

SCHOTTKY RECTIFIER

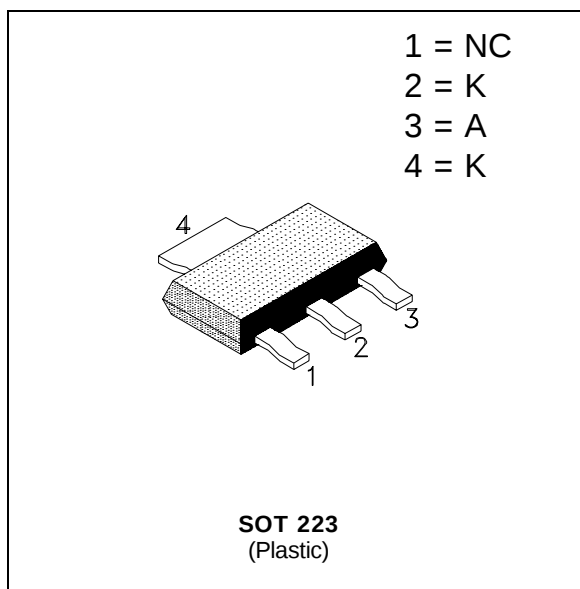
PRELIMINARY DATASHEET

- VERY SMALL CONDUCTION LOSSES
- NEGLIGIBLE SWITCHING LOSSES
- LOW FORWARD VOLTAGE DROP
- LOW THERMAL RESISTANCE
- EXTREMELY FAST SWITCHING
- SURFACE MOUNTED DEVICE

DESCRIPTION

Single chip schottky rectifier suited for switchmode power supply and high frequency DC to DC converters.

Packaged in SOT 223, this device is intended for surface mounting and use in low voltage, high frequency inverters, free wheeling and polarity protection applications.



ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{F(RMS)}$	RMS Forward Current		1.4	A
$I_{F(AV)}$	Average Forward Current	$T_L = 135^\circ\text{C}$ $\delta = 0.5$	1	A
I_{FSM}	Surge Non Repetitive Forward Current	$t_p = 10 \text{ ms}$ Sinusoidal	10	A
I_{RRM}	Peak Repetitive Reverse Current	$t_p = 2 \mu\text{s}$ $F = 1\text{KHz}$	1	A
T_{stg} T_j	Storage and Junction Temperature Range		- 65 to + 150 - 65 to + 150	$^\circ\text{C}$
dV/dt	Critical Rate of Rise of Reverse Voltage		1000	V/ μs

Symbol	Parameter	STPS			Unit
		120E	130E	140E	
V_{RRM}	Repetitive Peak Reverse Voltage	20	30	40	V

THERMAL RESISTANCE

Symbol	Parameter		Value	Unit
$R_{TH(j-t)}$	Junction to Tab for D.C		20	$^\circ\text{C/W}$
$R_{TH(j-a)}$	Junction to Ambient with 5cm ² Copper Surface Under Tab		55	
		Total		

STPS120E/STPS130E/STPS140E

ELECTRICAL CHARACTERISTICS

STATIC CHARACTERISTICS

Symbol	Tests Conditions		Min.	Typ.	Max.	Unit
I_R **	$T_j = 25^\circ\text{C}$	$V_R = V_{RRM}$			500	μA
	$T_j = 100^\circ\text{C}$				10	mA
V_F *	$T_j = 125^\circ\text{C}$	$I_F = 2\text{ A}$			0.72	V
	$T_j = 125^\circ\text{C}$	$I_F = 1\text{ A}$			0.55	
	$T_j = 25^\circ\text{C}$	$I_F = 2\text{ A}$			0.81	

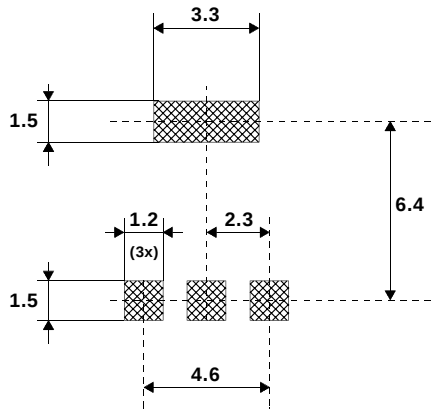
Pulse test : * $t_p = 380\text{ }\mu\text{s}$, duty cycle $< 2\%$

** $t_p = 5\text{ ms}$, duty cycle $< 2\%$

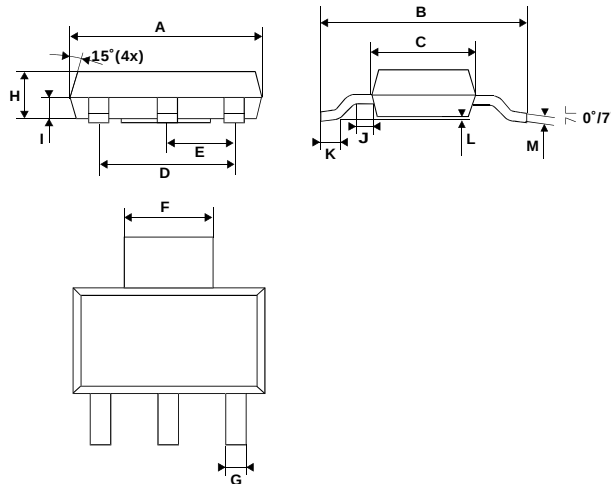
To evaluate the conduction losses use the following equation :

$$P = 0.38 \times I_{F(AV)} + 0.17 I_{F(RMS)}^2$$

Voltage (V)	20	30	40
Marking	S12	S13	S14

PACKAGE MECHANICAL DATA
SOT223


REF.	DIMENSIONS					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	6.30	6.50	6.70	0.248	0.256	0.264
B	6.70	7.00	7.30	0.264	0.275	0.287
C	3.30	3.50	3.70	0.130	0.139	0.146
D		4.60			0.181	
E		2.30			0.090	
F	2.90	3.00	3.10	0.114	0.118	0.122
G	0.60	0.70	0.80	0.023	0.027	0.031
H	1.50	1.60	1.70	0.059	0.063	0.067
I	0.43	0.45	0.47	0.017	0.018	0.019
J	0.50	0.60	0.70	0.019	0.023	0.027
K	0.63	0.65	0.67	0.024	0.025	0.026
L		0.05			0.002	
M			0.32			0.012



Marking : Type number
 Weight : 0.11 g

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