Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!

Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832
Email & Skype: info@chipsmall.com Web: www.chipsmall.com
Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China

STPS140Z

POWER SCHOTTKY RECTIFIER

MAIN PRODUCT CHARACTERISTICS

I_F	1 A
V_{RRM}	40 V
V_F (max)	0.49 V
Tj (max)	150°C

SOD-123

FEATURES AND BENEFITS

- VERY SMALL CONDUCTION LOSSES
- NEGLIGIBLE SWITCHING LOSSES
- EXTREMELY FAST SWITCHING

DESCRIPTION

Single Schottky rectifier suited for Switchmode Power Supplies and high frequency DC to DC converters.

Packaged in SOD-123, this device is intended for use in low voltage, high frequency inverters, free wheeling and polarity protection applications. Due to the small size of the package this device fit GSM and PCMCIA requirements.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
V_{RRM}	Repetitive peak reverse voltage		40	V
I_F	Continuous forward current	T_{amb} = 60 °C	1	A
I_{FSM}	Surge non repetitive forward current	tp = 10 ms Sinusoidal	5.5	A
I_{RRM}	Repetitive peak reverse current	tp = 2 µs square F = 1kHz	0.5	A
I_{RSM}	Non repetitive peak reverse current	tp = 100µs square	1	A
T_{stg}	Storage temperature range		- 65 to + 150	°C
Tj	Maximum operating junction temperature *		150	
T_L	Maximum temperature for soldering during 10s		260	°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
$R_{th\ (j-a)}$	Junction to ambient *	175	°C/W

* with 50 mm^2 copper area (e=35µm)

STATIC ELECTRICAL CHARACTERISTICS

Symbol	Tests Conditions	Tests Conditions		Min.	Typ.	Max.	Unit
I_R *	Reverse leakage current	Tj = 25°C	V_R = 5V			10	µA
		Tj = 25°C	V_R = 40V			40	µA
		Tj = 100°C			1.5	5	mA
V_F **	Forward voltage drop	Tj = 25°C	I_F = 1 A			0.55	V
		Tj = 100°C			0.45	0.51	

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

To evaluate the maximum conduction losses use the following equation :
$P = 0.2 \times I_{F(AV)} + 0.3 \times I_F{}^2{}_{(RMS)}$ at Tj = 150°C

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

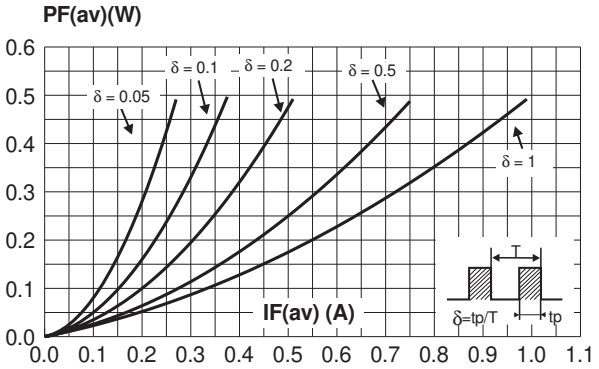


Fig. 2: Average forward current versus ambient temperature (δ=1).

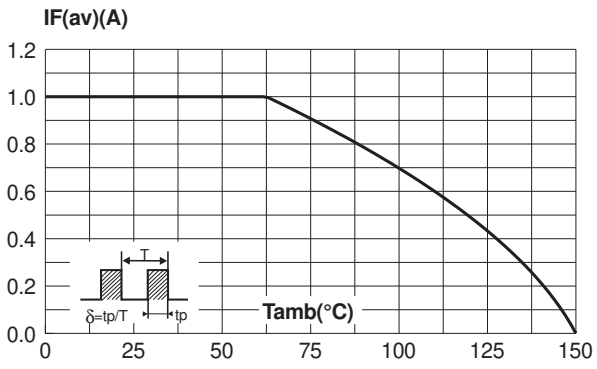


Fig. 3: Non repetive surge peak forward current versus overload duration (maximum values).

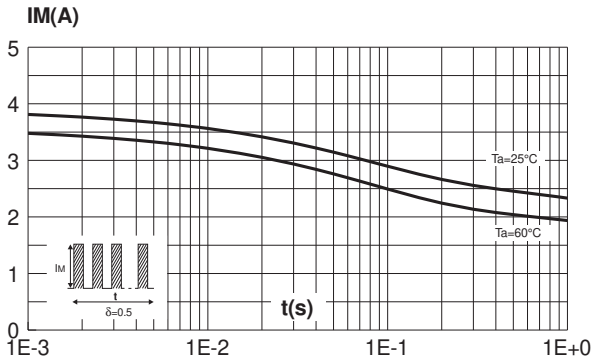


Fig. 4: Relative variation of thermal impedance junction to ambient versus pulse duration (epoxy printed circuit board FR4 with recommended pad layout).

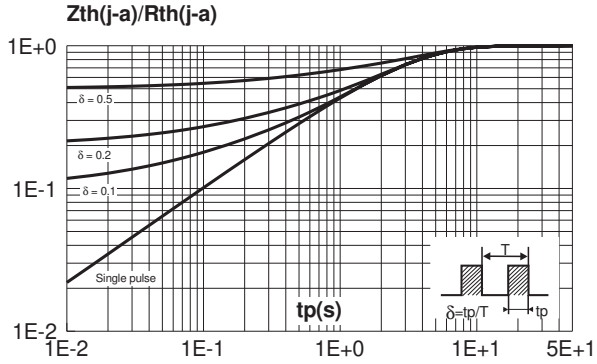


Fig. 5: Reverse leakage current versus reverse voltage applied (typical value).

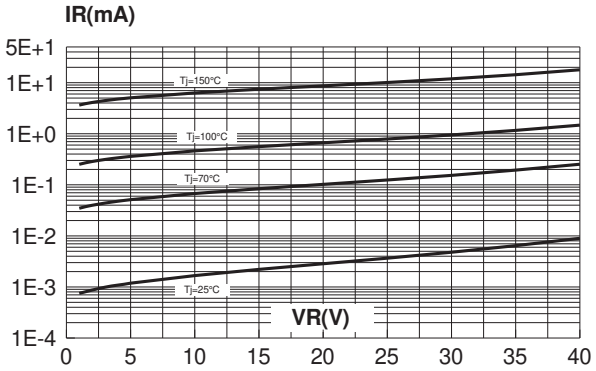


Fig. 6: Reverse leakage current versus junction temperature (typical value).

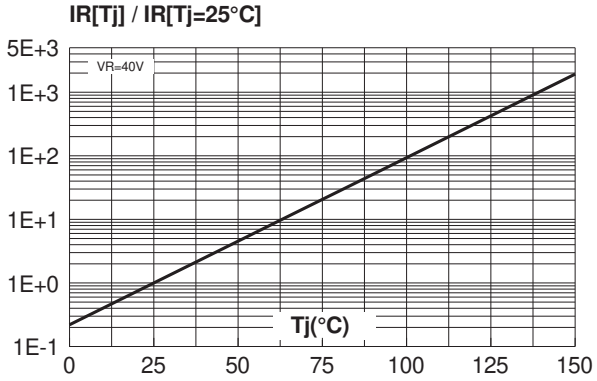


Fig. 7: Junction capacitance versus reverse voltage applied (typical value).

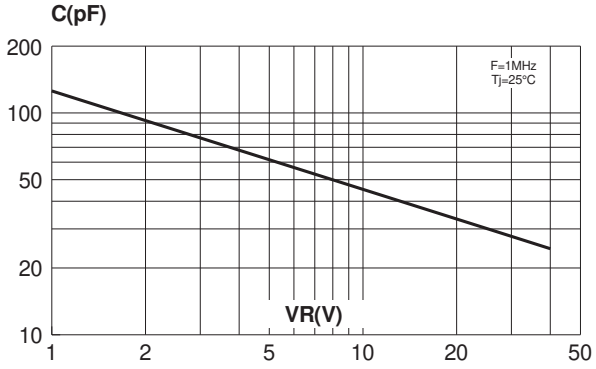


Fig. 8-1: Forward voltage drop versus forward current (high level, maximum values).

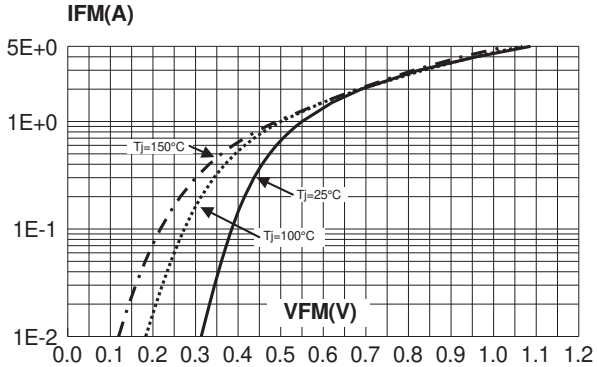


Fig. 8-2: Forward voltage drop versus forward current (low level, maximum values).

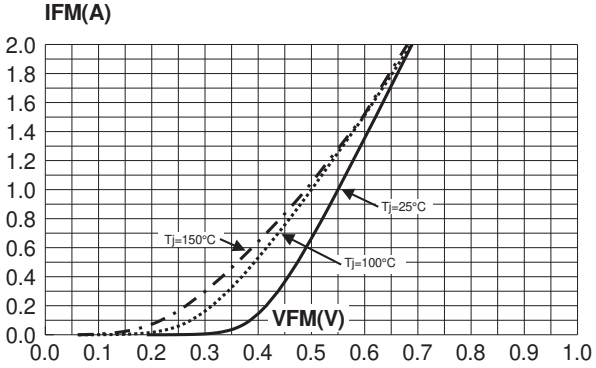
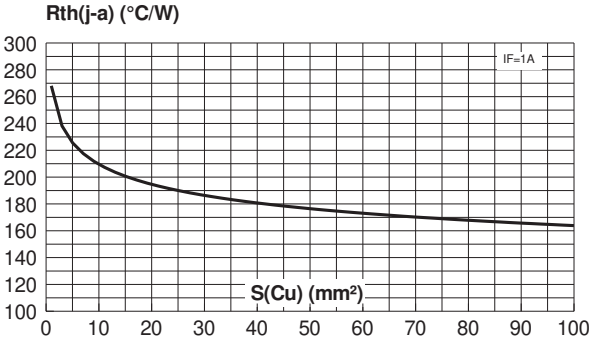
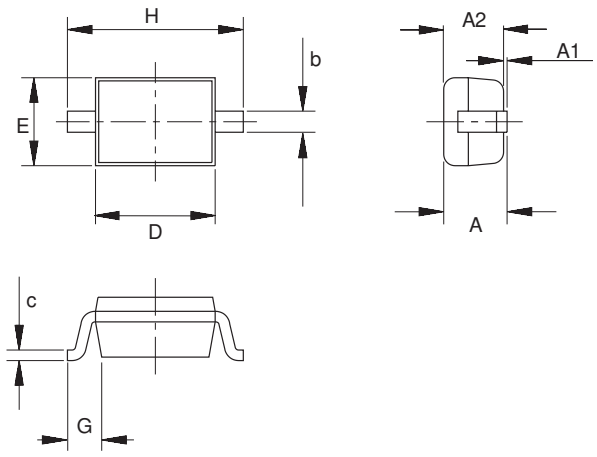


Fig. 9: Thermal resistance junction to ambient versus copper surface (epoxy printed circuit board FR4, copper thickness: 35µm).



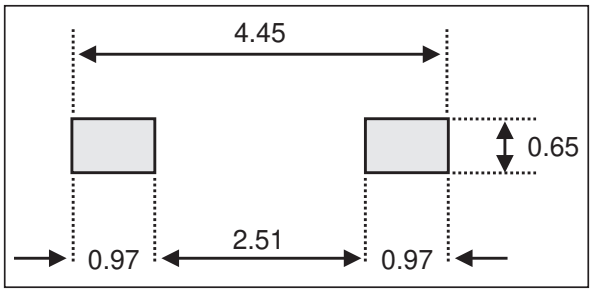
PACKAGE MECHANICAL DATA

SOD-123 Plastic



REF.	DIMENSIONS			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A		1.45		0.057
A1	0	0.1	0	0.004
A2	0.85	1.35	0.033	0.053
b	0.55 Typ.		0.022 Typ.	
c	0.15 Typ.		0.039 Typ.	
D	2.55	2.85	0.1	0.112
E	1.4	1.7	0.055	0.067
G	0.25		0.01	
H	3.55	3.95	0.14	0.156

FOOTPRINT (in millimeters)



MARKING

Type	Marking	Package	Weight	Base qty	Delivery mode
STPS140Z	Z54	SOD-123	0.01 g	3000	Tape & reel

- Epoxy meets UL94, V0
- Band indicates cathode