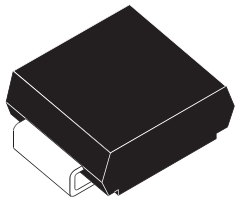
STPS3L60S

POWER SCHOTTKY RECTIFIER

MAIN PRODUCT CHARACTERISTICS

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



SMC
(JEDEC DO-214AB)

FEATURES AND BENEFITS

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

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.

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	Tc = 100°C δ = 0.5	3	A
I_{FSM}	Surge non repetitive forward current	tp = 10 ms Sinusoidal	75	A
I_{RRM}	Repetitive peak reverse current	tp = 2 µs square F=1kHz	1	A
P_{ARM}	Repetitive peak avalanche power	tp = 1µs Tj = 25°C	1600	W
T_{stg}	Storage temperature range		- 65 to + 175	°C
Tj	Maximum operating junction temperature *		150	°C
dV/dt	Critical rate of rise of reverse voltage		10000	V/µs

* : $\frac{dPtot}{dTj} < \frac{1}{Rth(j-a)}$ thermal runaway condition for a diode on its own heatsink

THERMAL RESISTANCES

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

STATIC ELECTRICAL CHARACTERISTICS

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

Pulse test : * tp = 380 µs, δ < 2%

To evaluate the conduction losses use the following equation :
$P = 0.54 \times I_{F(AV)} + 0.037\ I_{F^2(RMS)}$

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

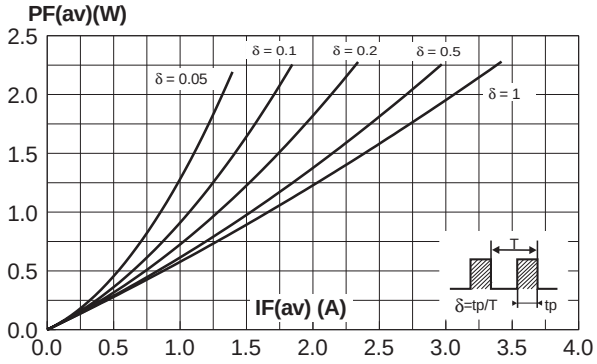


Fig. 2: Average forward current versus ambient temperature(δ = 0.5).

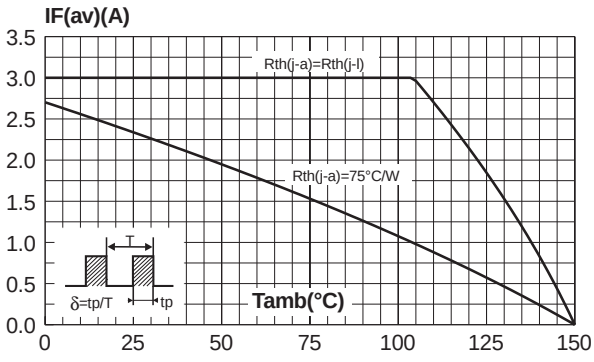


Fig. 3: Normalized avalanche power derating versus pulse duration.

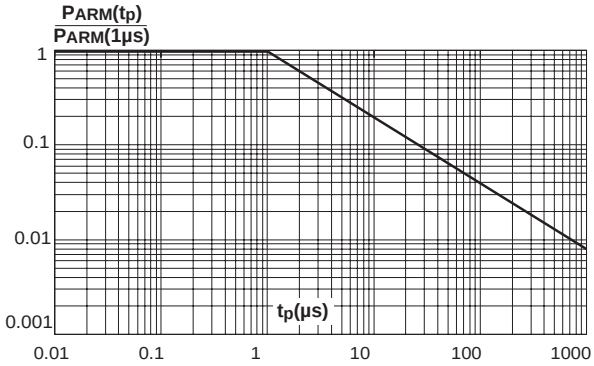


Fig. 4: Normalized avalanche power derating versus junction temperature.

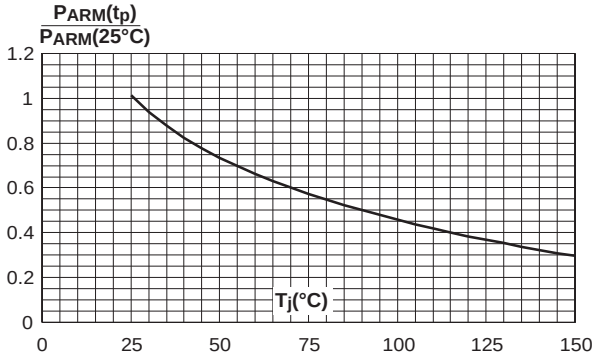


Fig. 5: Non repetitive surge peak forward current versus overload duration (maximum values).

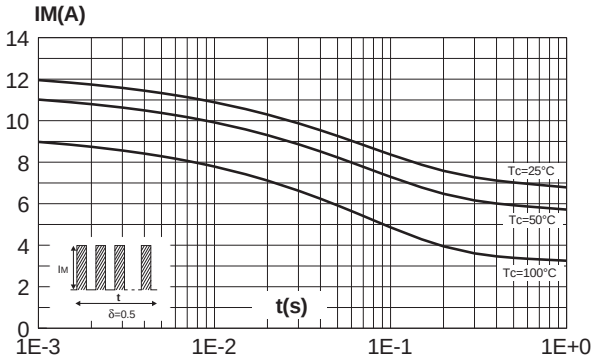


Fig. 6: Relative variation of thermal impedance junction to lead versus pulse duration.

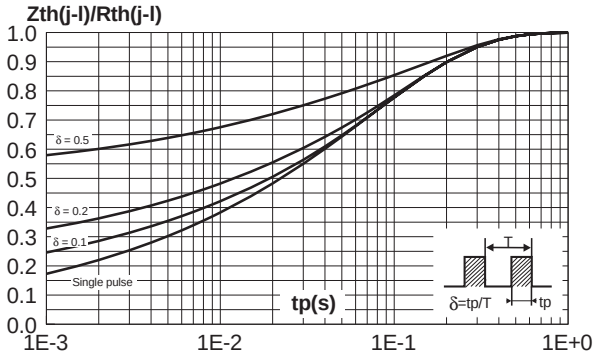


Fig. 7: Reverse leakage current versus reverse voltage applied (typical values).

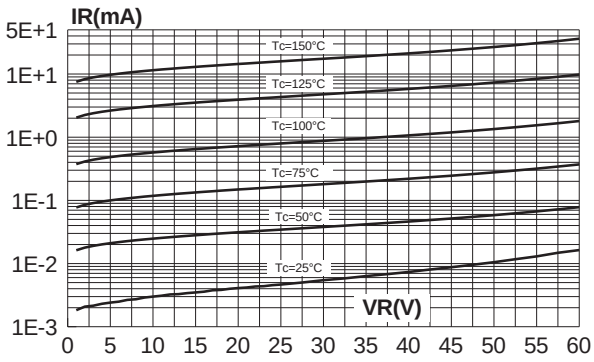


Fig. 8: Junction capacitance versus reverse voltage applied (typical values).

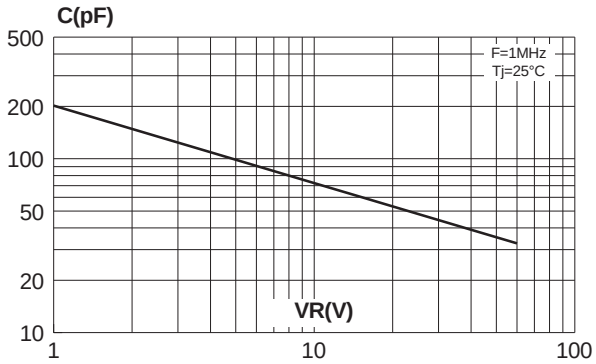


Fig. 9-1: Forward voltage drop versus forward current (low level, maximum values).

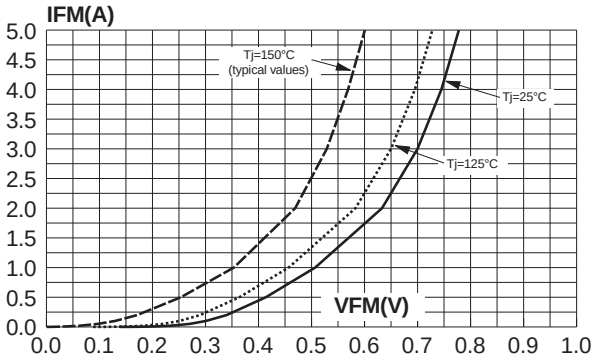


Fig. 9-2: Forward voltage drop versus forward current (high level, maximum values).

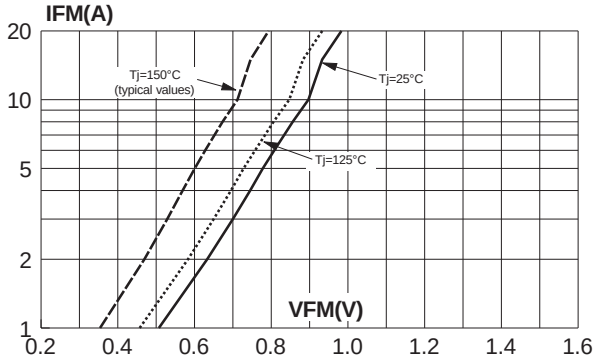
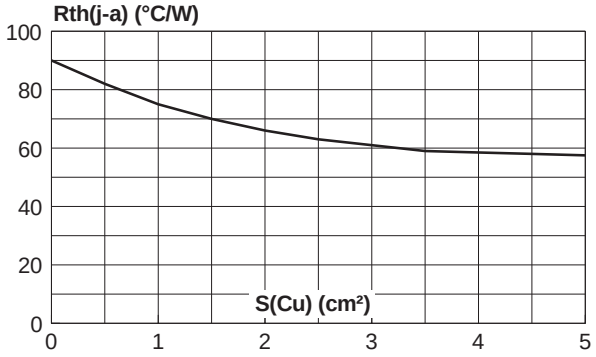
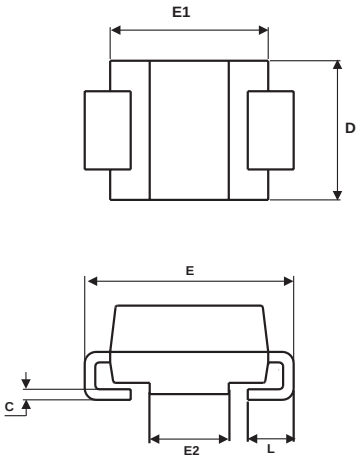


Fig. 10: Thermal resistance junction to ambient versus copper surface under each lead (Epoxy printed circuit board FR4, copper thickness: 35µm)



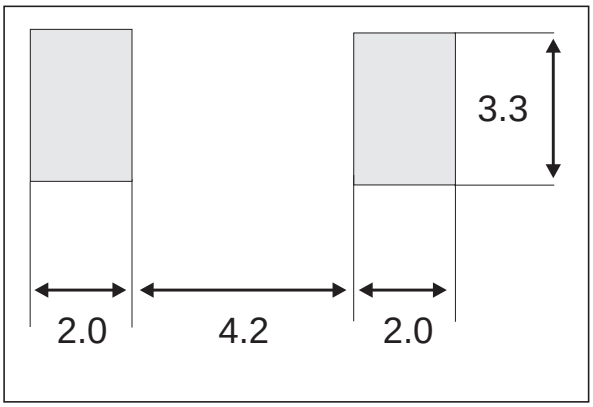
PACKAGE MECHANICAL DATA

SMC



REF.	DIMENSIONS			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A1	1.90	2.45	0.075	0.096
A2	0.05	0.20	0.002	0.008
b	2.90	3.2	0.114	0.126
c	0.15	0.41	0.006	0.016
E	7.75	8.15	0.305	0.321
E1	6.60	7.15	0.260	0.281
E2	4.40	4.70	0.173	0.185
D	5.55	6.25	0.218	0.246
L	0.75	1.60	0.030	0.063

FOOT PRINT (in millimeters)



Ordering type	Marking	Package	Weight	Base qty	Delivery mode
STPS3L60S	S36	SMC	0.24g	2500	Tape and reel

- EPOXY MEETS UL94,V0