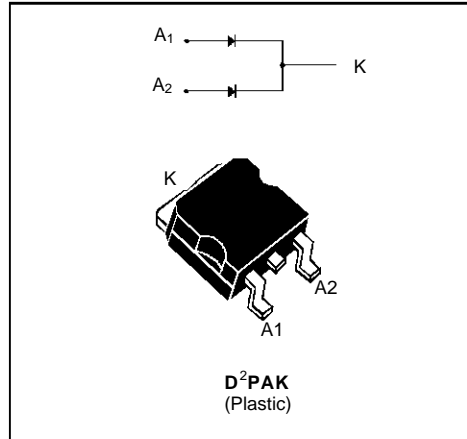


## POWER SCHOTTKY RECTIFIER

### 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



### DESCRIPTION

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

Packaged in D<sup>2</sup>PAK, 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 <sub>F(RMS)</sub>	RMS Forward Current		30	A
I <sub>F(AV)</sub>	Average Forward Current δ = 0.5	T <sub>c</sub> = 135°C	10	A
I <sub>FSM</sub>	Surge Non Repetitive Forward Current	T <sub>p</sub> = 10 ms Sinusoidal	180	A
I <sub>RRM</sub>	Peak Repetitive Reverse Current	T <sub>p</sub> = 2 μs F = 1KHz	1	A
T <sub>stg</sub> T <sub>j</sub>	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 <sub>RRM</sub>	Repetitive Peak Reverse Voltage	45	V

## STPS2045CG

### THERMAL RESISTANCE

Symbol	Parameter		Value	Unit
R <sub>TH(j-c)</sub>	Junction-case	Per diode	2.2	°C/W
		total	1.3	
R <sub>TH(c)</sub>	Coupling		0.3	°C/W

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

### ELECTRICAL CHARACTERISTICS

#### STATIC CHARACTERISTICS PER DIODE

Symbol	Tests Conditions		Min.	Typ.	Max.	Unit
I <sub>R</sub> *	T <sub>j</sub> = 25°C	V <sub>R</sub> = V <sub>RRM</sub>			100	μA
	T <sub>j</sub> = 125°C				15	mA
V <sub>F</sub> **	T <sub>j</sub> = 125°C	I <sub>F</sub> = 20 A			0.72	V
	T <sub>j</sub> = 125°C	I <sub>F</sub> = 10 A			0.57	
	T <sub>j</sub> = 25°C	I <sub>F</sub> = 20 A			0.84	

Pulse test : \* t<sub>p</sub> = 5 ms, duty cycle < 2 %  
 \*\* t<sub>p</sub> = 380 μs, duty cycle < 2%

To evaluate the conduction losses use the following equation :  
 $P = 0.42 \times I_{F(AV)} + 0.015 I_{F(RMS)}^2$

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

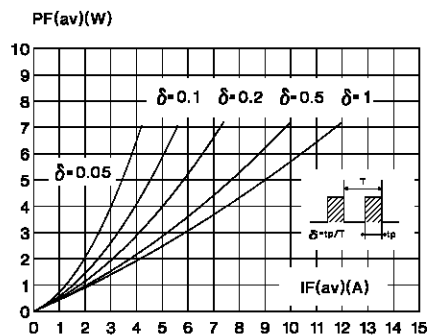


Fig. 2 : Average current versus ambient temperature. (duty cycle : 0.5) (Per diode)

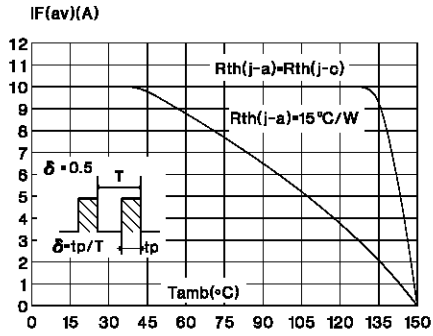


Fig. 3 : Non repetitive surge peak forward current versus overload duration. (Maximum values) (Per diode)

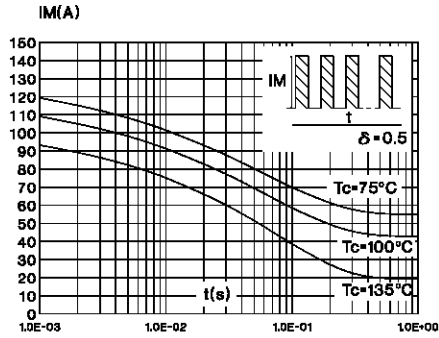


Fig. 4 : Relative variation of thermal transient impedance junction to case versus pulse duration.

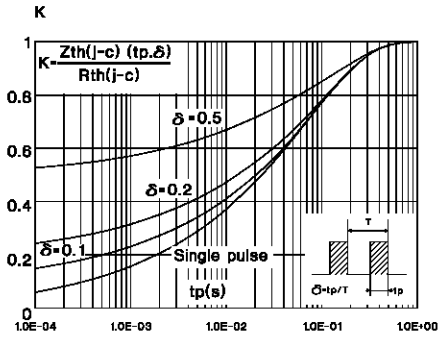


Fig. 5 : Reverse leakage current versus reverse voltage applied. (Typical values) (Per diode)

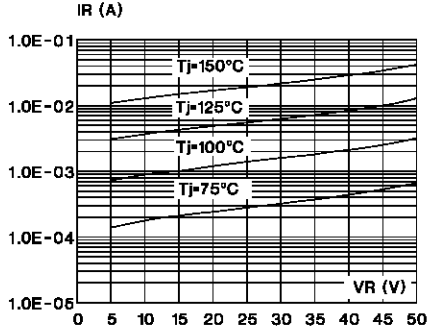


Fig. 6 : Junction capacitance versus reverse voltage applied. (Typical values) (Per diode)

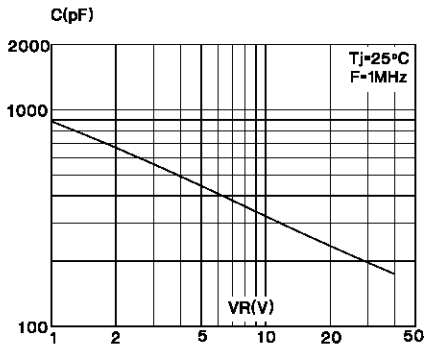
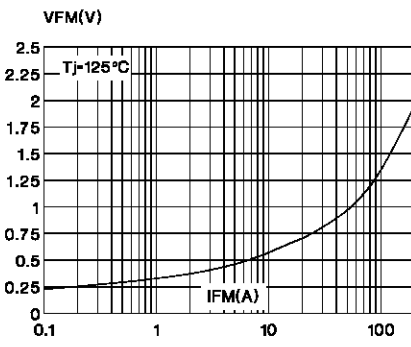
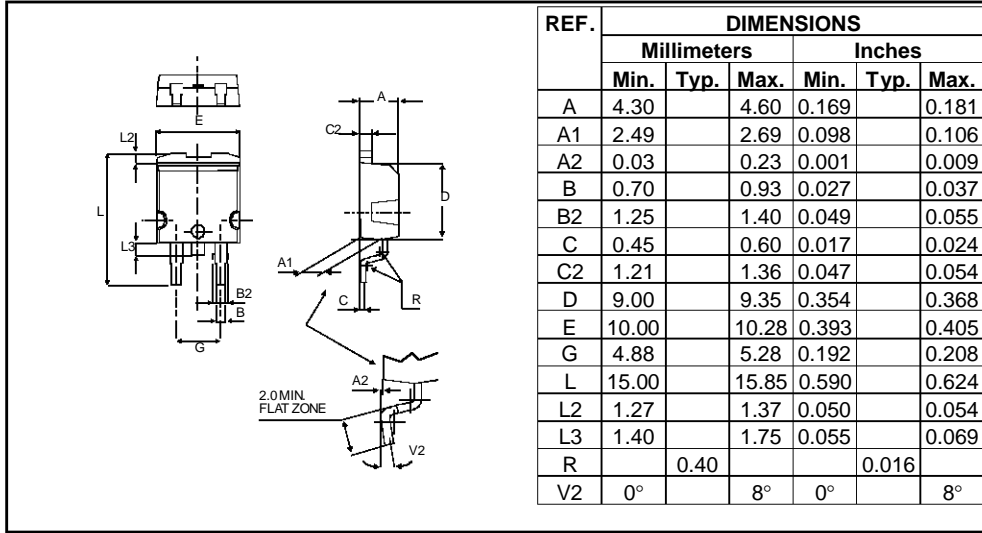


Fig. 7 : Forward voltage drop versus forward current. (Maximum values) (Per diode)



**STPS2045CG**

**PACKAGE MECHANICAL DATA**  
D<sup>2</sup>PAK (Plastic)



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

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