are:

ABS power steering

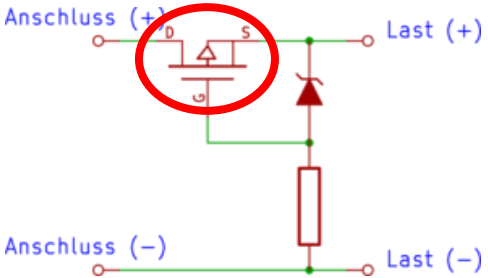


Engine cooling fans

Electrical oil pump

Diesel fuel heaters

Glow plugs



Reverse polarity protection

RTS – Other Applications

There are many other applications where high currents are controlled by power electronics. Depending on the customers demand for safety the RTS might be a great added value for:

Battery protection

Lighting ballasts

High ambient temperatures

Where DC motors need to be able to run forwards and backwards (Robotics)

H-Bridge circuits

Motor drivers

...

RTS – Production Capabilities

- **Fully automated** production with integrated soldering joint testing on each single RTS piece.

- With our actual set up we are ready for high volume projects.

RTS – Further Support

Additional Information:

- RTS Data Sheet
- RTS Video
- Application Note
- Thermal Protection Landing page

- Click on **Partner Services** to download:
  - Latest press releases
  - Training presentations
  - Price list

- Samples are distributed to subsidiaries

Technical Assistance:

- Automotive customers usually need huge quantities and require assistance with integration into a custom PCB is necessary. Please **involve our engineering** in the early stages of any bigger project!

- For further questions please contact the responsible product manager.