



# STPS0540Z / STPS0560Z

## SCHOTTKY RECTIFIER

PRELIMINARY DATASHEET

### MAIN PRODUCT CHARACTERISTICS

$I_{F(AV)}$	0.5 A
$V_{RRM}$	40 / 60 V
$V_F$ (max)	0.40 / 0.50 V

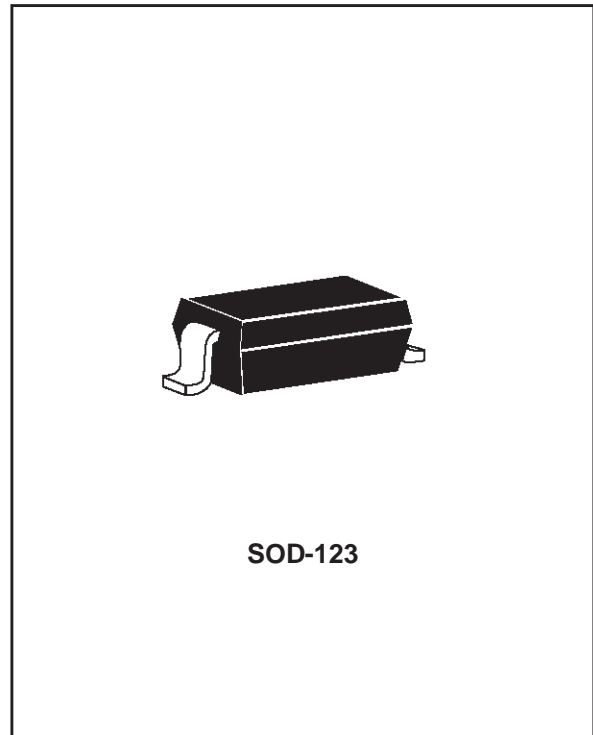
### FEATURES AND BENEFITS

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

### DESCRIPTION

Single Schottky rectifier suited for switch mode power supplies and high frequency DC to DC converters.

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



### ABSOLUTE RATINGS (limiting values)

Symbol	Parameter	Value		Unit
		STPS		
		0540Z	0560Z	
$V_{RRM}$	Repetitive peak reverse voltage	40	60	V
$I_{F(RMS)}$	RMS forward current	2		A
$I_{F(AV)}$	Average forward current $\delta=0.5$	STPS0540Z STPS0560Z	$T_a = 60^\circ\text{C}$ $T_a = 40^\circ\text{C}$	0.5 A
$I_{FSM}$	Surge non repetitive forward current	tp=10ms sinusoidal		5.5 A
dV/dt	Critical rate of rise of reverse voltage	10000		V/ $\mu\text{s}$
$T_{stg}$	Storage temperature range	- 65 to + 150		$^\circ\text{C}$
$T_j$	Maximum operating junction temperature *	150		$^\circ\text{C}$
TL	Maximum temperature for soldering during 10s	260		$^\circ\text{C}$

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

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### THERMAL RESISTANCE

Symbol	Parameter	Value	Unit
$R_{th(j-a)}$	Junction to ambient (*)	340	°C/W

(\*) Mounted on epoxy board with recommended Pad Layout.

### STATIC ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Tests conditions		Value				Unit
				STPS0540Z		STPS0560Z		
				typ.	max.	typ.	max.	
$I_R^*$	Reverse leakage current	$T_j=25^\circ\text{C}$	$V_R = V_{RRM}$		40		50	$\mu\text{A}$
		$T = 100^\circ\text{C}$		1.5	5	1	4	mA
$V_F^{**}$	Forward voltage drop	$T_j=25^\circ\text{C}$	$I_F = 0.5\text{ A}$		0.50		0.53	V
		$T_j=100^\circ\text{C}$		0.35	0.40	0.44	0.50	
		$T_j=25^\circ\text{C}$	$I_F = 1\text{ A}$		0.55		0.66	
		$T_j=100^\circ\text{C}$		0.45	0.51	0.58	0.65	

Pulse test : \*  $t_p = 5\text{ ms}$ ,  $\delta < 2\%$

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

To evaluate the maximum conduction losses use the following equation :

$$\text{STPS0540Z: } P = 0.29 \times I_{F(AV)} + 0.22 \times I_{F(RMS)}^2$$

$$\text{STPS0560Z: } P = 0.35 \times I_{F(AV)} + 0.3 \times I_{F(RMS)}^2$$

**PACKAGE MECHANICAL DATA**  
 SOD-123

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

**MARKING**

Type	Marking	Package	Weight	Base qty	Delivery mode
STPS0540Z	Z54	SOD-123	0.01g.	3000	Tape & reel
STPS0560Z	Z56	SOD-123	0.01g.	3000	Tape & Reel

Epoxy meets UL94, V0.  
 Band indicates cathode.

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