

MSKSEMI 美森科

SEMICONDUCTOR



ESD



TVS



TSS



MOV



GDT



PLED

STPS1H100xx-MS

Product specification

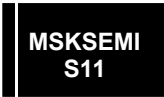
Description

Schottky rectifiers designed for high frequency miniature switched mode power supplies such as adaptators and on board DC/DC converters. Packaged in SMA, SMAflat or SMB.

Features

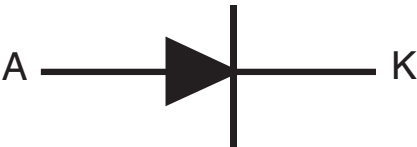
- Negligible switching losses
- Low forward and reverse recovery times
- High junction temperature

Reference News

STPS1H100A-MS	MARKING
 DO-214AC(SMA)	
STPS1H100U-MS	MARKING
 DO-214AA(SMB)	
STPS1H100AF-MS	MARKING
 SMAF	

Device summary

$I_{F(AV)}$	1 A
V_{RRM}	100 V
$T_j(max)$	175 °C
$V_F(max)$	0.62 V



Characteristics

Absolute ratings (limiting values)

Symbol	Parameter	Value	Unit
V_{RRM}	Repetitive peak reverse voltage	100	V
$I_{F(RMS)}$	RMS forward voltage	10	A
$I_{F(AV)}$	Average forward current	1	A
I_{FSM}	Surge non repetitive forward current	50	A
I_{RRM}	Repetitive peak reverse current	1	A
I_{RSM}	Non repetitive peak reverse current	1	A
P_{ARM}	Repetitive peak avalanche power	1500	W
T_{stg}	Storage temperature range	-65 to + 175	°C
T_j	Maximum operating junction temperature ⁽¹⁾	175	°C
dV/dt	Critical rate of rise of reverse voltage	10000	V/μs

1. $\frac{dP_{tot}}{dT_j} < \frac{1}{R_{th(j-a)}}$ condition to avoid thermal runaway for a diode on its own heatsink

Thermal resistance

Symbol	Parameter	Value	Unit
$R_{th(j-l)}$	Junction to lead	SMA	30
		SMB	25
		SMAF	25
			°C/W

Static electrical characteristics

Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
$I_R^{(1)}$	Reverse leakage current	$T_j = 25\text{ °C}$			4	μA
		$T_j = 125\text{ °C}$		0.2	0.5	mA
$V_F^{(2)}$	Forward voltage drop	$T_j = 25\text{ °C}$			0.77	V
		$T_j = 125\text{ °C}$		0.58	0.62	
		$T_j = 25\text{ °C}$			0.86	
		$T_j = 125\text{ °C}$		0.65	0.7	

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

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

To evaluate the conduction losses use the following equation:

$$P = 0.54 \times I_{F(AV)} + 0.08 I_{F(RMS)}^2$$

Figure 1. Average forward power dissipation versus average forward current

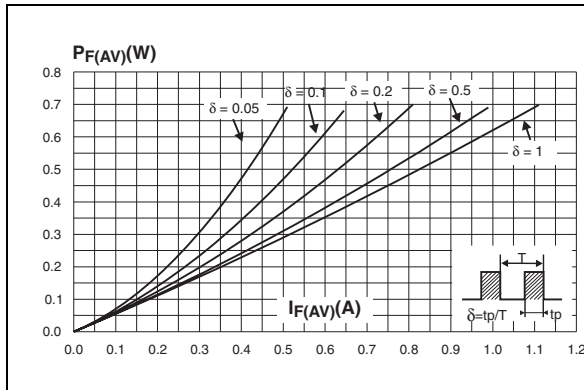


Figure 2. Average forward current versus ambient temperature ($\delta = 0.5$)

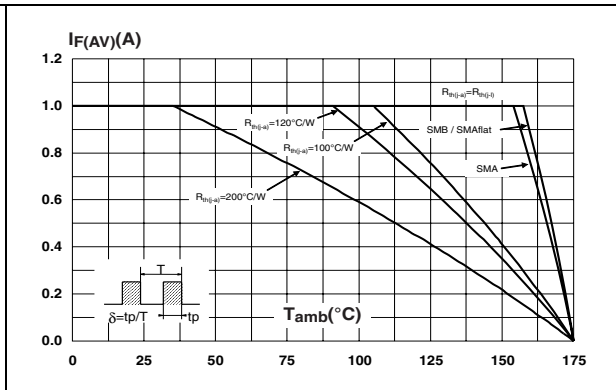


Figure 3. Normalized avalanche power derating versus pulse duration

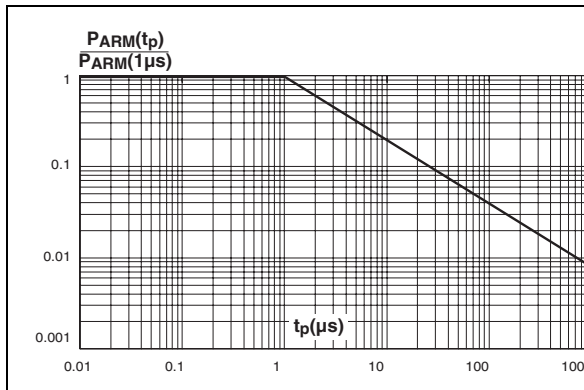


Figure 4. Normalized avalanche power derating versus junction temperature

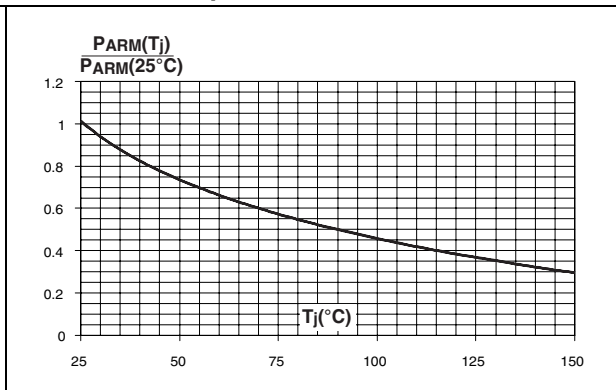


Figure 5. Non repetitive surge peak forward current versus overload duration (maximum values) (SMB)

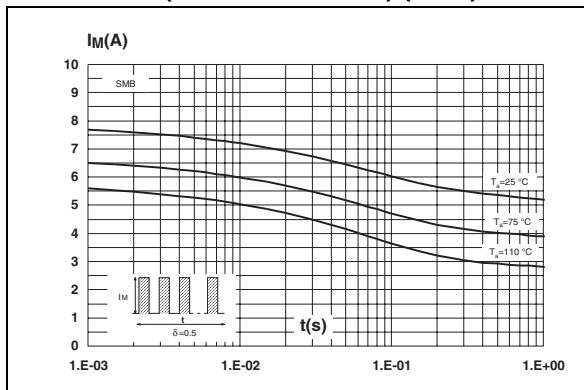


Figure 6. Non repetitive surge peak forward current versus overload duration (maximum values) (SMA)

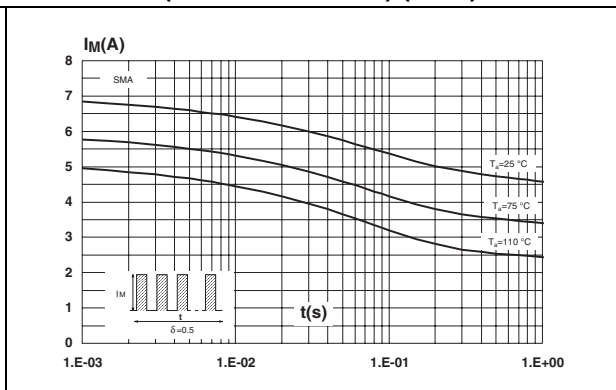


Figure 7. Non repetitive surge peak forward current versus overload duration (maximum values) (SMAF)

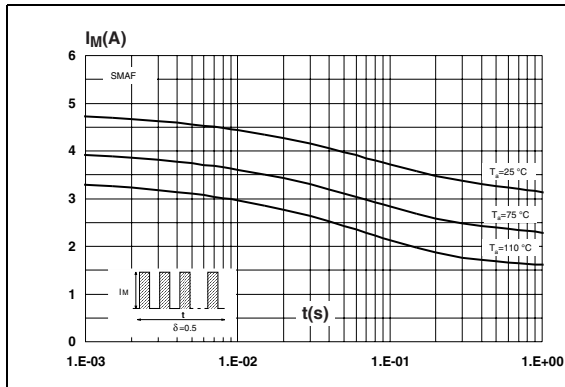


Figure 8. Relative variation of thermal impedance junction to ambient versus pulse duration (SMB)

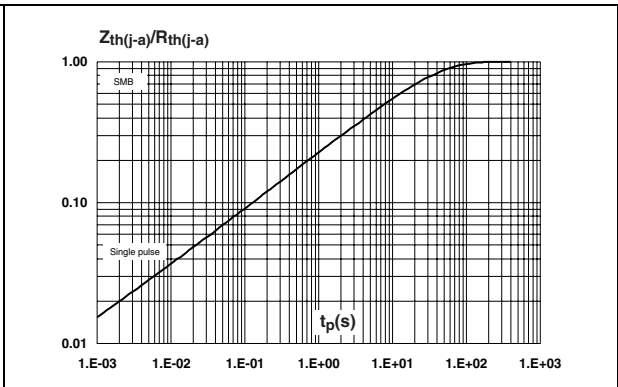


Figure 9. Relative variation of thermal impedance junction to ambient versus pulse duration (SMA)

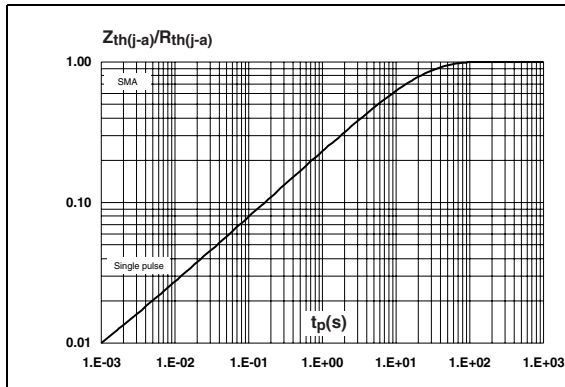


Figure 10. Relative variation of thermal impedance junction to ambient versus pulse duration (SMAF)

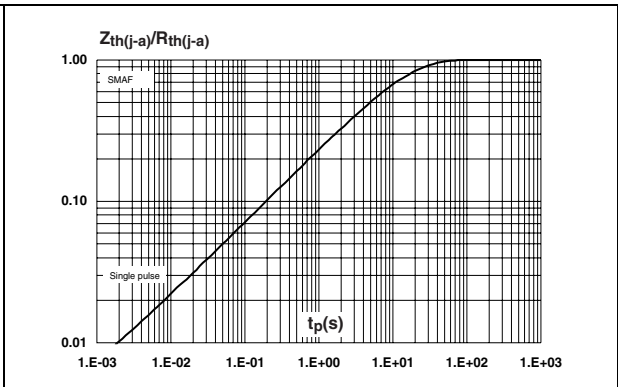


Figure 11. Reverse leakage current versus reverse voltage applied (typical values)

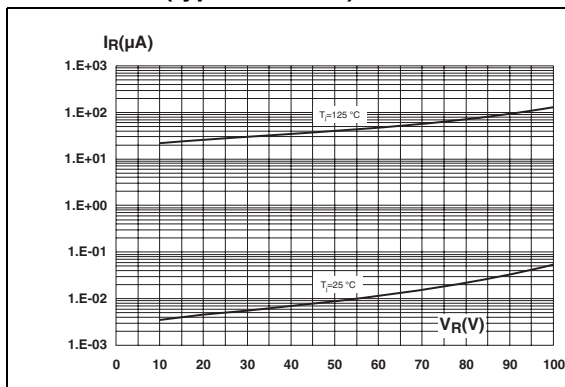


Figure 12. Junction capacitance versus reverse voltage applied (typical values)

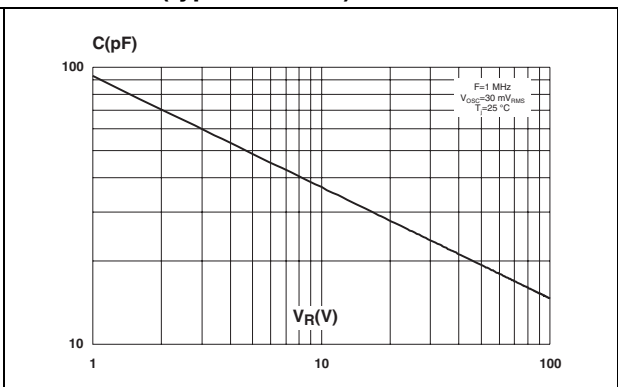


Figure 13. Forward voltage drop versus forward current (maximum values)

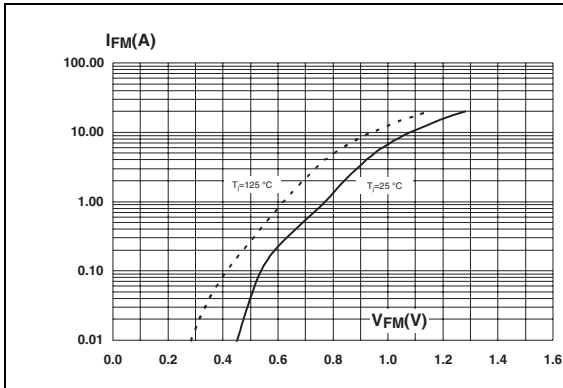


Figure 14. Thermal resistance junction to ambient versus copper surface under each lead (Epoxy printed circuit board FR4, copper thickness: 35 μ m) (SMB)

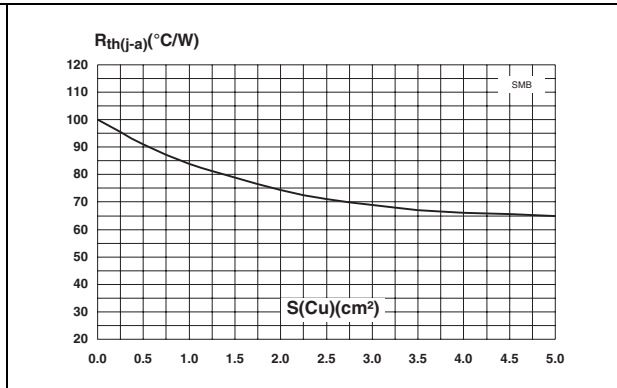


Figure 15. Thermal resistance junction to ambient versus copper surface under each lead (Epoxy printed circuit board FR4, copper thickness: 35 μ m) (SMA)

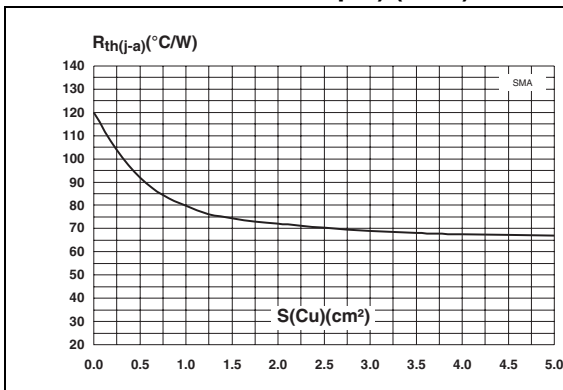
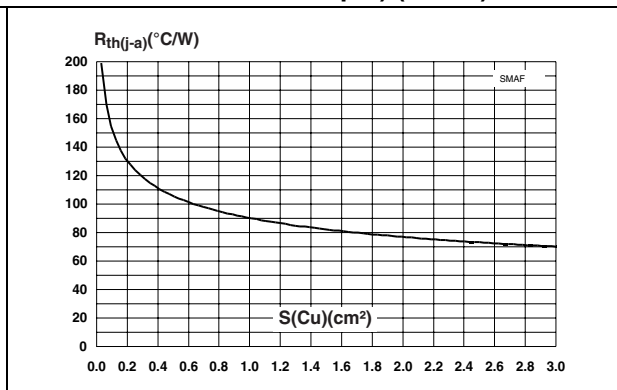
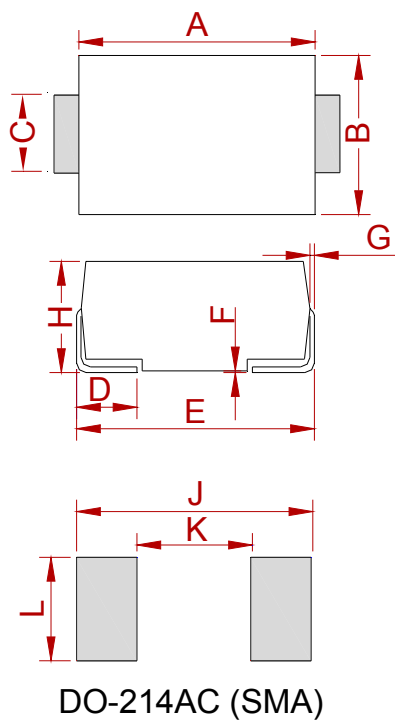


Figure 16. Thermal resistance junction to ambient versus copper surface under each lead (Epoxy printed circuit board FR4, copper thickness: 35 μ m) (SMAF)



PACKAGE MECHANICAL DATA

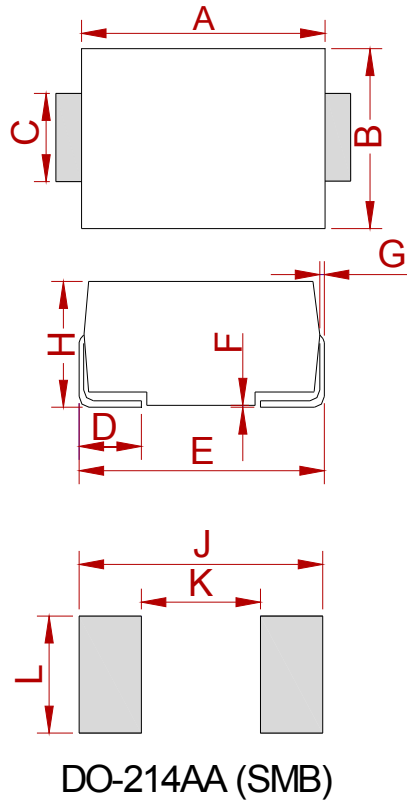


Ref.	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	4.25	4.65	0.167	0.183
B	2.50	2.90	0.098	0.114
C	1.35	1.65	0.053	0.065
D	0.76	1.52	0.030	0.060
E	4.93	5.28	0.194	0.208
F	0.051	0.203	0.002	0.008
G	0.15	0.31	0.006	0.012
H	1.98	2.41	0.078	0.095
J	6.50		0.256	
K		2.30		0.090
L	1.70		0.067	

REEL SPECIFICATION

P/N	PKG	QTY
STPS1H100A-MS	DO-214AC (SMA)	5000

PACKAGE MECHANICAL DATA



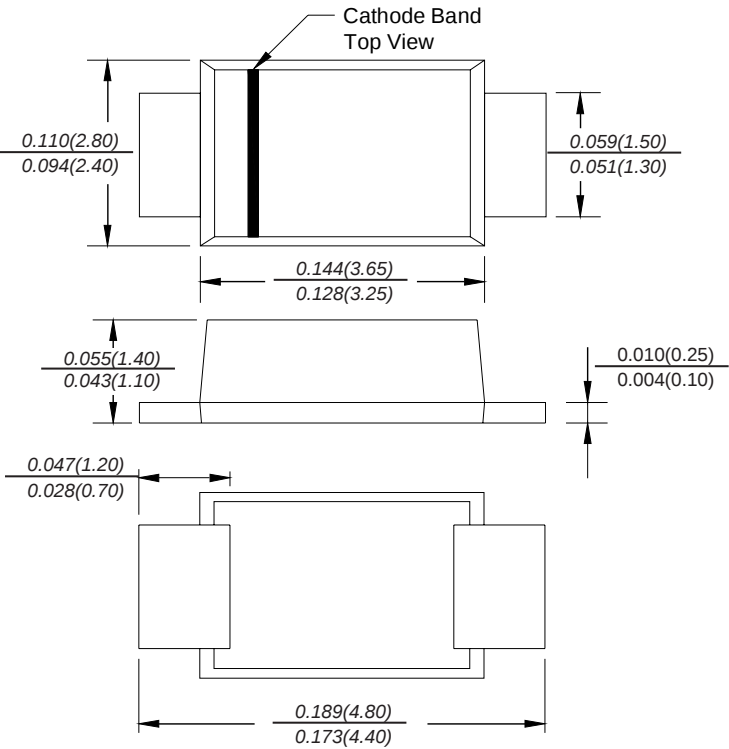
Ref.	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	4.25	4.75	0.167	0.187
B	3.30	3.94	0.130	0.155
C	1.85	2.21	0.073	0.087
D	0.76	1.52	0.030	0.060
E	5.08	5.59	0.200	0.220
F	0.051	0.203	0.002	0.008
G	0.15	0.31	0.006	0.012
H	2.11	2.44	0.083	0.096
J	6.80		0.270	
K		2.60		0.100
L	2.40		0.090	

REEL SPECIFICATION

P/N	PKG	QTY
STPS1H100U-MS	DO-214AA (SMB)	2500

PACKAGE MECHANICAL DATA

SMAF



Dimensions in inches and (millimeters)

REEL SPECIFICATION

P/N	PKG	QTY
STPS3150AFN-MS	SMAF	3000

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