

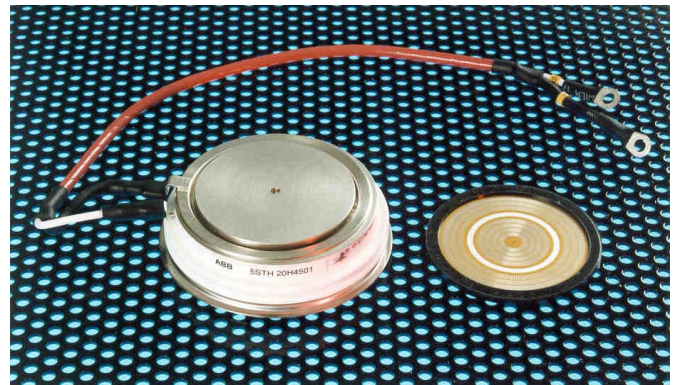
$V_{DRM} = 4.5 \text{ kV}$   
 $V_{RRM} = 18 \text{ V}$   
 $I_{PULSE} = 80 \text{ kA}$   
 $V_{Dcmax} = 2.8 \text{ kV}$

## High current high di/dt switch for Pulsed Power Applications

# 5STH 20H4501

### Features

- Asymmetric design
- For single or repetitive pulse applications
- Very high di/dt capability
- Free Floating Silicon Technology
- Glazed Ceramic Presspack Housing
- High interdigitated gate structure
- Optimized as Closing Switch
- High Reliability



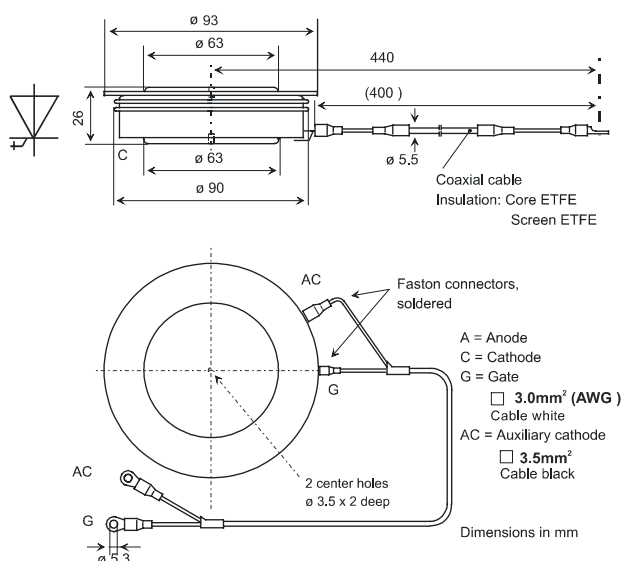
### Electrical Data

$V_{DRM}$	Repetitive peak of-state voltage	4.5 kV	$T_j = 125^\circ\text{C}$
$V_{RRM}$	Repetitive reverse blocking voltage	18 V	$T_j = 125^\circ\text{C}$
$V_{DC}$	Permanent DC voltage for 100 FIT failure rate	2.8 kV	At $T_j \leq 125^\circ\text{C}$ . Ambient cosmic radiation at sea level in open air.
$I_{PULSE}$	Max. Pulse Current	80 kA	Half sine wave, $T_j \leq 50^\circ\text{C}$ , $t_p \leq 250 \mu\text{s}$
di/dt	Max. current rate of rise	18 kA/ $\mu\text{s}$	1 Hz
$V_{GT}$	Max. Gate trigger voltage	4.0 V	di/dt (min) 100 A/ $\mu\text{s}$ $T_j = 25^\circ$
$I_{GT}$	Recomm. Gate trigger current	120 A	$t = 20 \mu\text{s}$
$V_t$	Voltage drop	2.36 V 2.42 V	$T_j = 50^\circ\text{C}$ , $I_T = 3000 \text{ A}$ $T_j = 125^\circ\text{C}$ , $I_T = 3000 \text{ A}$
$I^2t$	Limiting load integral	$0.8 \times 10^6 \text{ A}^2\text{s}$	$t_p = 250 \mu\text{s}$ , $T_j = 50^\circ\text{C}$
$V_{T0}$	Threshold voltage	1.28 V	$T_j = 50^\circ\text{C}$ / $T_j = 125^\circ\text{C}$
$r_T$	Slope resistance	0.36 m $\Omega$ 0.38 m $\Omega$	$T_j = 50^\circ\text{C}$ $T_j = 125^\circ\text{C}$
$t_{don}$	Turn-on delay	$\leq 0.9 \mu\text{s}$	

Same device without coaxial gate cable, but fast-on pins: P/N 5STH 2045H0001

### Mechanical Data

F <sub>M</sub>	Mounting force	min.	17 kN
		max.	24 kN
D <sub>p</sub>	Pole-piece diameter		63 mm
H	Housing thickness		26 mm
M	Weight		0,8 kg
D <sub>S</sub>	Surface creepage distance		22 mm
D <sub>a</sub>	Air strike distance		13 mm



### Thermal Data

T <sub>A</sub>	Ambient Temp.	min.	- 40 °C
		max.	125 °C
T <sub>vjm</sub>	Max. Junction Temperature		125 °C
R <sub>thJC</sub>	Thermal resistance junction - case		0.030 K/W (anode side cooling)
			0.039 K/W (cathode side cooling)
			0.017 K/W (double side cooling)
R <sub>thCH</sub>	Thermal resistance case – heatsink		0.010 K/W (one side cooled)
			0.005 K/W (double side cooled)



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