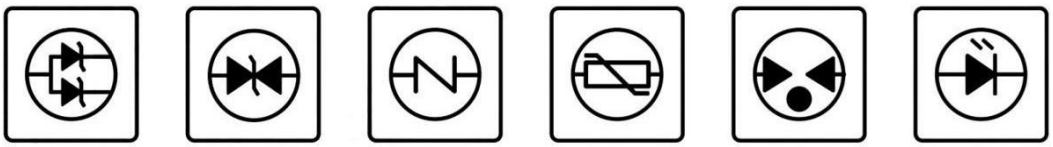
MSKSEMI 美森科
SEMICONDUCTOR



STPS2150x-MS

Product specification

STPS2150x-MS

Power Schottky rectifier

Description

150 V power Schottky rectifiers are suited for switch mode power supplies on up to 24 V rails and high frequency converters.

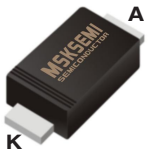
Packaged in SMA, SMA low profile, and axial, this device is intended for use in consumer and computer applications like TV, STB, PC and DVD where low drop forward voltage is required to reduce power dissipation.

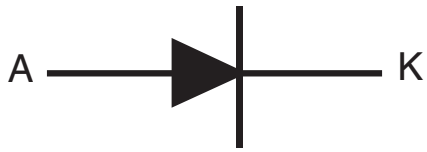
Features

- Negligible switching losses
- Low forward voltage drop for higher efficiency and extented battery life
- Low thermal resistance
- Surface mount miniature package
- Avalanche capability specified

Reference News

STPS2150A-MS	MARKING
 DO-214AC(SMA)	MSKSEMI 2150

STPS2150AF-MS	MARKING
 SMAF	MSKSEMI F2150



Device summary

$I_{F(AV)}$	2 A
V_{RRM}	150 V
T_j(max)	175 °C
V_F(max)	0.67 V

Absolute Ratings (limiting values)

Symbol	Parameter			Value	Unit
V_{RRM}	Repetitive peak reverse voltage			150	V
$I_{F(AV)}$	Average forward current	SMA, SMAF	T_L = 145 °C δ = 0.5	2	A
I_{FSM}	Surge non repetitive forward current	SMA, SMAF	t_p = 10 ms sinusoidal	75	A
P_{ARM}	Repetitive peak avalanche power		tp = 1 µs Tj = 25 °C	2400	W
T_{stg}	Storage temperature range			-65 to + 175	°C
T_j	Maximum operating junction temperature(1)			175	°C

1. $\frac{1}{Rth(j-a)}$ 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, SMAF	20	°C/W

Static Electrical Characteristics

Symbol	Parameter	Tests conditions		Min.	Typ	Max.	Unit
I_R (1)	Reverse leakage current	T_j = 25 °C	$V_R = V_{RRM}$		0.5	1.5	µA
		T_j = 125 °C			0.5	1.5	mA
V_F (2)	Forward voltage drop	T_j = 25 °C	I_F = 2 A		0.78	0.82	V
		T_j = 125 °C			0.62	0.67	
		T_j = 25 °C	I_F = 4 A		0.86	0.89	
		T_j = 125 °C			0.70	0.75	

1. t_p = 5 ms, δ < 2%
2. t_p = 380 µs, δ < 2%

To evaluate the conduction losses use the following equation: $P = 0.59 \times I_{F(AV)} + 0.04\ I_F{}^2{}_{(RMS)}$

Figure 1. Average forward power dissipation versus average forward current

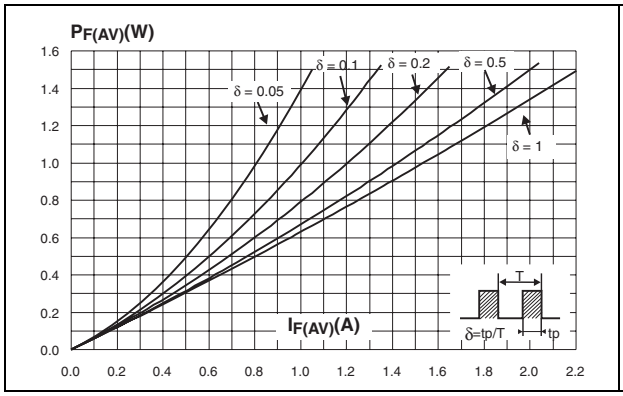


Figure 2. Average forward current versus ambient temperature (δ = 0.5)

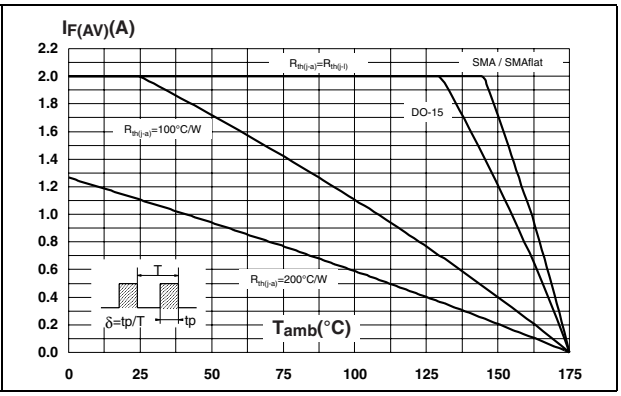


Figure 3. Normalized avalanche power derating versus pulse duration

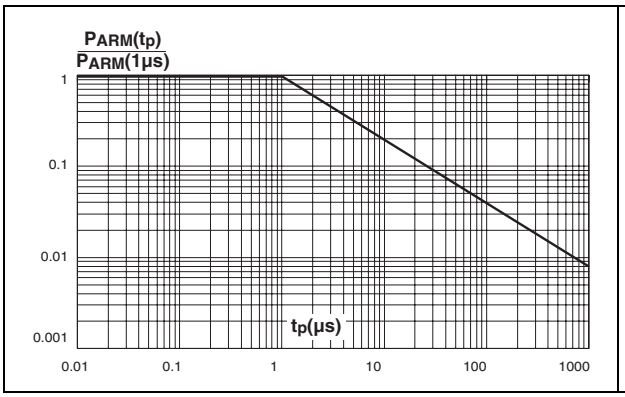


Figure 4. Normalized avalanche power derating versus junction temperature

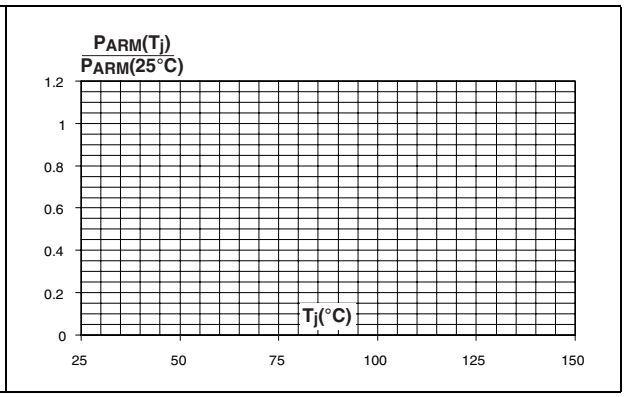


Figure 6. Non repetitive surge peak forward current versus overload duration (maximum values, SMA)

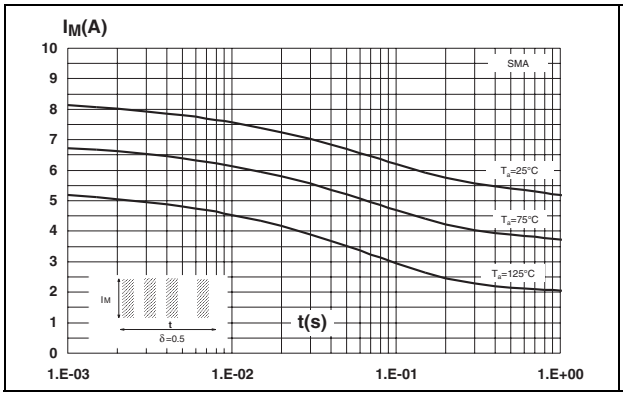


Figure 7. Non repetitive surge peak forward current versus overload duration (maximum values, SMAF)

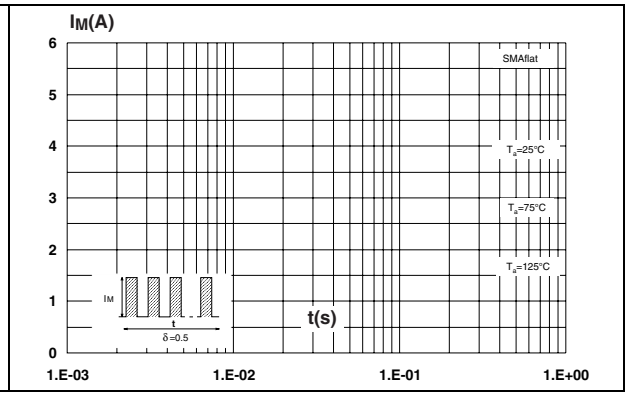


Figure 9. Relative variation of thermal impedance junction to ambient versus pulse duration (SMA)

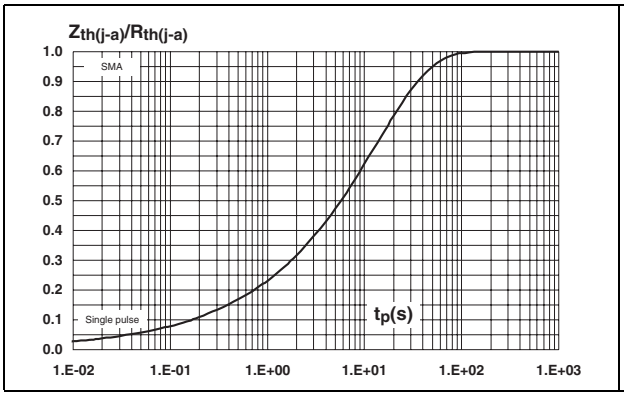


Figure 10. Relative variation of thermal impedance junction to ambient versus pulse duration (SMAF)

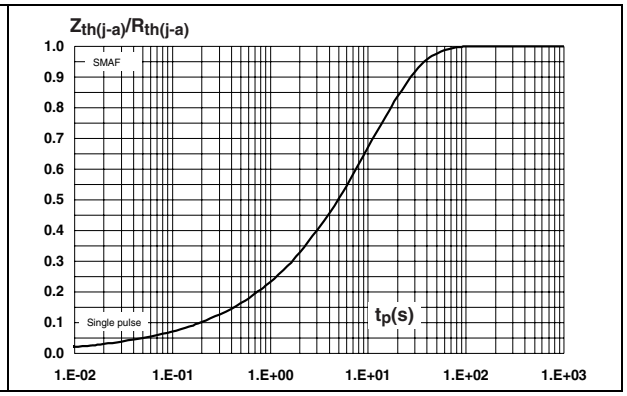


Figure 11. Reverse leakage current versus reverse voltage applied (typical values)

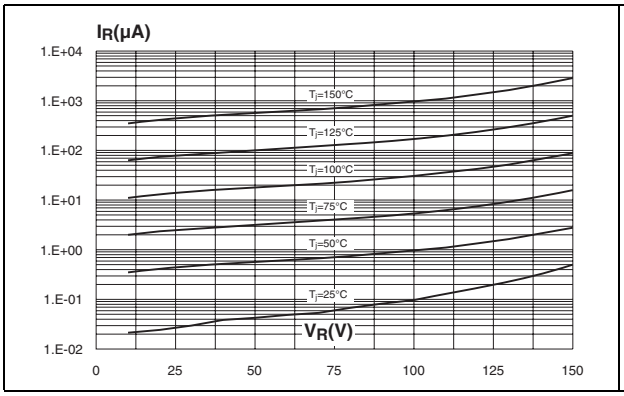


Figure 12. Junction capacitance versus reverse voltage applied (typical values)

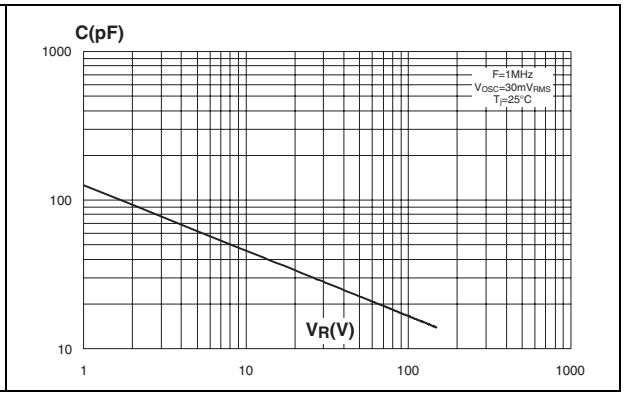


Figure 13. Forward voltage drop versus forward current (maximum values, low level)

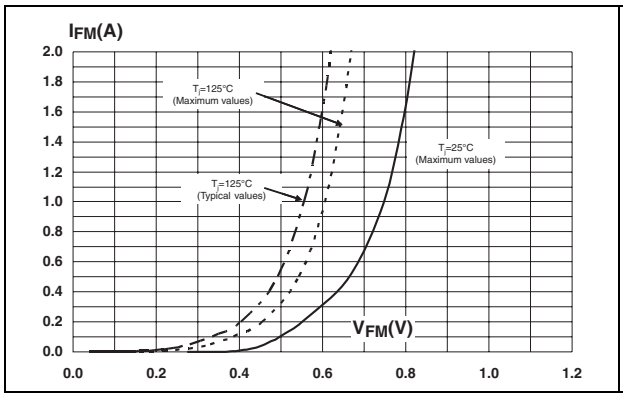


Figure 14. Forward voltage drop versus forward current (maximum values, high level)

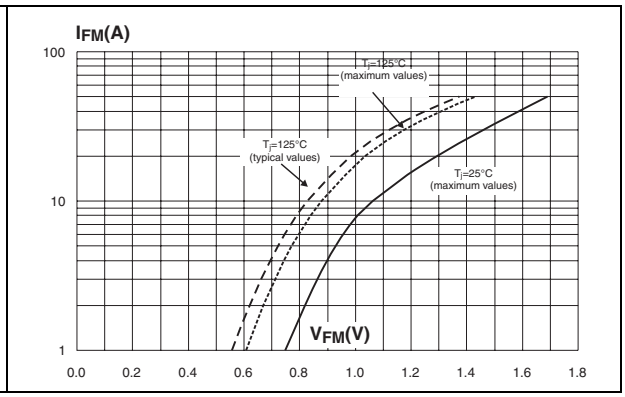


Figure 15. Thermal resistance junction to ambient versus copper surface under each lead - epoxy printed circuit board FR4, copper thickness = 35 µm (SMA)

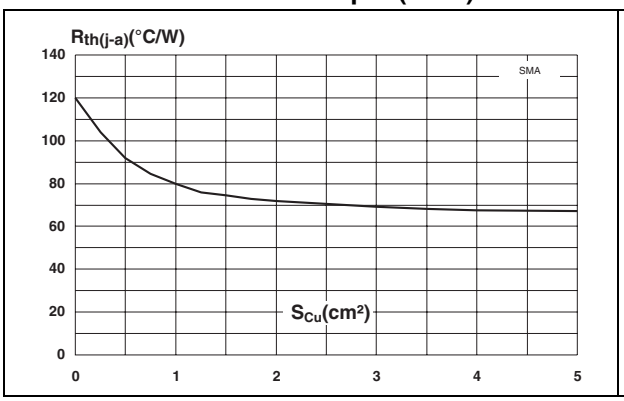
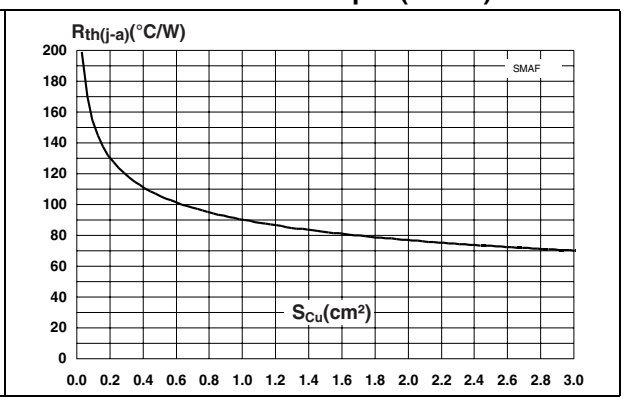
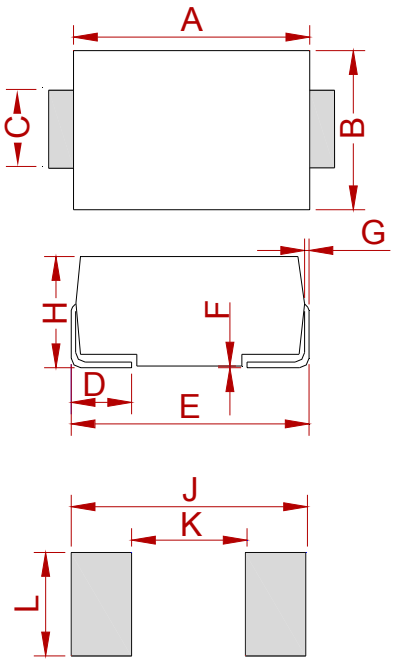


Figure 16. Thermal resistance junction to ambient versus copper surface under each lead - epoxy printed circuit board FR4, copper thickness = 35 µm (SMAF)



PACKAGE MECHANICAL DATA



DO-214AC (SMA)

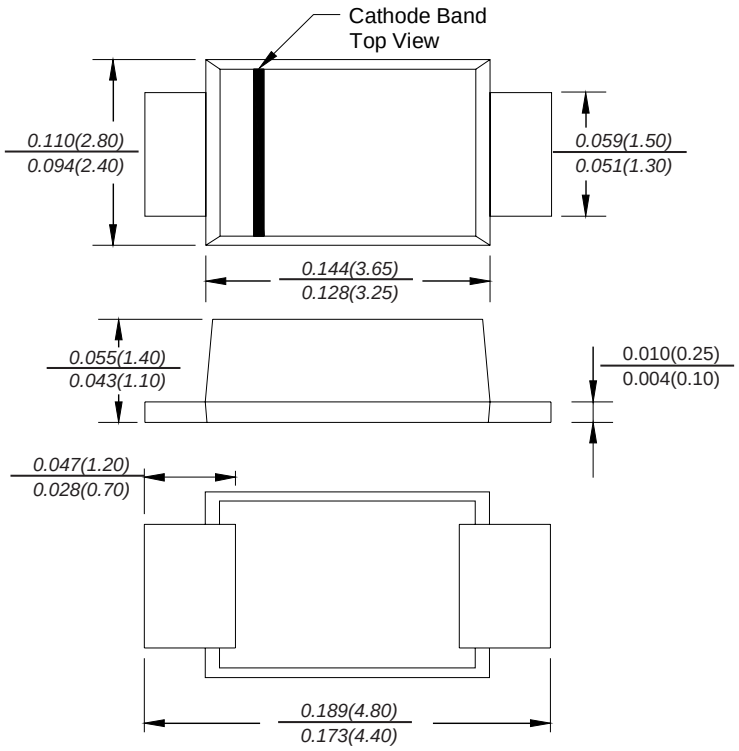
Ref.	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	4.25	4.65	0.167	0.183
B	2.50	2.90	0.098	0.114
C	1.35	1.65	0.053	0.065
D	0.76	1.52	0.030	0.060
E	4.93	5.28	0.194	0.208
F	0.051	0.203	0.002	0.008
G	0.15	0.31	0.006	0.012
H	1.98	2.41	0.078	0.095
J	6.50		0.256	
K		2.30		0.090
L	1.70		0.067	

REEL SPECIFICATION

P/N	PKG	QTY
STPS2150A-MS	DO-214AC (SMA)	5000

PACKAGE MECHANICAL DATA

SMAF



Dimensions in inches and (millimeters)

REEL SPECIFICATION

P/N	PKG	QTY
STPS2150AF-MS	SMAF	3000

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