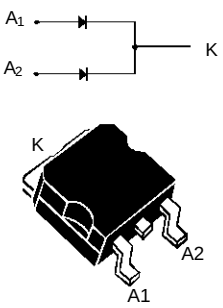
SGS-THOMSON MICROELECTRONICS

STPS1545CG

POWER SCHOTTKY RECTIFIER

FEATURES AND BENEFITS

- VERY SMALL CONDUCTION LOSSES
- NEGLIGIBLE SWITCHING LOSSES
- EXTREMELY FAST SWITCHING
- LOW FORWARD VOLTAGE DROP
- HIGH AVALANCHE CAPABILITY
- LOW THERMAL RESISTANCE
- SMD PACKAGE



D²PAK
(Plastic)

DESCRIPTION

Dual center tap Schottky rectifier suited for switch mode power supply and high frequency DC to DC converters.

Packaged in D²PAK, this device is intended for 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	20	A
$I_{F(AV)}$	Average Forward Current $\delta = 0.5$	Tc = 135°C	Per diode	7.5	A
I_{FSM}	Surge Non Repetitive Forward Current	Tp = 10 ms Sinusoidal	Per diode	150	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	Value	Unit
V_{RRM}	Repetitive Peak Reverse Voltage	45	V

THERMAL RESISTANCE

Symbol	Parameter		Value	Unit
$R_{TH\ (j-c)}$	Junction-case	Per diode total	3.0 1.7	°C/W
$R_{TH\ (c)}$	Coupling		0.35	°C/W

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

ELECTRICAL CHARACTERISTICS

STATIC CHARACTERISTICS PER DIODE

Symbol	Tests Conditions		Min.	Typ.	Max.	Unit
I_R *	Tj = 25°C	$V_R = V_{RRM}$			100	µA
	Tj = 125°C				15	mA
V_F **	Tj = 125°C	I_F = 15 A			0.72	V
	Tj = 125°C	I_F = 7.5 A			0.57	
	Tj = 25°C	I_F = 15 A			0.84	

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

To evaluate the conduction losses use the following equation :
$P = 0.42 \times I_{F(AV)} + 0.020\ I_F{}^2{}_{(RMS)}$

Fig. 1 : Average forward power dissipation versus average forward current. (Per diode)

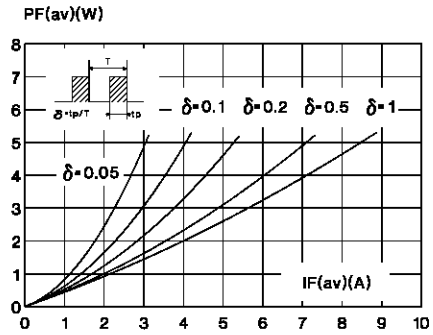


Fig. 2 : Average current versus ambient temperature. (duty cycle : 0.5) (Per diode)

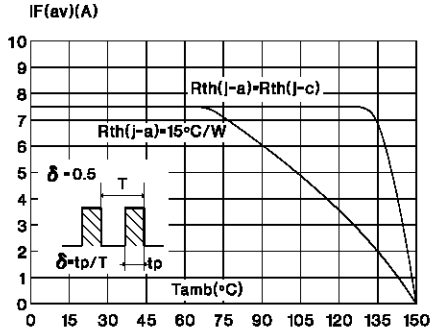


Fig. 3 : Non repetitive surge peak forward current versus overload duration. (Maximum values) (Per diode)

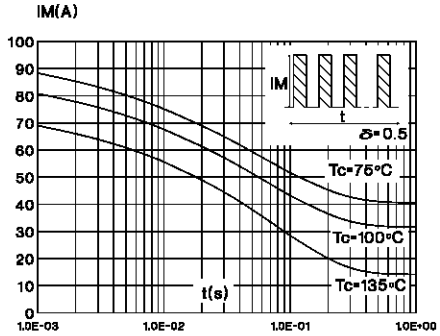


Fig. 4 : Relative variation of thermal transient impedance junction to case versus pulse duration.

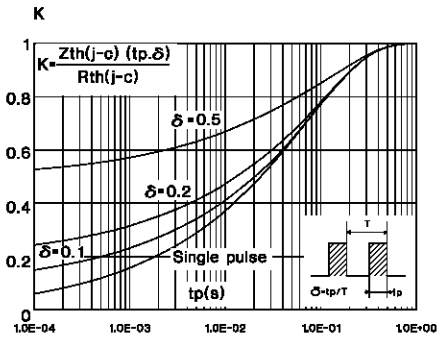


Fig. 4 : Reverse leakage current versus reverse voltage applied. (Typical values) (Per diode)

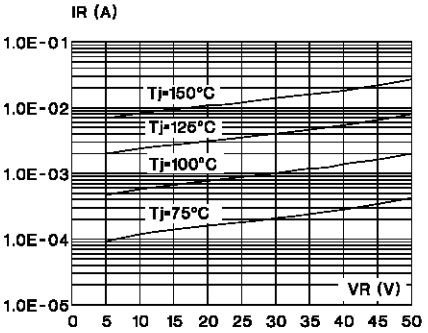


Fig. 6 : Junction capacitance versus reverse voltage applied. (Typical values) (Per diode)

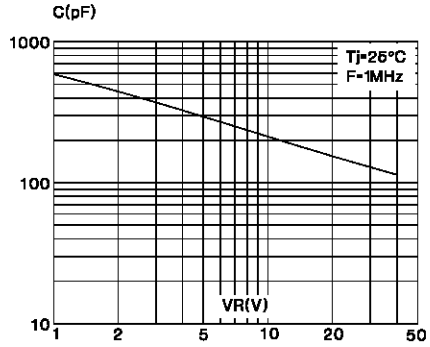
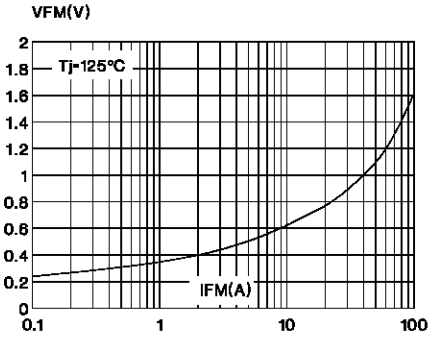
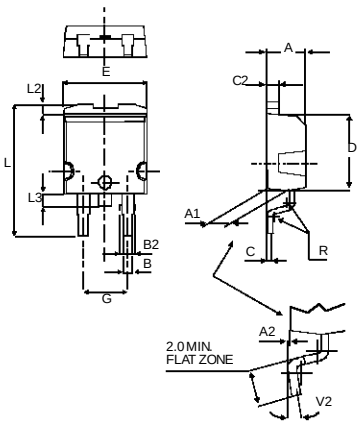


Fig. 7 : Forward voltage drop versus forward current. (Maximum values) (Per diode)



PACKAGE MECHANICAL DATA

D^2PAK (Plastic)



REF.	DIMENSIONS					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.30		4.60	0.169		0.181
A1	2.49		2.69	0.098		0.106
A2	0.03		0.23	0.001		0.009
B	0.70		0.93	0.027		0.037
B2	1.25		1.40	0.049		0.055
C	0.45		0.60	0.017		0.024
C2	1.21		1.36	0.047		0.054
D	9.00		9.35	0.354		0.368
E	10.00		10.28	0.393		0.405
G	4.88		5.28	0.192		0.208
L	15.00		15.85	0.590		0.624
L2	1.27		1.37	0.050		0.054
L3	1.40		1.75	0.055		0.069
R		0.40			0.016	
V2	0°		8°	0°		8°

Cooling method : C
Marking : Type number
Weight : 1.8 g