

SCHOTTKY RECTIFIER

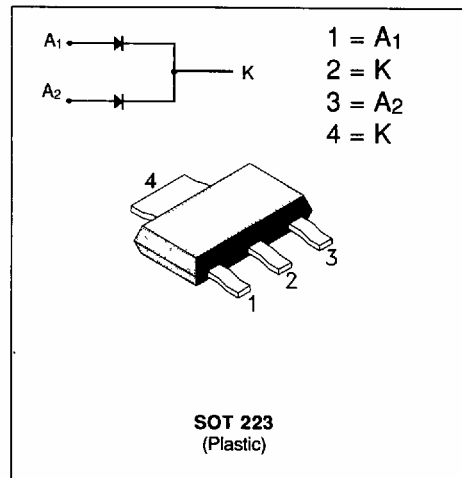
PRELIMINARY DATA

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

DESCRIPTION

Dual center tap schottky rectifier suited for switch-mode 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		Per diode 1.4	A
I _{F(AV)}	Average Forward Current	T _L = 135°C δ = 0.5	Per diode 1 Per device 2	A
I _{FSM}	Surge Non Repetitive Forward Current	tp = 10 ms Sinusoidal	Per diode 10	A
I _{RRM}	Peak Repetitive Reverse Current	tp = 2 μs F = 1KHz	Per diode 1	A
T _{stg} T _J	Storage and Junction Temperature Range		- 65 to + 150 - 65 to + 150	°C
dV/dt	Critical Rate of Rise of Reverse Voltage		1000	V/μs

Symbol	Parameter	STPS			Unit
		220CE	230CE	240CE	
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.	Total	12	°C/W
		Per diode	20	
R _{TH(j-a)}	Junction to Ambient with 5cm ² Copper Surface Under Tab		55	
R _{TH(c)}	Coupling		5	°C/W

When the diodes 1 and 2 are used simultaneously :

$$\Delta T_J(\text{diode } 1) = P(\text{diode } 1) \times R_{TH}(\text{Per diode}) + P(\text{diode } 2) \times R_{TH(c)}$$

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STPS220CE/STPS230CE/STPS240CE**ELECTRICAL CHARACTERISTICS**

STATIC CHARACTERISTICS (Per diode)

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 : * $t_p = 380 \mu\text{s}$, 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	T22	T23	T24