

MSKSEMI 美森科

SEMICONDUCTOR



ESD



TVS



TSS



MOV



GDT



PLED

STPS3L60S-MS

Product specification

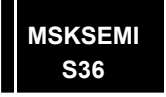
Description

Schottky rectifier suited for Switched Mode Power Supplies and high frequency DC to DC converters. Packaged in SMC, this device is intended for use in DC/DC chargers.

Features

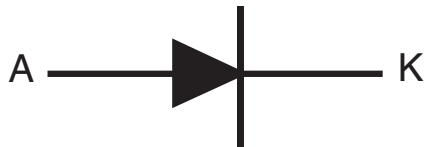
- NEGLIGIBLE SWITCHING LOSSES
- LOW THERMAL RESISTANCE
- AVALANCHE CAPABILITY SPECIFIED

Reference News

STTH302S-MS	MARKING
 DO-214AB(SMC)	

MAIN PRODUCT CHARACTERISTICS

I_{F(AV)}	3 A
V_{RRM}	60 V
T_j (max)	150°C
V_F (max)	0.65 V



ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
V _{RRM}	Repetitive peak reverse voltage		60	V
I _{F(RMS)}	RMS forward current		10	A
I _{F(AV)}	Average forward current	T _c = 100°C δ = 0.5	3	A
I _{FSM}	Surge non repetitive forward current	t _p = 10 ms Sinusoidal	75	A
I _{RRM}	Repetitive peak reverse current	t _p = 2 μs square F=1kHz	1	A
P _{ARM}	Repetitive peak avalanche power	t _p = 1μs T _j = 25°C	1600	W
T _{stg}	Storage temperature range		- 65 to + 175	°C
T _j	Maximum operating junction temperature *		150	°C
dV/dt	Critical rate of rise of reverse voltage		10000	V/μs

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

THERMAL RESISTANCES

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

STATIC ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Tests conditions		Min.	Typ.	Max.	Unit
I_R^*	Reverse leakage current	$T_j = 25^{\circ}\text{C}$	$V_R = V_{RRM}$			55	μA
		$T_j = 125^{\circ}\text{C}$			10	15	mA
V_F^*	Forward voltage drop	$T_j = 25^{\circ}\text{C}$	$I_F = 3\text{A}$			0.7	V
		$T_j = 125^{\circ}\text{C}$	$I_F = 3\text{A}$		0.56	0.65	
		$T_j = 25^{\circ}\text{C}$	$I_F = 6\text{A}$			0.94	
		$T_j = 125^{\circ}\text{C}$	$I_F = 6\text{A}$		0.67	0.76	

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

To evaluate the conduction losses use the following equation :

$$P = 0.54 \times I_{F(AV)} + 0.037 I_{F(RMS)}^2$$

Fig. 1: Average forward power dissipation versus average forward current.

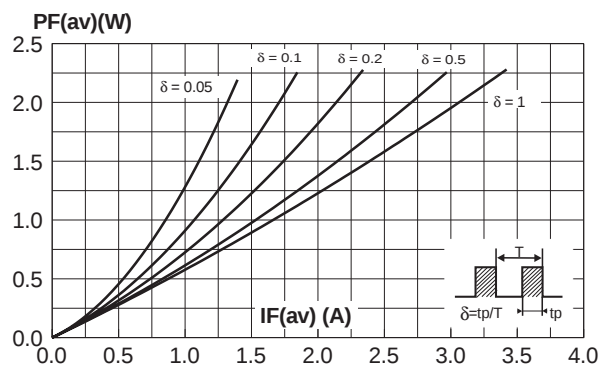


Fig. 2: Average forward current versus ambient temperature ($\delta = 0.5$).

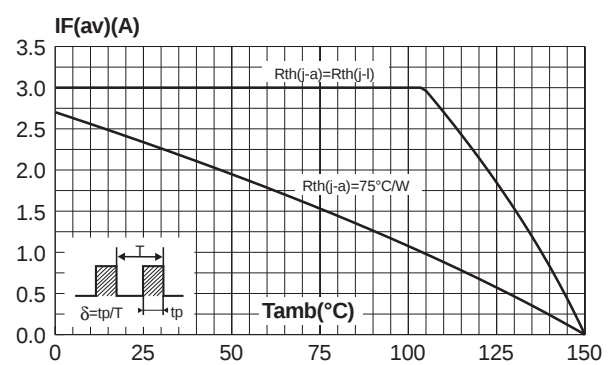


Fig. 3: Normalized avalanche power derating versus pulse duration.

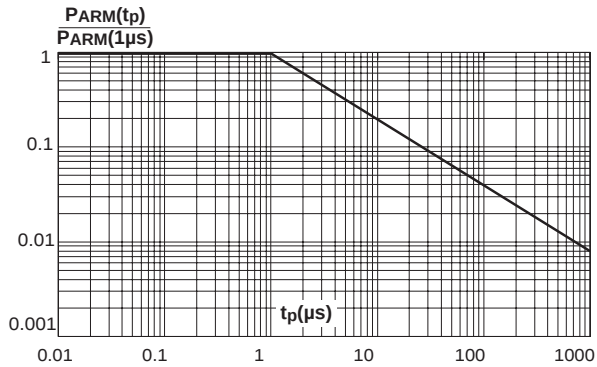


Fig. 4: Normalized avalanche power derating versus junction temperature.

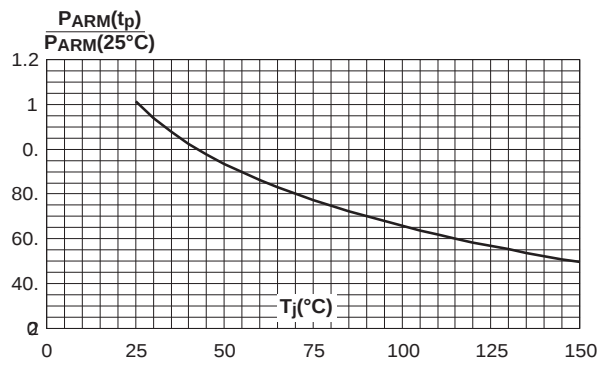


Fig. 5: Non repetitive surge peak forward current versus overload duration (maximum values).

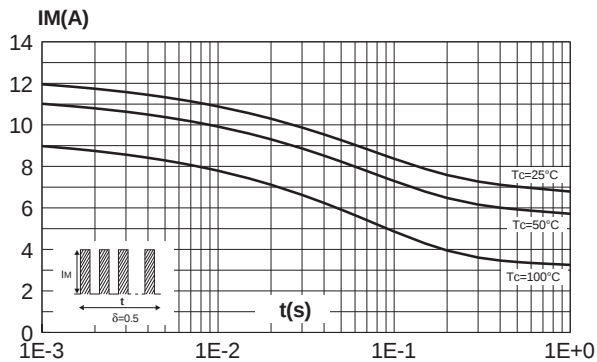


Fig. 6: Relative variation of thermal impedance junction to lead versus pulse duration.

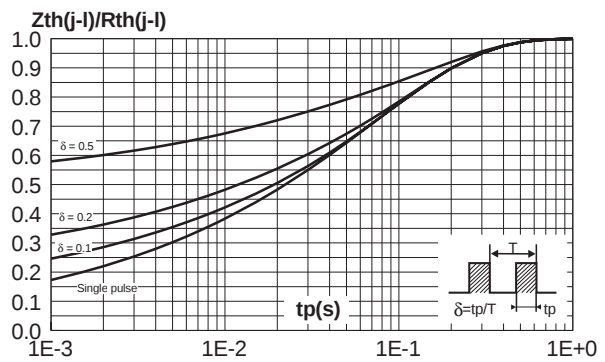


Fig. 7: Reverse leakage current versus reverse voltage applied (typical values).

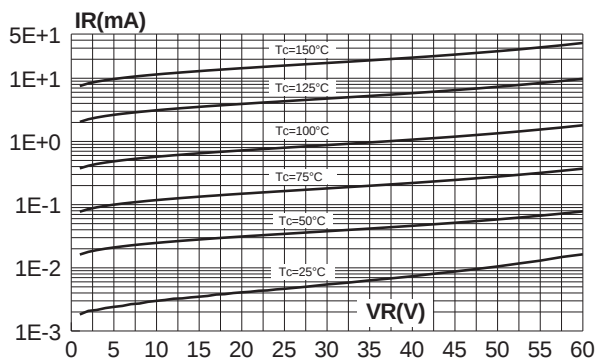


Fig. 8: Junction capacitance versus reverse voltage applied (typical values).

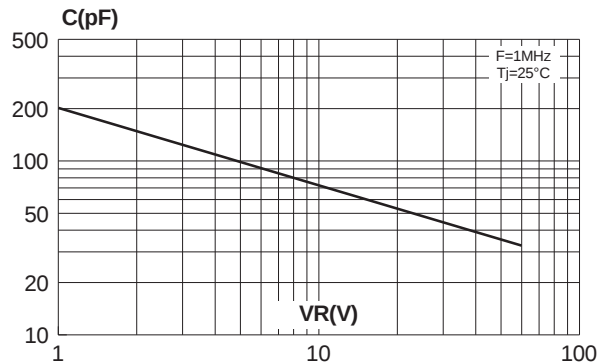


Fig. 9-1: Forward voltage drop versus forward current (low level, maximum values).

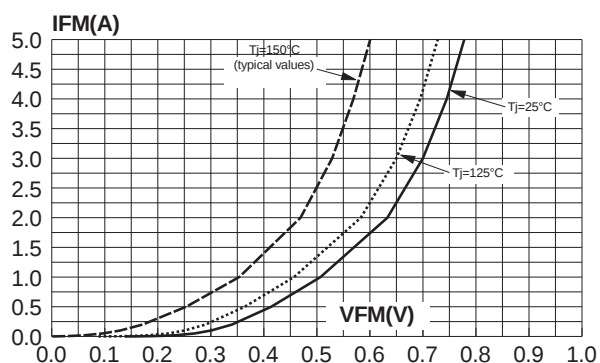


Fig. 9-2: Forward voltage drop versus forward current (high level, maximum values).

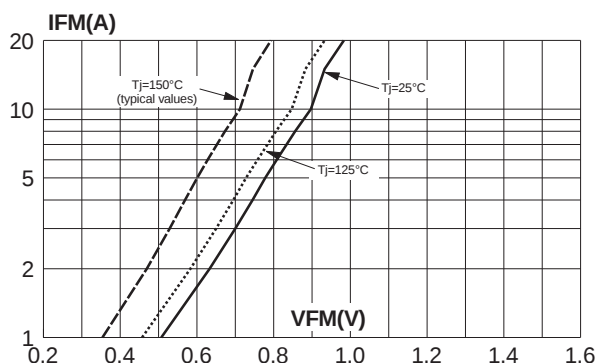
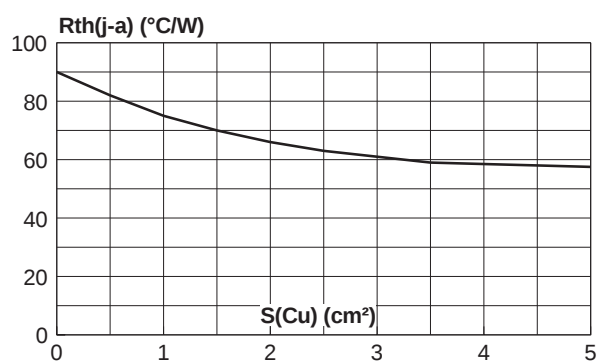
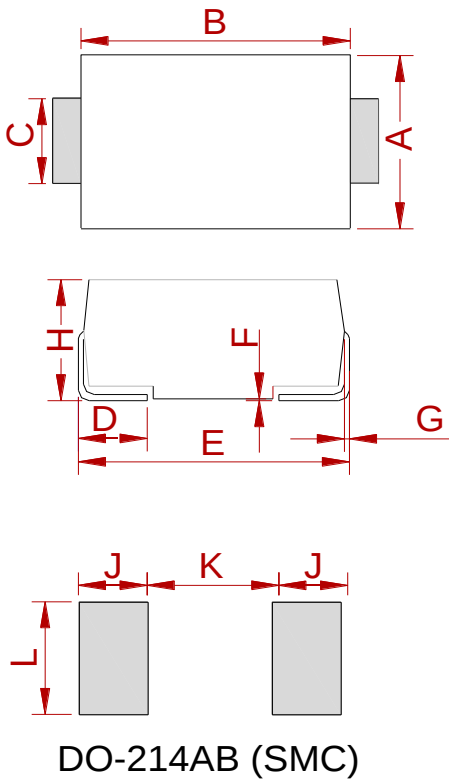


Fig. 10: Thermal resistance junction to ambient versus copper surface under each lead (Epoxy printed circuit board FR4, copper thickness: $35\mu\text{m}$)



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
STPS3L60S-MS	DO-214AB (SMC)	2500

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