

**Axial Lead Diode**

High temperature schottky barrier diodes

**Forward Current: 30 A**

**Reverse Voltage: 20 to 60 V**

**SBH 3020 ... SBH 3060**

Preliminary Data

**Features**

- Max. solder temperature: 260°C
- Plastic material has UL classification 94V-0

**Typical Applications\***

- Designed as Bypass Diodes for Solar Panels
- Protection application

**Mechanical Data**

- Plastic case: 8 x 7,5 [mm]
- Weight approx.: 2,4 g
- Terminals: plated terminals solderable per MIL-STD-750
- Mounting position: any
- Standard packaging: 500 pieces per ammo or 1000 pieces per reel

**Footnotes**

- <sup>1)</sup>  $I_F = - A, I_R = - A, I_{RR} = - A$
- <sup>2)</sup>  $I_F = 5 A, T_j = 25 \text{ }^\circ\text{C}$
- <sup>3)</sup>  $I_F = 30 A, T_j = 25 \text{ }^\circ\text{C}$
- <sup>4)</sup> Valid, if leads are kept at  $T_A$  at a distance of 0 mm from case
- <sup>5)</sup> Max. junction temperature  $T_j \leq 175 \text{ }^\circ\text{C}$  in reverse mode ( $V_R = 80\% V_{RRM}$ ) in reverse mode,  $T_j \leq 200 \text{ }^\circ\text{C}$  in bypass mode
- <sup>6)</sup> Thermal resistance from junction to lead/terminal at distance 0 mm from case

Type	Repetitive peak reverse voltage $V_{RRM}$ V	Surge peak reverse voltage $V_{RSM}$ V	Max. reverse recovery time $t_{rr}^{1)}$ ns	Max. forward voltage $V_F^{2)}$ V	Max. forward voltage $V_F^{3)}$ V
SBH 3020	20	20	-	0,43	0,6
SBH 3030	30	30	-	0,43	0,6
SBH 3040	40	40	-	0,43	0,6
SBH 3045	45	45	-	0,43	0,6
SBH 3050	50	50	-	0,53	0,7
SBH 3060	60	60	-	0,53	0,7

Absolute Maximum Ratings				
Symbol	Conditions	Values	Unit	
<b><math>T_a = 25 \text{ }^\circ\text{C}</math>, unless otherwise specified</b>				
$I_{FAV}$	R-load, <sup>4)</sup> , $T_a = 50 \text{ }^\circ\text{C}$	30	A	
$I_{FRM}$	$f > 15 \text{ Hz}$ , <sup>4)</sup>	90	A	
$I_{FSM}$	half sinus-wave $T_a = 25 \text{ }^\circ\text{C}$	$t_p = 10 \text{ ms}$	700	A
		$t_p = 8.3 \text{ ms}$		A
$i^2t$	$T_a = 25 \text{ }^\circ\text{C}$	$t_p = 10 \text{ ms}$	2450	A <sup>2</sup> s
		$t_p = 8.3 \text{ ms}$		A <sup>2</sup> s
$T_j$	Operating junction temperature	-50 ... +175	°C	
$T_j$	DC forward (bypass) mode <sup>5)</sup>	-50 ... +200	°C	
$T_{stg}$	Storage temperature	-50 ... +175	°C	

Characteristics					
Symbol	Conditions	min.	typ.	max.	Unit
<b><math>T_a = 25 \text{ }^\circ\text{C}</math>, unless otherwise specified</b>					
$I_R$	$T_j = 25 \text{ }^\circ\text{C}, V_R = V_{RRM}$			150	$\mu\text{A}$
$I_R$	$T_j = 100 \text{ }^\circ\text{C}, V_R = V_{RRM}$				mA
$C_j$	at 1 MHz and applied reverse voltage of 4 V		-		pF
$E_{RSM}$	$L = 60 \text{ mH}, T_j = 25 \text{ }^\circ\text{C}$ , inductive load switched off		-		mJ
$R_{th(j-a)}$	<sup>4)</sup>			-	K/W
$R_{th(j-L)}$	<sup>6)</sup>			2.5	K/W



**Diode**

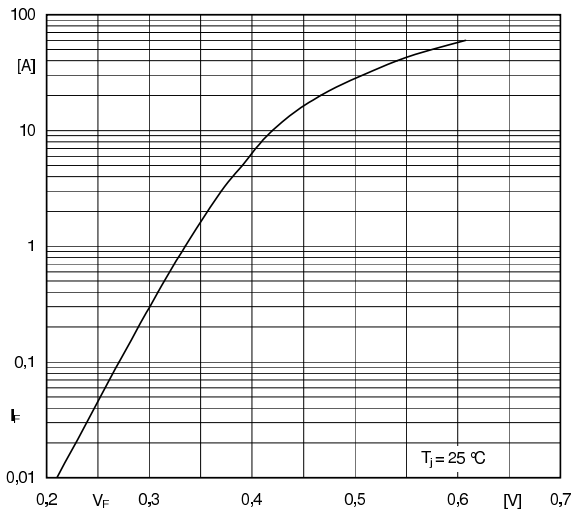


Fig. 1: Forward characteristics (typical value)

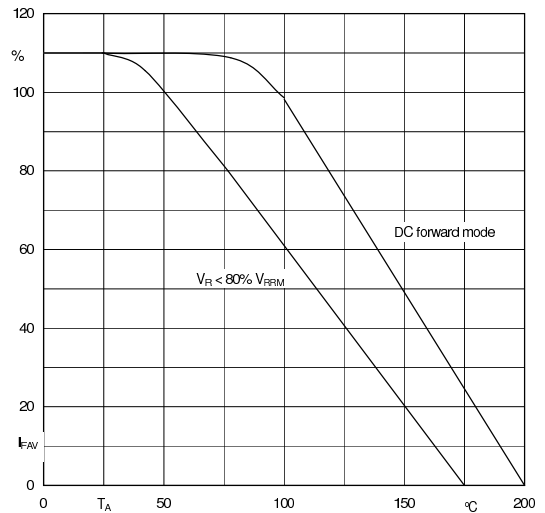


Fig. 2: Rated forward current vs. ambient temperature <sup>1)</sup>

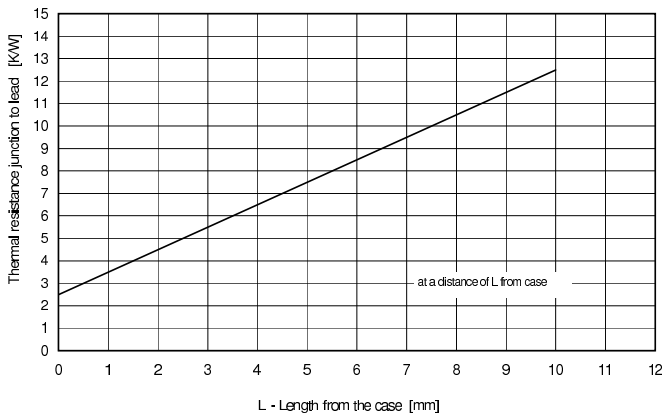
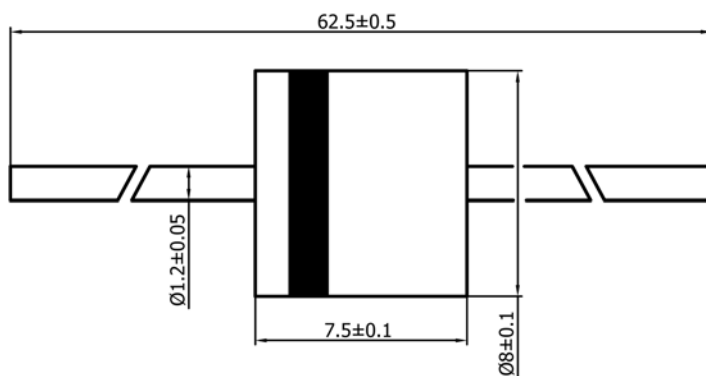


Fig. 3: Thermal resistance versus distance from case



Case: 8 x 7,5 [mm]

This is an electrostatic discharge sensitive device (ESDS), international standard IEC 60747-1, Chapter IX

\* The specifications of our components may not be considered as an assurance of component characteristics. Components have to be tested for the respective application. Adjustments may be necessary. The use of SEMIKRON products in life support appliances and systems is subject to prior specification and written approval by SEMIKRON. We therefore strongly recommend prior consultation of our staff.