SGS-THOMSON MICROELECTRONICS

STPS220CE
STPS230CE
STPS240CE

SCHOTTKY RECTIFIER

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

$1 = A_1$
$2 = K$
$3 = A_2$
$4 = K$
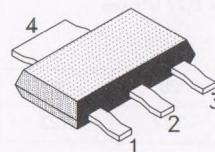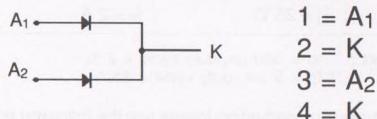
SOT 223
(Plastic)

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 $T_L = 135°C$ $\delta = 0.5$	Per diode Per device	1 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
Tstg Tj	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 Per diode	12 20	°C/W
$R_{TH(j-a)}$	Junction to Ambient with 5cm² Copper Surface Under Tab		55	
$R_{TH(c)}$	Coupling		5	°C/W

When the diodes 1 and 2 are used simultaneously :
$\Delta T_J(diode\ 1) = P(diode1) \times R_{TH}(Per\ diode) + P(diode\ 2) \times R_{TH(c)}$

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1/2

ELECTRICAL CHARACTERISTICS

STATIC CHARACTERISTICS (Per diode)

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

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

To evaluate the conduction losses use the following equation :
$$P = 0.38 \times I_{F(AV)} + 0.17\ I_F^2{}_{(RMS)}$$

Voltage (V)	20	30	40
Marking	T22	T23	T24

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