



STPS140A/U

POWER SCHOTTKY RECTIFIER

MAIN PRODUCT CHARACTERISTICS

I_{F(AV)}	1 A
V_{RRM}	40 V
V_F (max)	0.5 V

FEATURES AND BENEFITS

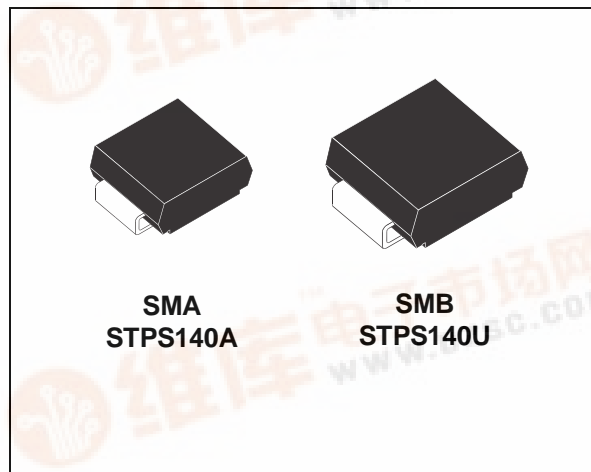
- VERY SMALL CONDUCTION LOSSES
- NEGLIGIBLE SWITCHING LOSSES
- LOW FORWARD VOLTAGE DROP
- SURFACE MOUNTED DEVICE

DESCRIPTION

Single chip Schottky rectifier suited for Switch-mode Power Supplies and high frequency DC to DC converters.

Packaged in SMA and SMB(*), this device is intended for surface mounting and used in low voltage, high frequency inverters, free wheeling and polarity protection applications.

(*) in accordance with DO214AA and DO21AC JEDEC



ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit	
V _{RRM}	Repetitive peak reverse voltage		40	V	
I _{F(RMS)}	RMS forward current		7	A	
I _{F(AV)}	Average forward current $\delta = 0.5$	SMA	T _L = 130°C	1	A
		SMB	T _L = 135°C		
I _{FSM}	Surge non repetitive forward current	tp = 10 ms Sinusoidal	60	A	
I _{R(RM)}	Repetitive peak reverse current	tp = 2 μ s F = 1kHz	1	A	
I _{RSM}	Non repetitive peak reverse current	tp = 100 μ s square	1	A	
T _{stg}	Storage temperature range		- 65 to + 150	°C	
T _j	Maximum junction temperature		150		
dV/dt	Critical rate of rise of reverse voltage		10000	V/ μ s	



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THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
R _{th(j-l)}	Junction to lead	SMA	30	°C/W
		SMB	25	

STATIC ELECTRICAL CHARACTERISTICS

Symbol	Tests Conditions	Tests Conditions	Min.	Typ.	Max.	Unit	
I _R *	Reverse leakage current	T _j = 25°C	V _R = 40V			12	μA
		T _j = 100°C			0.25	2	mA
V _F **	Forward voltage drop	T _j = 25°C	I _F = 1 A			0.55	V
		T _j = 125°C	I _F = 1 A		0.43	0.5	
		T _j = 25°C	I _F = 2 A			0.65	
		T _j = 125°C	I _F = 2 A		0.53	0.6	

Pulse test : * t_p = 5 ms, δ < 2 %
 ** t_p = 380 μs, δ < 2%

To evaluate the maximum conduction losses use the following equation :
 $P = 0.4 \times I_{F(AV)} + 0.10 \times I_{F(RMS)}^2$

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

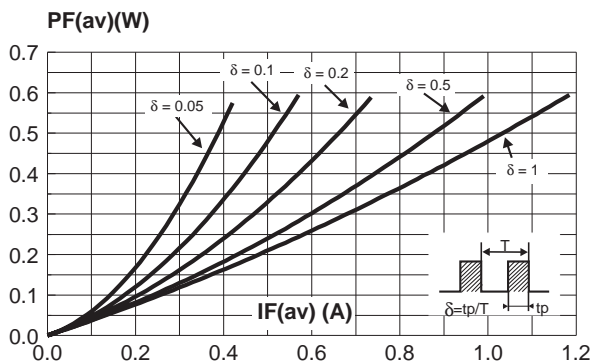


Fig. 2: Average forward current versus ambient temperature (δ=0.5).

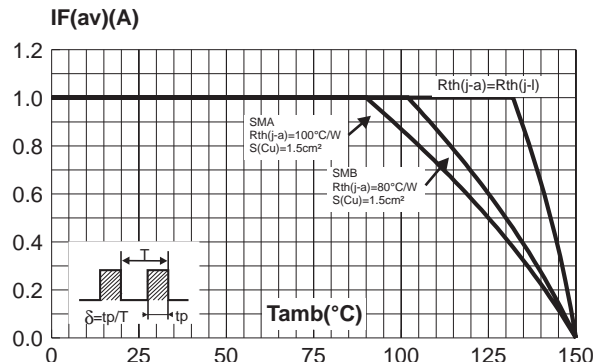


Fig. 3-1: Non repetive surge peak forward current versus overload duration (maximum values) (SMB).

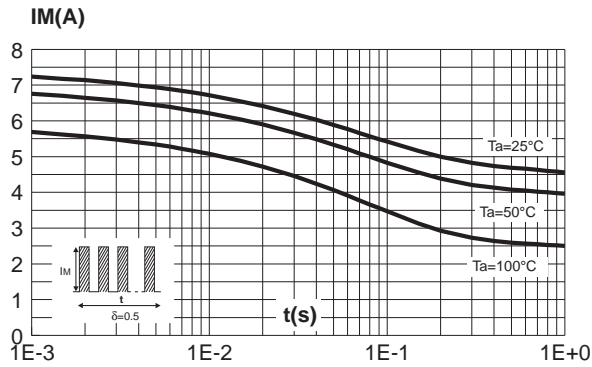


Fig. 3-2: Non repetive surge peak forward current versus overload duration (maximum values) (SMA).

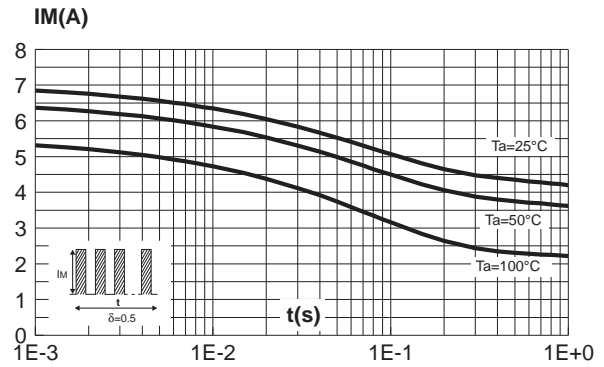


Fig. 4-1: Relative variation of thermal impedance junction to ambient versus pulse duration (SMB).

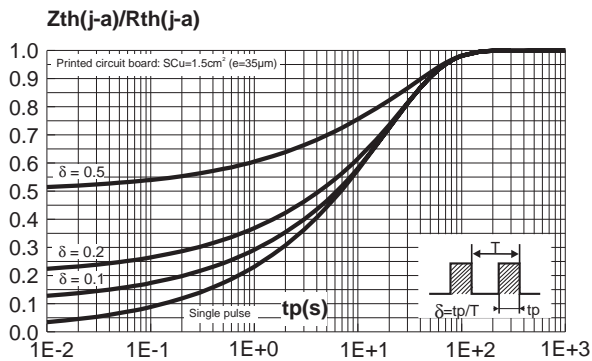


Fig. 4-2: Relative variation of thermal impedance junction to ambient versus pulse duration (SMA).

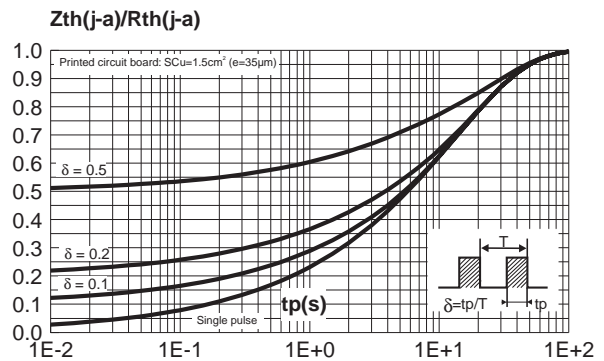


Fig. 5: Reverse leakage current versus reverse voltage applied (typical values).

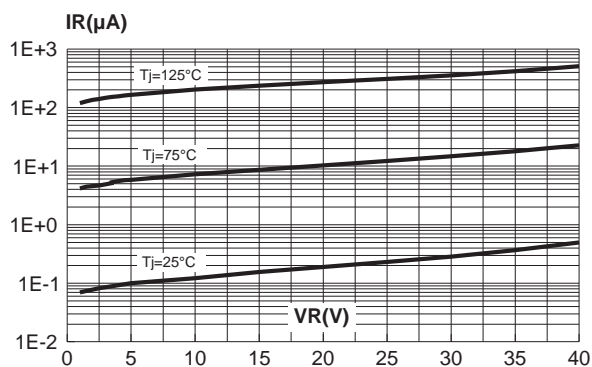
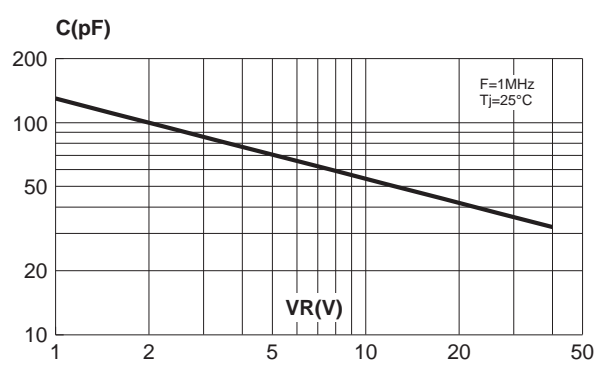


Fig. 6: Junction capacitance versus reverse voltage applied (typical values).



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Fig. 7: Forward voltage drop versus forward current (maximum values).

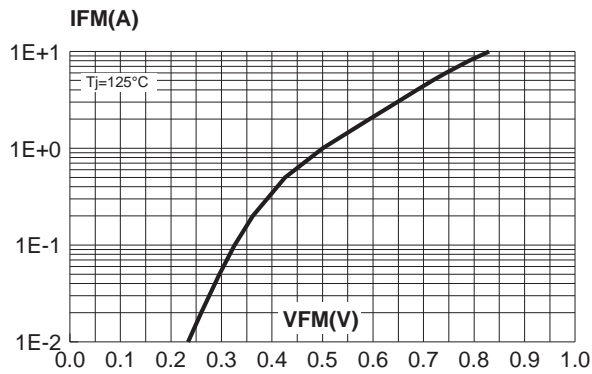


Fig. 8-1: Thermal resistance junction to ambient versus copper surface under each lead (Epoxy printed circuit board, copper thickness: 35 μ m)(SMB).

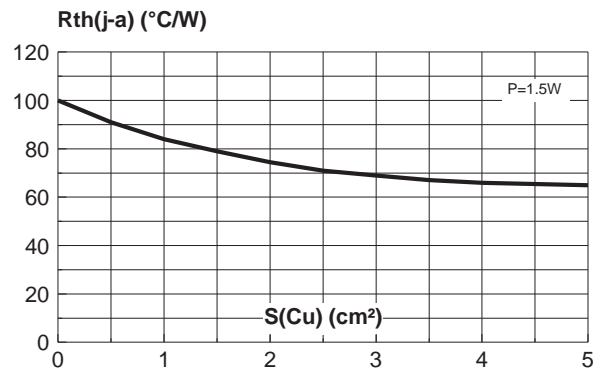
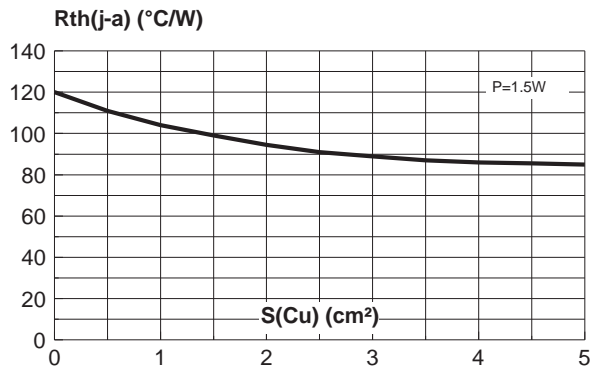
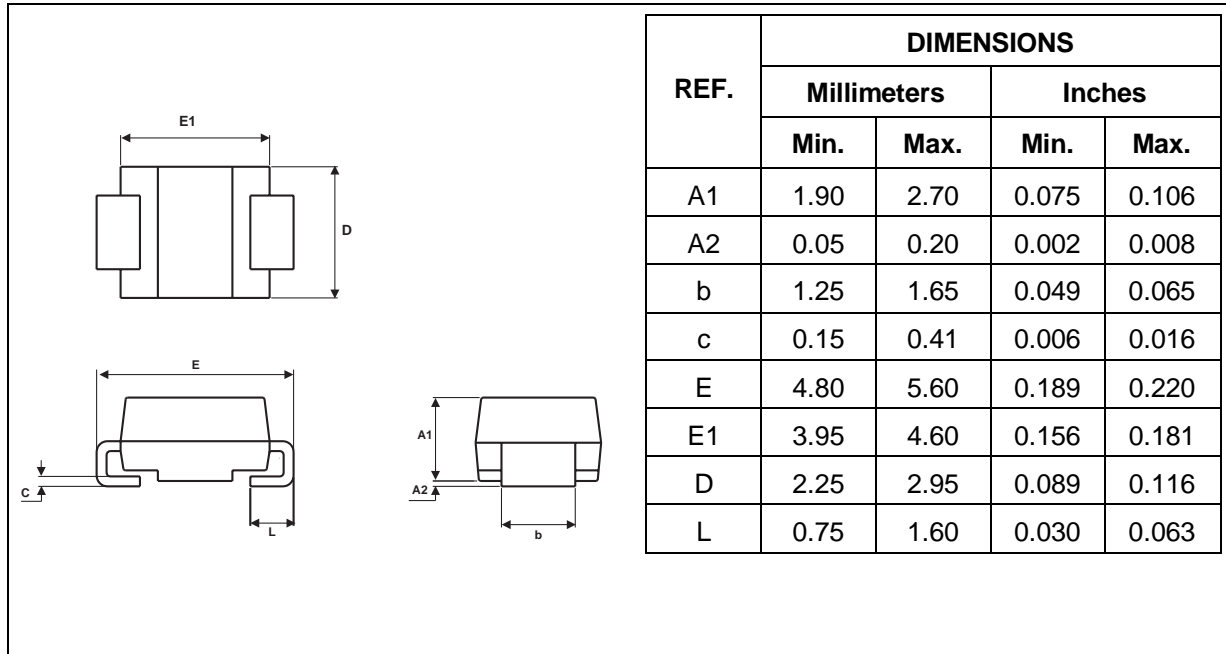


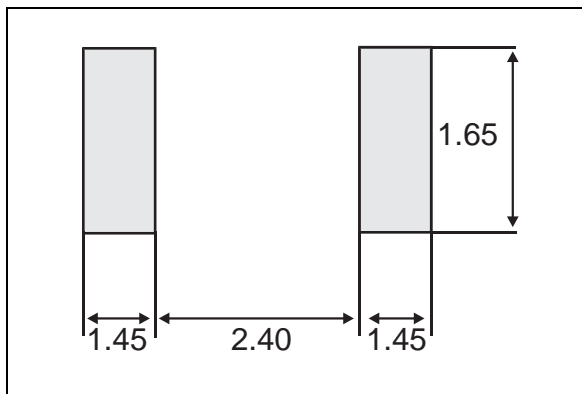
Fig. 8-2: Thermal resistance junction to ambient versus copper surface under each lead (Epoxy printed circuit board, copper thickness: 35 μ m)(SMA).



PACKAGE MECHANICAL DATA
SMA



FOOT PRINT (in millimeters)

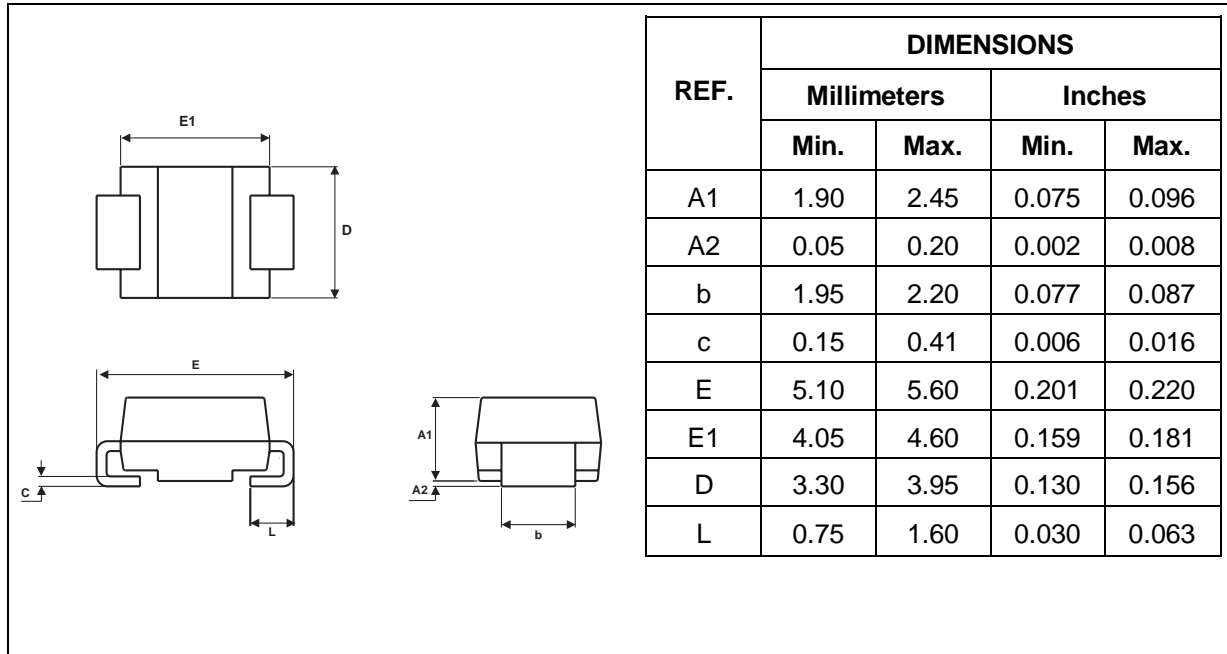


■ **Marking:** S140

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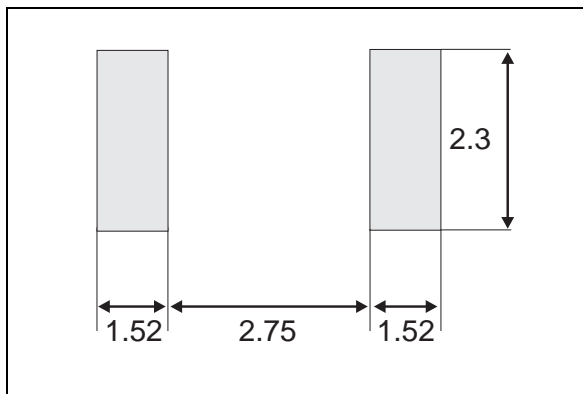
PACKAGE MECHANICAL DATA

SMB Plastic



FOOT PRINT (in millimeters)

■ Marking: G14



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