

POWER SCHOTTKY RECTIFIER

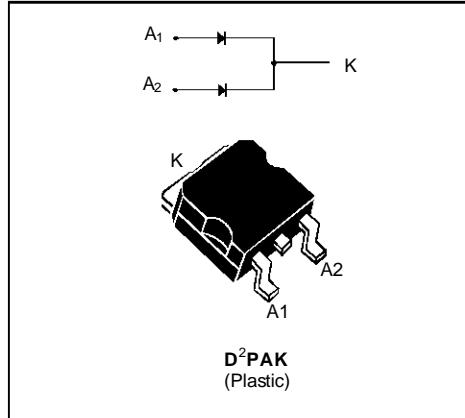
FEATURES AND BENEFITS

- 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 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 $\delta = 0.5$	T _c = 135°C Per diode	7.5	A
I _{FSM}	Surge Non Repetitive Forward Current	T _p = 10 ms Sinusoidal	150	A
I _{RRM}	Peak Repetitive Reverse Current	T _p = 2 µs F = 1KHz	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	Value	Unit
V _{RRM}	Repetitive Peak Reverse Voltage	45	V

STPS1545CG

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

ELECTRICAL CHARACTERISTICS

STATIC CHARACTERISTICS PER DIODE

Symbol	Tests Conditions		Min.	Typ.	Max.	Unit
I _R *	T _j = 25°C	V _R = V _{RRM}			100	μA
	T _j = 125°C				15	mA
V _F **	T _j = 125°C	I _F = 15 A			0.72	V
	T _j = 125°C	I _F = 7.5 A			0.57	
	T _j = 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 :
 $P = 0.42 \times I_{F(\text{AV})} + 0.020 I_{F(\text{RMS})}^2$

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

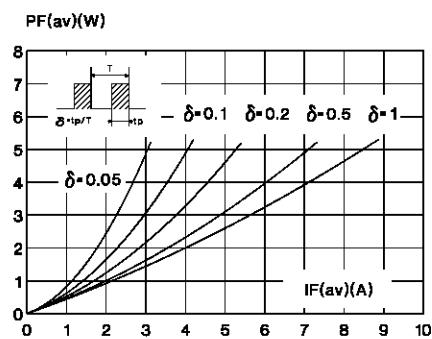


Fig. 2 : Average current versus ambient temperature.
(duty cycle : 0.5) (Per diode)

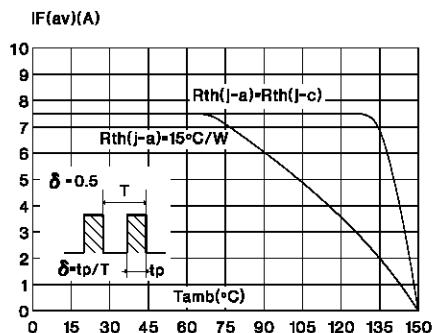


Fig. 4 : Relative variation of thermal transient impedance junction to case versus pulse duration.

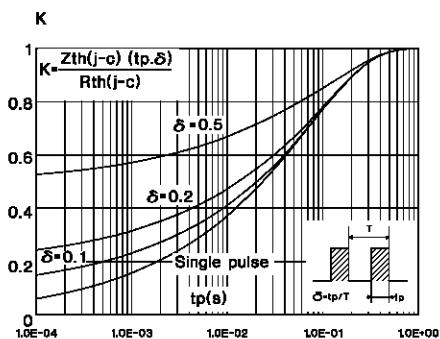


Fig. 6 : Junction capacitance versus reverse voltage applied. (Typical values) (Per diode)

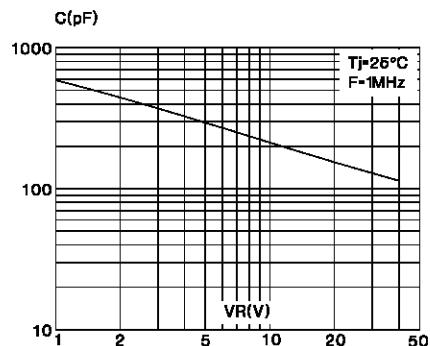


Fig. 3 : Non repetitive surge peak forward current versus overload duration. (Maximum values) (Per diode)

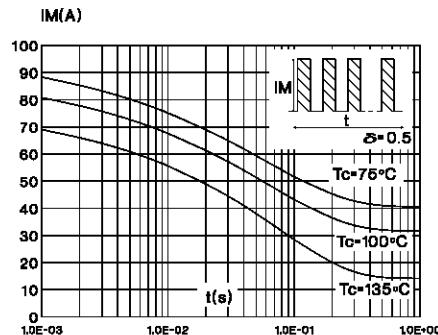


Fig. 4 : Reverse leakage current versus reverse voltage applied. (Typical values) (Per diode)

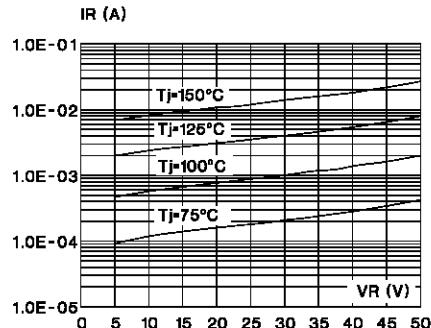
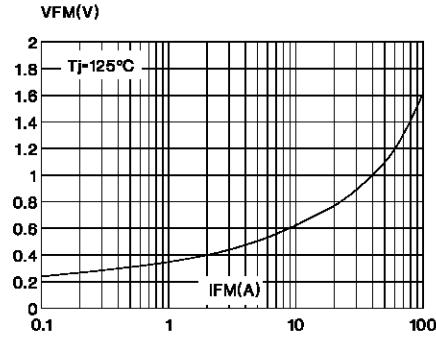


Fig. 7 : Forward voltage drop versus forward current. (Maximum values) (Per diode)



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PACKAGE MECHANICAL DATA D²PAK (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

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