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SEMICONDUCTOR



ESD



TVS



TSS



MOV



GDT



PLED

STPS2200xx-MS

Product specification

Description

This device is a 200 V Schottky rectifier suited for switch mode power supplies and high frequency DC to DC converters.

Packaged in SMB, SMBF, this device is especially intended for use in low voltage, high frequency inverters, freewheeling and polarity protection. Also ideal for all LED lighting applications.

Features

- Low forward voltage drop
- Very small conduction losses
- Negligible switching losses
- Extremely fast switching
- Low thermal resistance
- -40°C minimum operating Tj

Reference News

STPS2200U-MS	MARKING
 DO-214AA(SMB)	

STPS2200UF-MS	MARKING
 SMBF	



Device summary

Symbol	Value
$I_{F(AV)}$	2 A
V_{RRM}	200 V
$T_{j(max)}$	175 °C
$V_{F(typ)}$	0.58 V

Characteristics

Absolute Ratings (limiting values)

Symbol	Parameter			Value	Unit
V _{RRM}	Repetitive peak reverse voltage			200	V
I _{F(RMS)}	Forward rms current			10	A
I _{F(AV)}	Average forward current $\delta = 0.5$, square wave	SMB	T _I = 145 °C	2	A
		SMBF	T _I = 150 °C		
I _{FSM}	Surge non repetitive forward current	t _p = 10 ms sinusoidal, T _I = 25 °C		100	A
T _{stg}	Storage temperature range			-65 to +175	°C
T _j	Operating junction temperature range			-40 to +175	°C

Thermal resistance

Symbol	Parameter		Value	Unit
$R_{th(j-l)}$	Junction to lead	SMB	20	$^{\circ}\text{C/W}$
		SMBF	15	

Static electrical characteristics

Symbol	Test conditions			Min.	Typ.	Max.	Unit
$I_R^{(1)}$	Reverse leakage current	$T_j = 25\text{ }^{\circ}\text{C}$	$V_R = V_{RRM}$			5	μA
		$T_j = 125\text{ }^{\circ}\text{C}$			0.7	2.5	mA
$V_F^{(1)}$	Forward voltage drop	$T_j = 25\text{ }^{\circ}\text{C}$	$I_F = 2\text{ A}$		0.73	0.80	V
		$T_j = 125\text{ }^{\circ}\text{C}$			0.58	0.64	V

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

To evaluate the maximum conduction losses use the following equation:

$$P = 0.58 \times I_{F(AV)} + 0.03 I_{F(RMS)}^2$$

Note: More information is available in the application notes:

AN604 Calculation of conduction losses in a power rectifier

AN4021 Calculation of reverse losses in a power diode

Figure 1. Average forward power dissipation versus average forward current

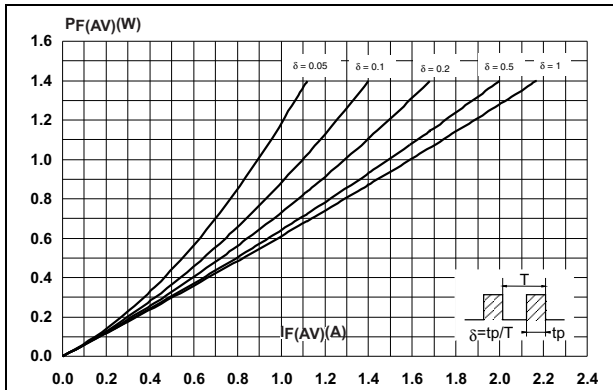


Figure 2. Forward voltage drop versus forward current

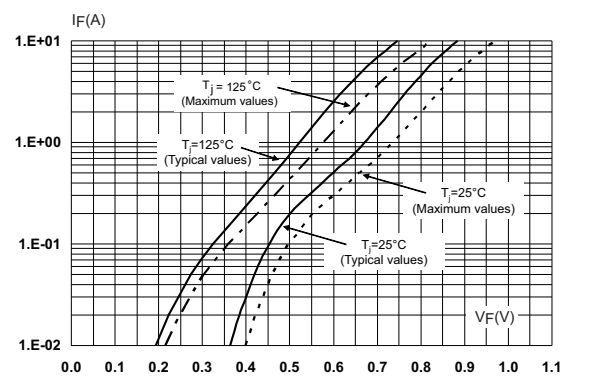


Figure 3. Reverse leakage current versus reverse voltage applied (typical values)

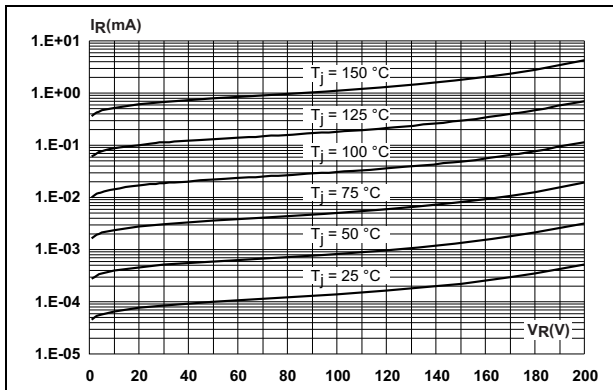


Figure 4. Junction capacitance versus reverse voltage applied (typical values)

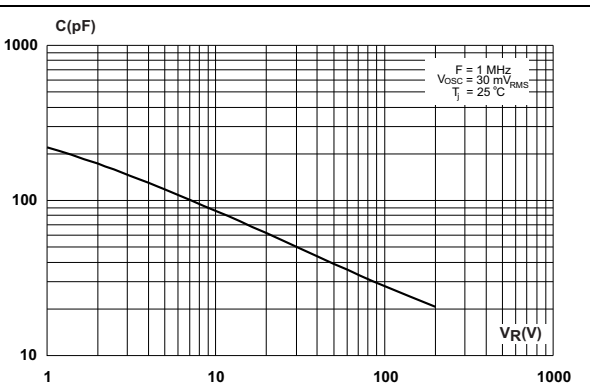


Figure 5. Relative variation of thermal impedance junction to lead versus pulse duration (SMB)

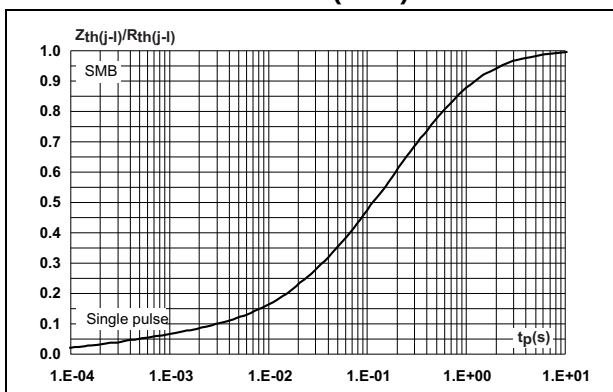


Figure 6. Relative variation of thermal impedance junction to lead versus pulse duration (SMBF)

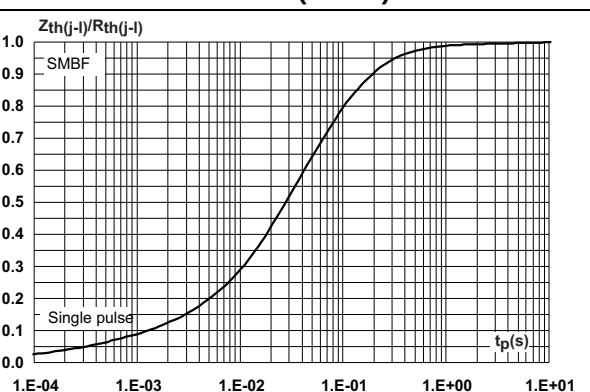


Figure 7. Thermal resistance junction to ambient versus copper surface under each lead (SMB)

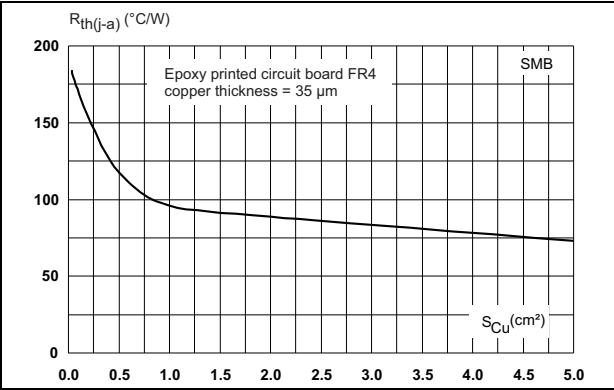
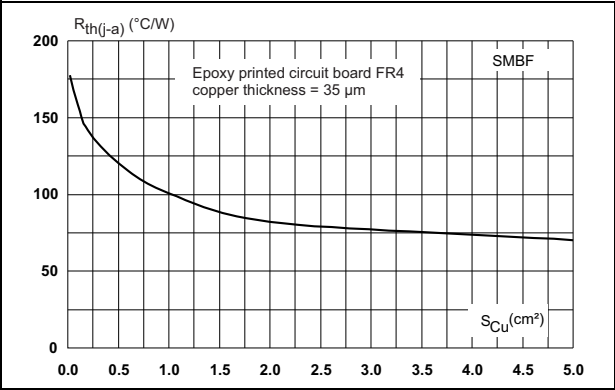
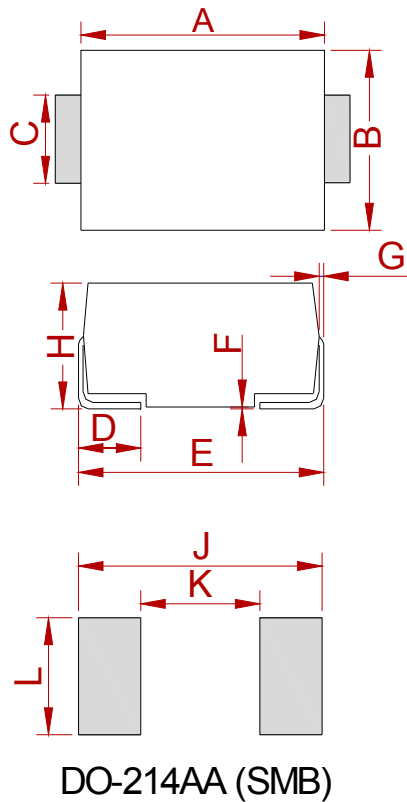


Figure 8. Thermal resistance junction to ambient versus copper surface under each lead (SMBF)



PACKAGE MECHANICAL DATA

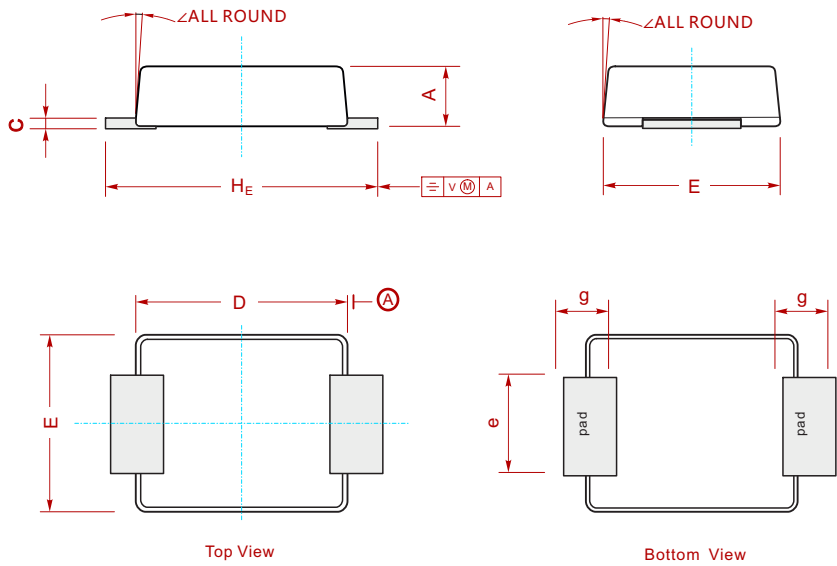


Ref.	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	4.25	4.75	0.167	0.187
B	3.30	3.94	0.130	0.155
C	1.85	2.21	0.073	0.087
D	0.76	1.52	0.030	0.060
E	5.08	5.59	0.200	0.220
F	0.051	0.203	0.002	0.008
G	0.15	0.31	0.006	0.012
H	2.11	2.44	0.083	0.096
J	6.80		0.270	
K		2.60		0.100
L	2.40		0.090	

REEL SPECIFICATION

P/N	PKG	QTY
STPS2200U-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
STPS2200UF-MS	SMBF	5000

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