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SEMICONDUCTOR



ESD



TVS



TSS



MOV



GDT



PLED

STPS3L40xx-MS

Product specification

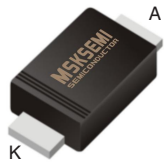
Description

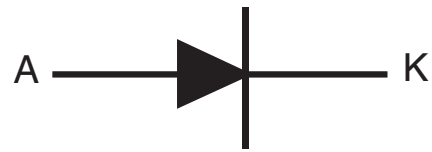
Schottky rectifier suited for switched mode power supplies and high frequency DC to DC converters. Packaged in SMC, and SMBF, this device is intended for use in DC/DC chargers.

Features

- Negligible switching losses
- Low thermal resistance
- Low forward voltage drop
- Avalanche capability specified

Reference News

STPS3L40S-MS	MARKING
 DO-214AB(SMC)	
STPS3L40UF-MS	MARKING
 SMBF	



Device summary

$I_{F(AV)}$	3 A
V_{RRM}	40 V
$T_j(max)$	150 °C
$V_F(max)$	0.44 V

Absolute ratings (limiting values)

Symbol	Parameter			Value	Unit
V_{RRM}	Repetitive peak reverse voltage			40	V
$I_{F(AV)}$	Average forward current	SMC	$T_L = 120\text{ °C } \delta = 0.5$	3	A
		SMBF	$T_L = 130\text{ °C } \delta = 0.5$		
I_{FSM}	Surge non repetitive forward current		$t_p = 10\text{ ms sinusoidal}$	75	A
P_{ARM}	Repetitive peak avalanche power		$t_p = 1\text{ }\mu\text{s } T_j = 25\text{ °C}$	1300	W
T_{stg}	Storage temperature range			-65 to + 175	°C
T_j	Operating junction temperature ⁽¹⁾			150	°C

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	SMC	18	$^{\circ}\text{C/W}$
		SMBflat	10	

Static Electrical Characteristics

Symbol	Parameter	Test conditions		Typ.	Max.	Unit
$I_R^{(1)}$	Reverse leakage current	$T_j = 25^{\circ}\text{C}$	$V_R = V_{RRM}$		100	μA
		$T_j = 125^{\circ}\text{C}$		16	40	mA
		$T_j = 25^{\circ}\text{C}$	$I_F = 3\text{ A}$		0.5	V
$V_F^{(1)}$	Forward voltage drop	$T_j = 125^{\circ}\text{C}$	$I_F = 6\text{ A}$	0.40	0.44	
		$T_j = 25^{\circ}\text{C}$			0.62	
		$T_j = 125^{\circ}\text{C}$		0.52	0.58	

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

To evaluate the conduction losses use the following equation:

$P = 0.30 \times I_{F(AV)} + 0.047 I_F^2_{(RMS)}$

Figure 1. Average forward power dissipation versus average forward current

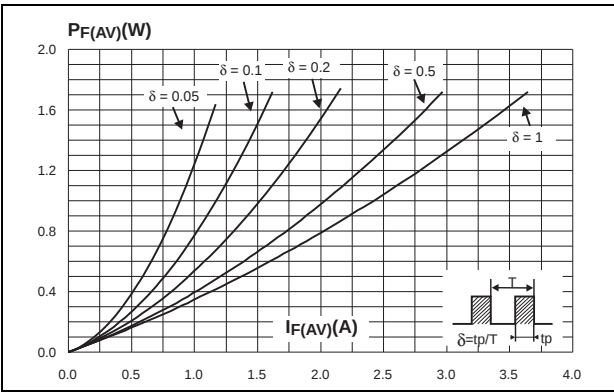


Figure 2. Average forward current versus ambient temperature (delta = 0.5) - SMC

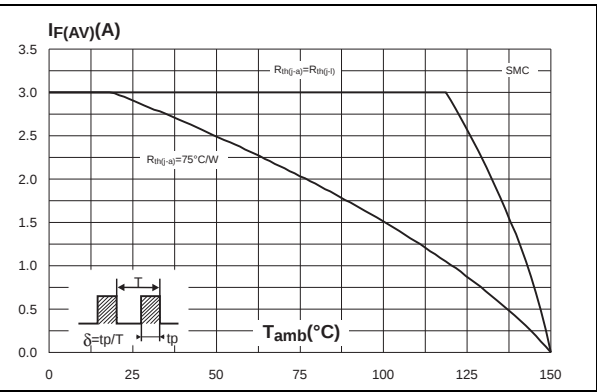


Figure 3. Average forward current versus ambient temperature ($\delta = 0.5$) SMBF

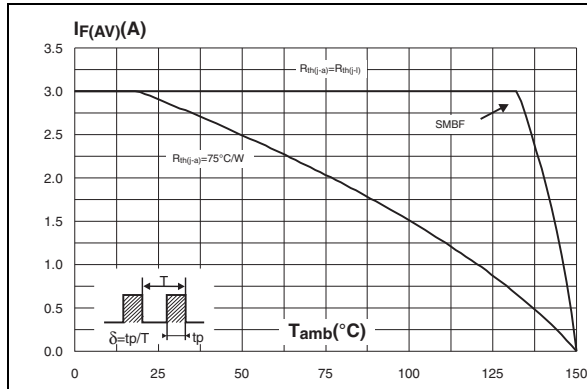


Figure 4. Non repetitive surge peak forward current versus overload duration (maximum values) SMC

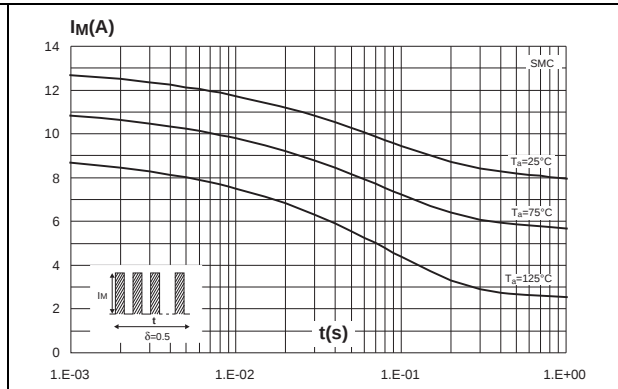


Figure 5. Non repetitive surge peak forward current versus overload duration (maximum values) SMBF

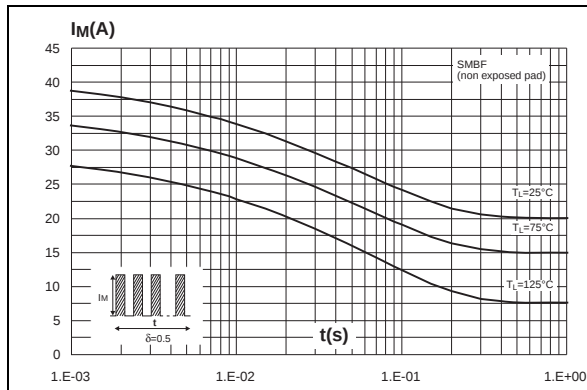


Figure 6. Normalized avalanche power derating versus pulse duration

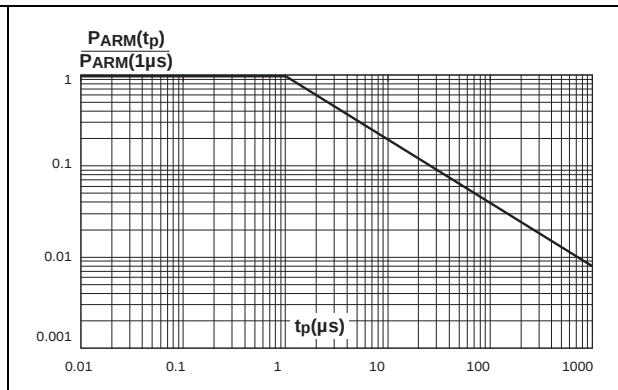


Figure 7. Normalized avalanche power derating versus junction temperature

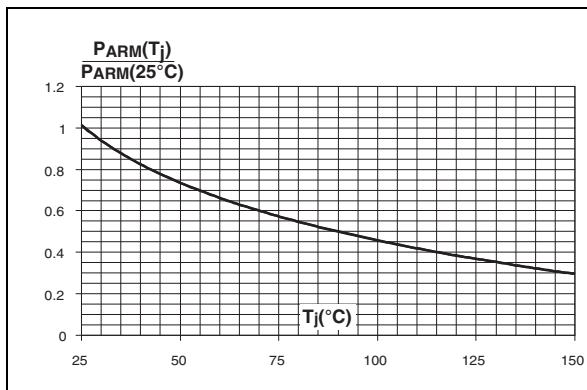


Figure 8. Relative variation of thermal impedance junction to ambient versus pulse duration - SMC

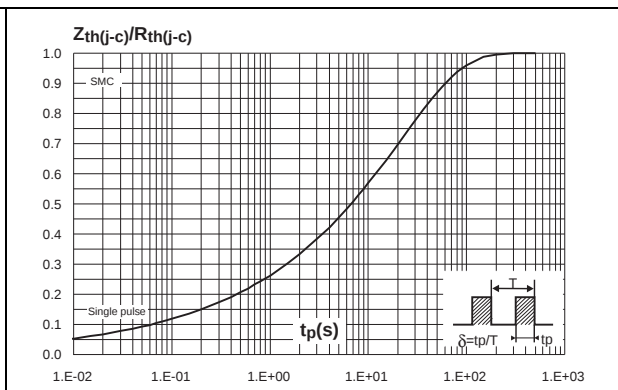


Figure 9. Relative variation of thermal impedance junction to lead versus pulse duration - SMBF

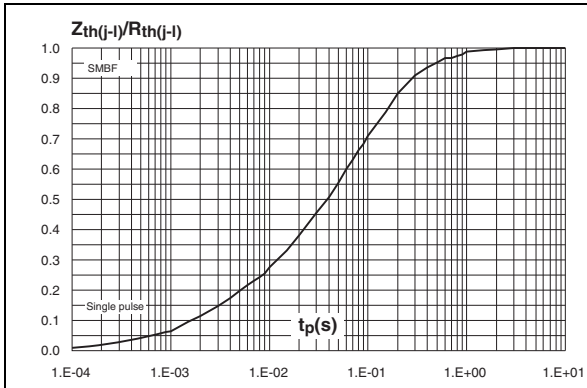


Figure 10. Reverse leakage current versus reverse voltage applied (typical values)

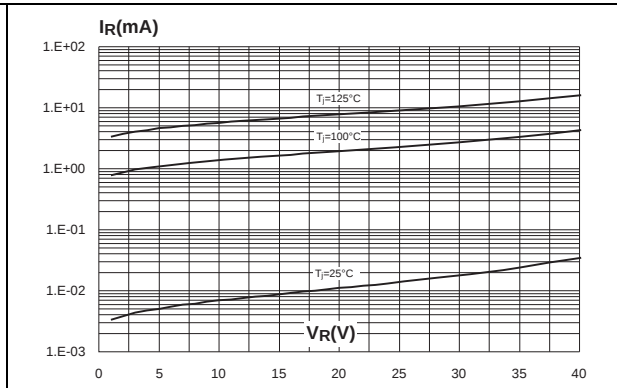


Figure 11. Junction capacitance versus reverse voltage applied (typical values)

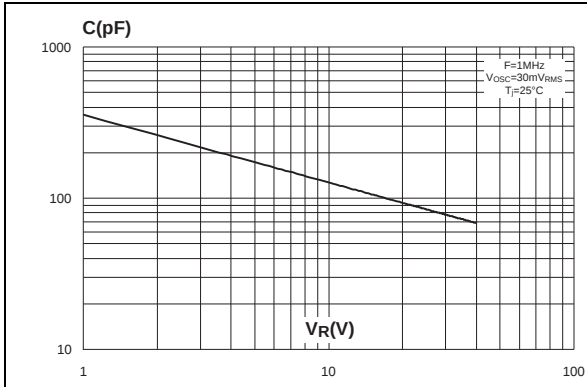


Figure 12. Forward voltage drop versus forward current

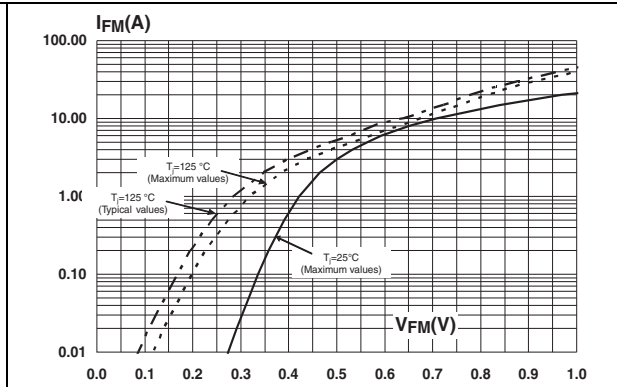
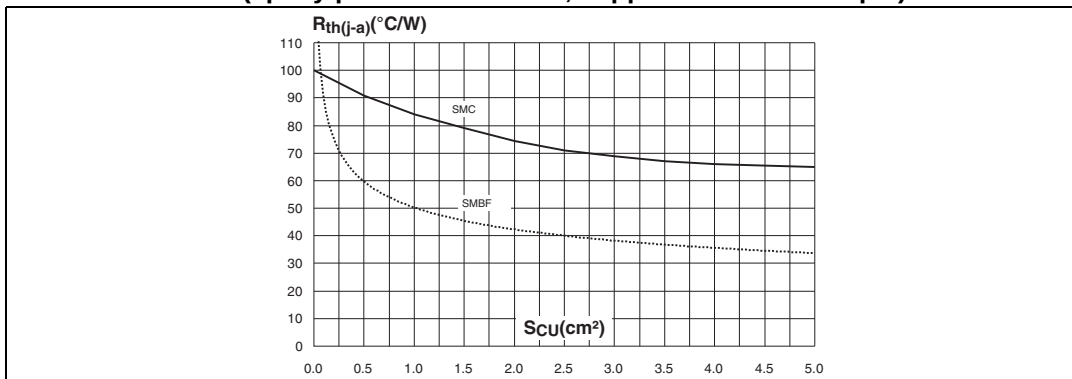
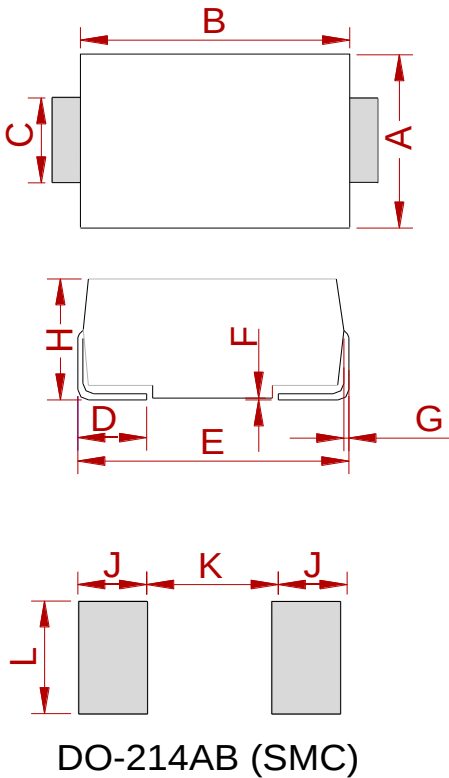


Figure 13. Thermal resistance junction to ambient versus copper surface under each lead (epoxy printed board FR4, copper thickness = 35μm)



PACKAGE MECHANICAL DATA

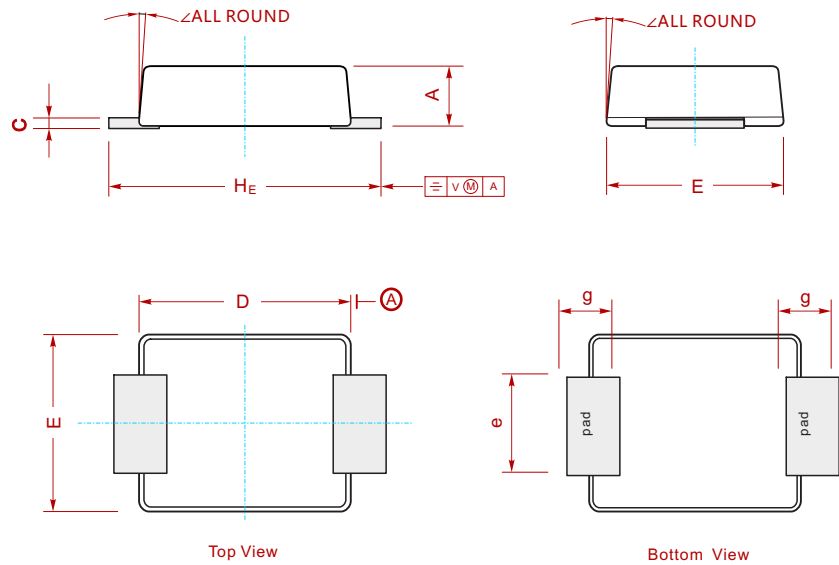


Ref.	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	5.75	6.25	0.226	0.246
B	6.90	7.40	0.272	0.291
C	2.75	3.25	0.108	0.128
D	0.95	1.52	0.037	0.060
E	7.70	8.20	0.303	0.323
F	0.051	0.203	0.002	0.008
G	0.15	0.31	0.006	0.012
H	2.15	2.62	0.085	0.103
J	2.40		0.094	
K		4.20		0.165
L	3.30		0.130	

REEL SPECIFICATION

P/N	PKG	QTY
STPS3L40S-MS	DO-214AB (SMC)	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
STPS3L40UF-MS	SMBF	5000

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