

MSKSEMI 美森科

SEMICONDUCTOR



ESD



TVS



TSS



MOV



GDT



PLED

STPS3H100xx-MS

Product specification

Description

These Schottky rectifiers are designed for high frequency miniature switched mode power supplies such as adaptators and on board DC/DC converters. They are available in SMB, and low profile SMB.

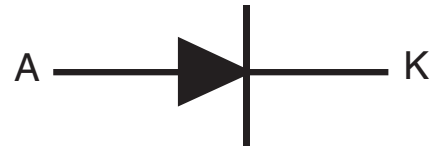
Features

- Negligible switching losses
- High junction temperature capability
- Low leakage current
- Good trade-off between leakage current and forward voltage drop
- Avalanche capability specified

Reference News

STPS3H100U-MS	MARKING
 DO-214AA(SMB)	

STPS3H100UF-MS	MARKING
 SMBF	



Device summary

Symbol	Value
$I_{F(AV)}$	3 A
V_{RRM}	100 V
$T_j(max)$	175 °C
$V_F (max)$	0.68 V

Characteristics

Absolute Ratings (limiting values)

Symbol	Parameter			Value	Unit
V_{RRM}	Repetitive peak reverse voltage			100	V
$I_{F(AV)}$	Average forward current	SMB	$T_L = 115\text{ °C } \delta = 0.5$	3	A
		SMBF	$T_L = 140\text{ °C } \delta = 0.5$		
I_{FSM}	Surge non repetitive forward current		$t_p = 10\text{ ms sinusoidal}$	75	A
P_{ARM}	Repetitive peak avalanche power		$t_p = 1\text{ }\mu\text{s } T_j = 25\text{ °C}$	2400	W
T_{stg}	Storage temperature range			-65 to + 175	°C
T_j	Operating junction temperature ⁽¹⁾			175	°C

Thermal resistance

Symbol	Parameter		Value	Unit
$R_{th(j-l)}$	Junction to lead	SMB	25	°C/W
		SMBF	15	

Static electrical characteristics

Symbol	Parameter	Test conditions		Min.	Typ.	Max.	Unit
$I_R^{(1)}$	Reverse leakage current	$T_j = 25\text{ °C}$	$V_R = V_{RRM}$	-	-	1	μA
		$T_j = 125\text{ °C}$		-	0.4	1	mA
$V_F^{(2)}$	Forward voltage drop	$T_j = 25\text{ °C}$	$I_F = 3\text{ A}$	-	-	0.84	V
		$T_j = 125\text{ °C}$		-	0.63	0.68	
		$T_j = 25\text{ °C}$	$I_F = 6\text{ A}$	-	-	0.92	
		$T_j = 125\text{ °C}$		-	0.71	0.76	

1. Pulse test: $t_p = 5\text{ ms}$, $\delta < 2\%$

2. Pulse test: $t_p = 380\text{ }\mu\text{s}$, $\delta < 2\%$

To evaluate the conduction losses use the following equation:

$$P = 0.6 \times I_{F(AV)} + 0.027 I_F^2_{(RMS)}$$

Figure 1. Average forward power dissipation versus average forward current

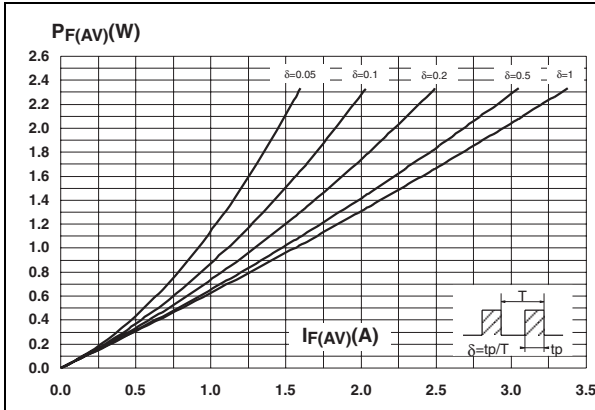


Figure 2. Average forward current versus ambient temperature ($\delta = 0.5$)

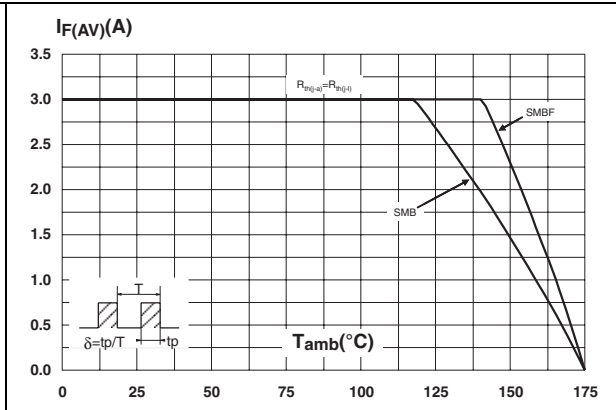


Figure 3. Normalized avalanche power derating versus pulse duration

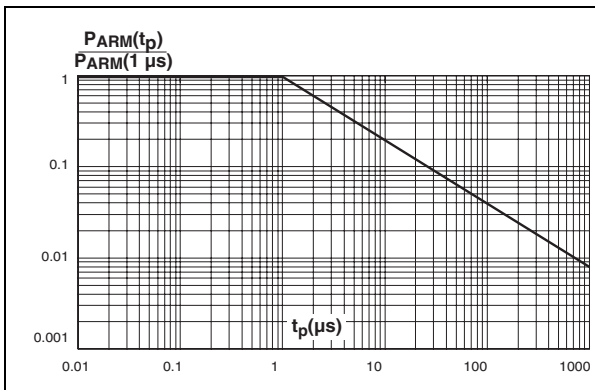


Figure 4. Normalized avalanche power derating versus junction temperature

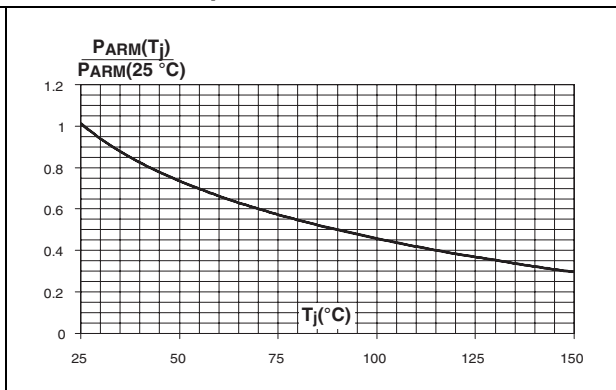


Figure 5. Non repetitive surge peak forward current versus overload duration (maximum values) (SMB)

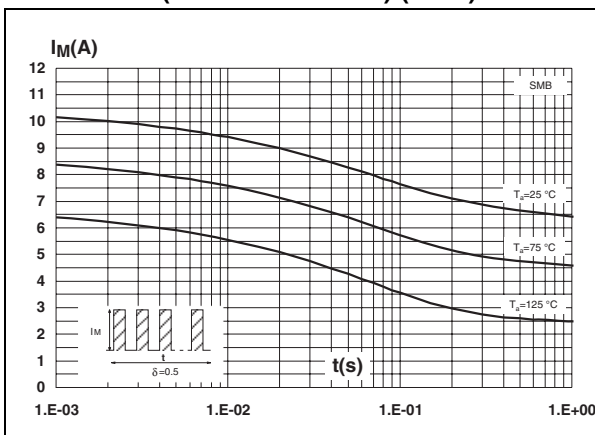


Figure 6. Non repetitive surge peak forward current versus overload duration (maximum values) (SMBF)

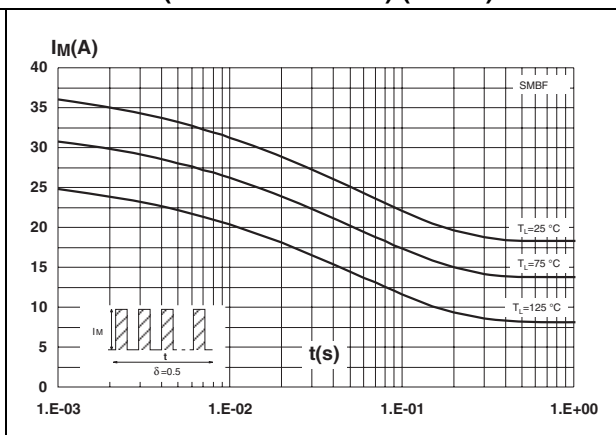


Figure 7. Relative variation of thermal impedance junction to ambient versus pulse duration (SMB)

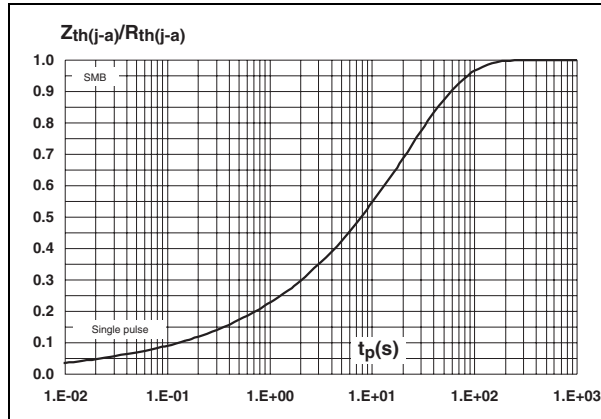


Figure 8. Relative variation of thermal impedance junction to lead versus pulse duration (SMBF)

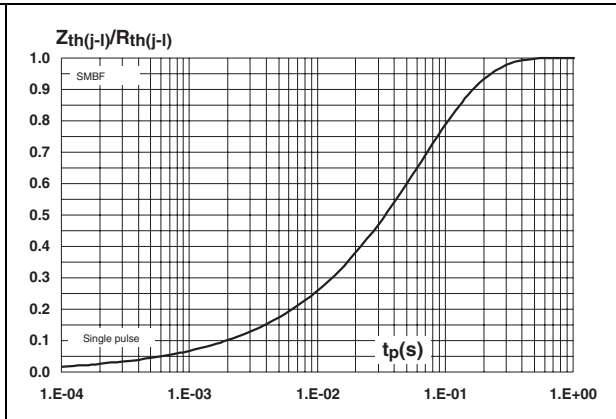


Figure 9. Reverse leakage current versus reverse voltage applied (typical values)

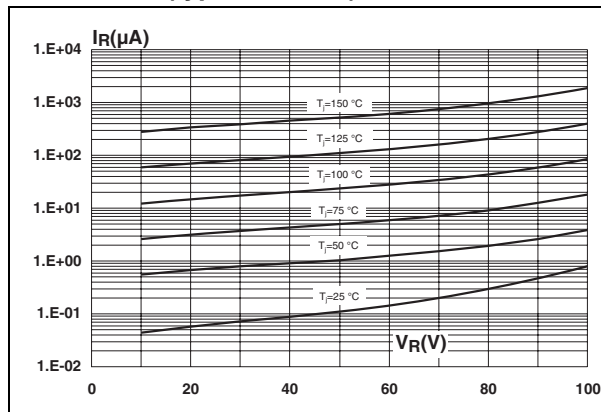


Figure 10. Junction capacitance versus reverse voltage applied (typical values)

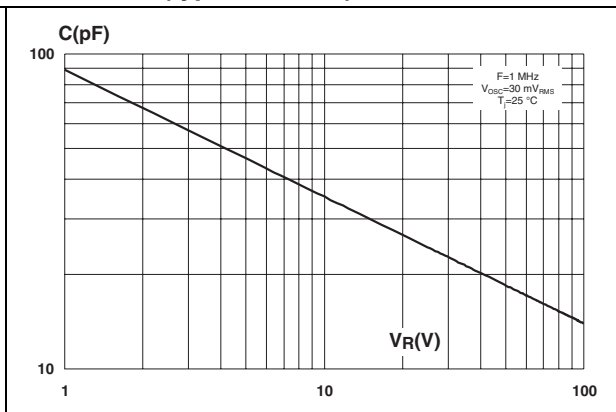


Figure 11. Forward voltage drop versus forward current

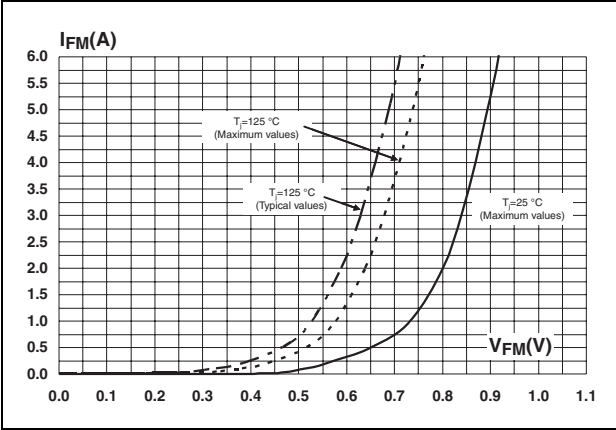


Figure 12. Thermal resistance junction to ambient versus copper surface under each lead (SMB)

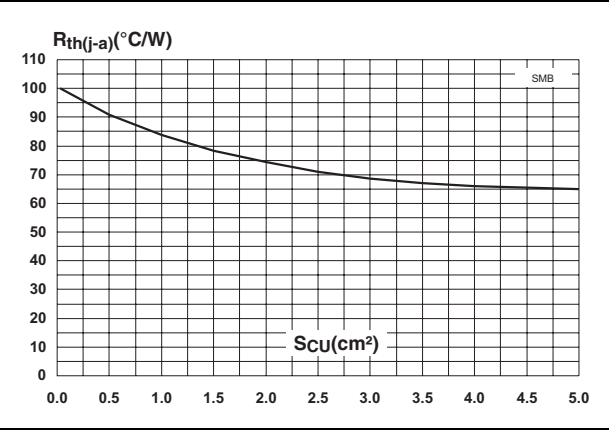
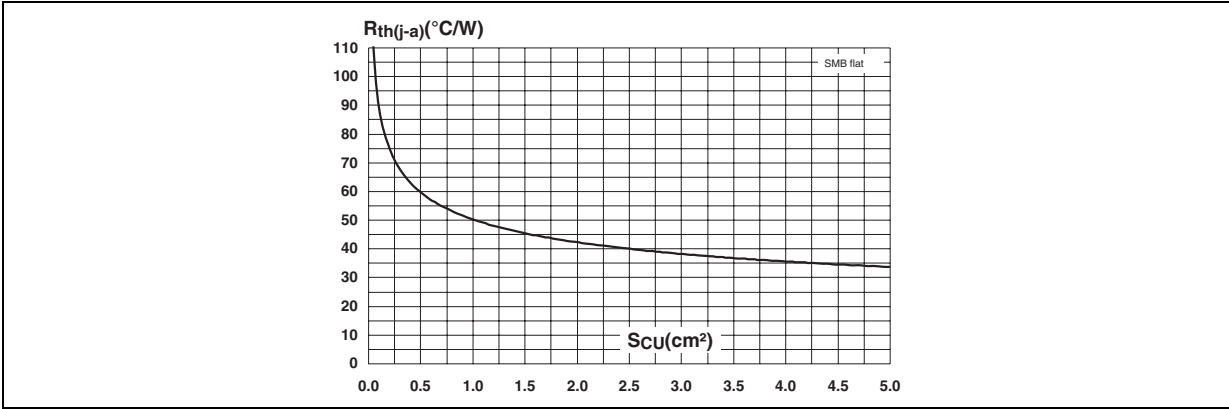
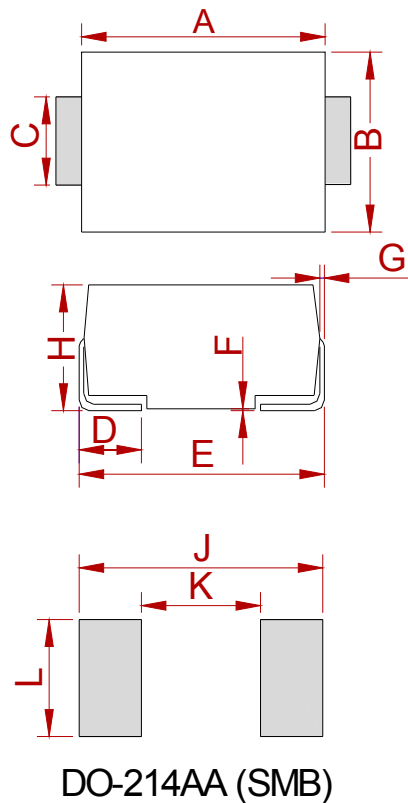


Figure 13. Thermal resistance junction to ambient versus copper surface under each lead (SMBflat)



PACKAGE MECHANICAL DATA

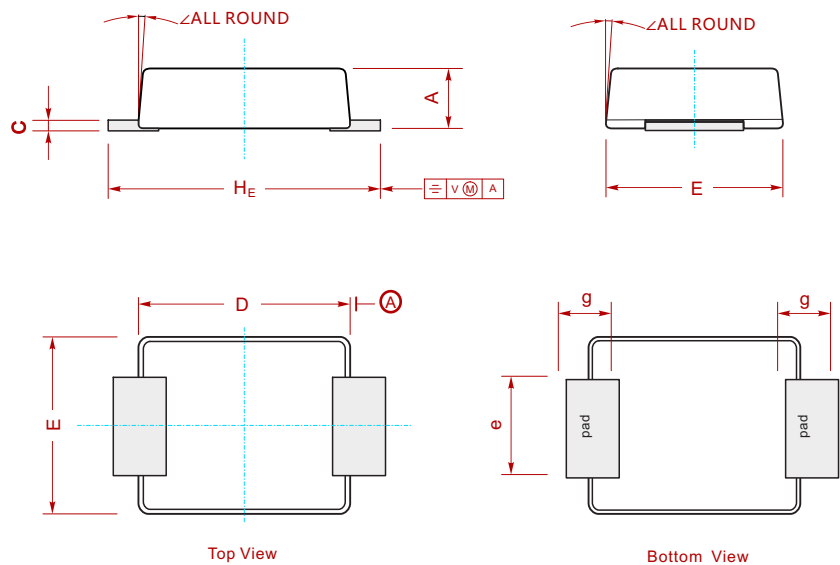


Ref.	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	4.25	4.75	0.167	0.187
B	3.30	3.94	0.130	0.155
C	1.85	2.21	0.073	0.087
D	0.76	1.52	0.030	0.060
E	5.08	5.59	0.200	0.220
F	0.051	0.203	0.002	0.008
G	0.15	0.31	0.006	0.012
H	2.11	2.44	0.083	0.096
J	6.80		0.270	
K		2.60		0.100
L	2.40		0.090	

REELSPECIFICATION

P/N	PKG	QTY
STPS3H100U-MS	DO-214AA (SMB)	2500

PACKAGEECHANICALDATA



UNIT		A	C	D	E	H _E	e	g	∠
mm	max	1.3	0.26	4.4	3.7	5.5	2.2	1.0	9°
	min	1.1	0.18	4.2	3.5	5.1	1.9		
mil	max	51	10	173	146	216	86	40	
	min	43	7	165	138	200	75		

Order information

P/N	PKG	QTY
STPS3H100UF-MS	SMBF	5000

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