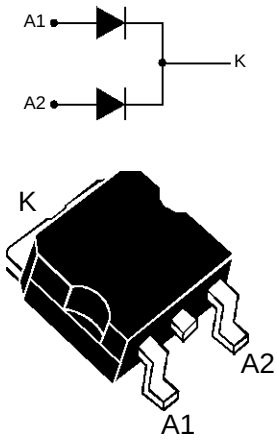
SGS-THOMSON MICROELECTRONICS

STPS3045CG

POWER SCHOTTKY RECTIFIER

MAIN PRODUCT CHARACTERISTICS

$I_{F(AV)}$	2*15 A
V_{RRM}	45 V
V_F (max)	0.57 V



D^2PAK
(Plastic)

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 Switched Mode Power Supplies and high frequency DC to DC converters.

Packaged in D^2PAK, this device is especially intended for use as a Rectifier at the secondary of SMPS or DC/DC units.

ABSOLUTE RATING (limiting values)

Symbol	Parameter			Value	Unit
V_{RRM}	Repetitive Peak Reverse Voltage		Per diode	45	V
$I_{F(AV)}$	Average Forward Current	Tcase = 135°C δ = 0.5	Per diode Per device	15 30	A
I_{FSM}	Surge Non Repetitive Forward Current	tp = 10 ms Sinusoidal	Per diode	220	A
I_{RRM}	Repetitive Peak Reverse Current	tp = 2 µs F = 1KHz	Per diode	1	A
Tstg	Storage Temperature Range			- 65 to + 150	°C
Tj	Max. Junction Temperature			150	°C
dV/dt	Critical Rate of Rise of Reverse Voltage			1000	V/µs

THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
$R_{th\ (j-c)}$	Junction to Case Thermal Resistance	Per diode	1.60	°C/W
		Total	0.85	
$R_{th\ (c)}$	Coupling		0.10	

When the diodes 1 and 2 are used simultaneously :

Δ Tj (diode 1) = P(diode1) x R_{th}(per diode) + P(diode 2) x $R_{th(C)}$

STATIC ELECTRICAL CHARACTERISTICS (per diode)

Symbol	Tests Conditions	Tests Conditions		Min.	Typ.	Max.	Unit
I_R *	Reverse leakage Current	Tj = 25°C	$V_R = V_{RRM}$			200	µA
		Tj = 125°C				40	mA
V_F **	Forward Voltage drop	Tj = 25°C	I_F = 30 A			0.84	V
		Tj = 125°C	I_F = 30 A			0.72	
		Tj = 125°C	I_F = 15 A			0.57	

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

To evaluate the conduction losses use the following equation :
$P = 0.42 \times I_{F(AV)} + 0.01\ I_F{}^2{}_{(RMS)}$
Typical junction capacitance, V_R = 5V F = 1MHZ Tj = 25°C : 700pF

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

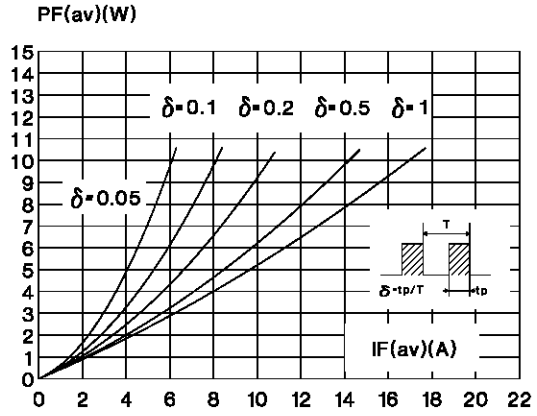


Fig. 2 : Average current versus ambient temperature.

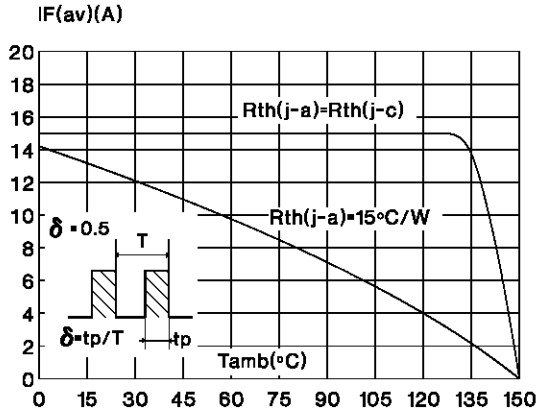


Fig. 3 : Non repetitive surge peak forward current versus overload duration.
(Maximum values) (Per diode)

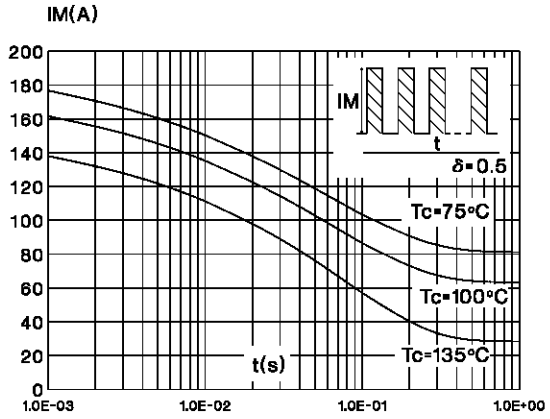


Fig. 4 : Relative variation of thermal transient impedance junction to case versus pulse duration.

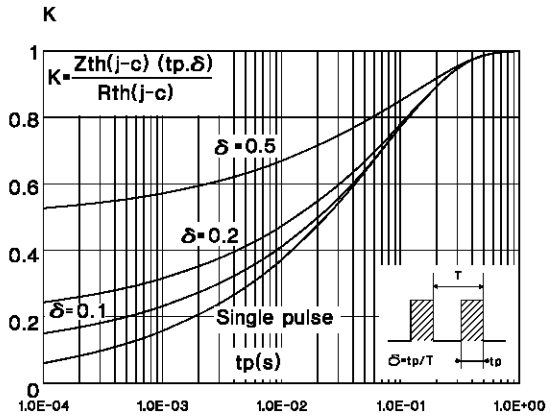


Fig. 5 : Reverse leakage current versus reverse voltage applied. (Typical values) (Per diode)

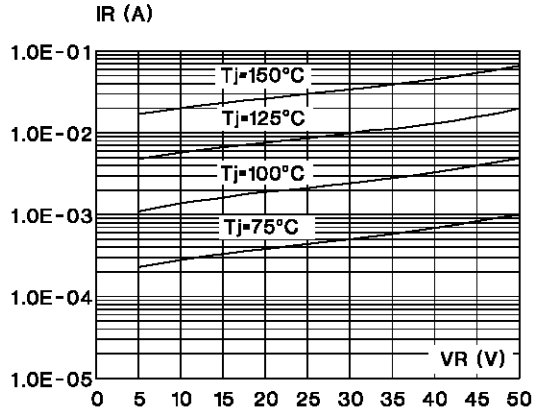


Fig. 6 : Junction capacitance versus reverse voltage applied. (Typical values) (Per diode)

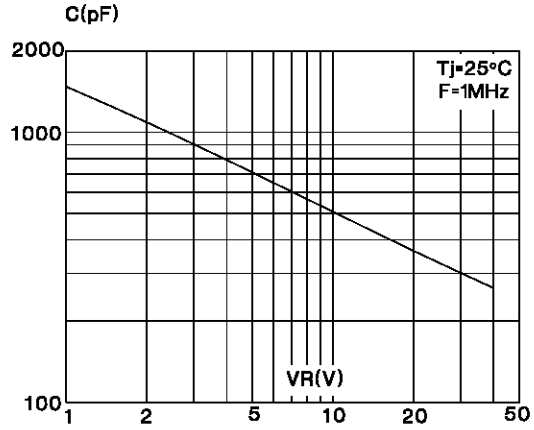
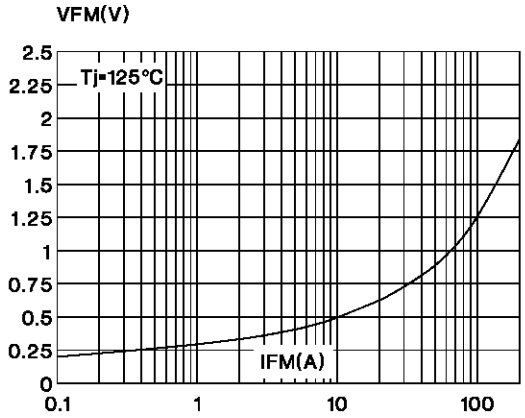
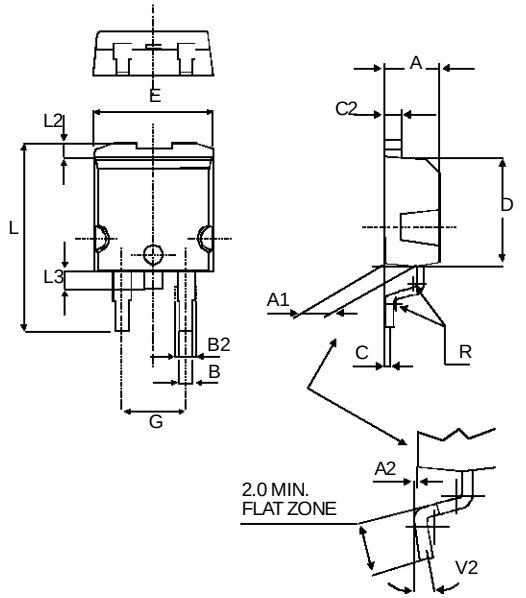


Fig. 7 : Forward voltage drop versus forward current. (Maximum values) (Per diode)



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.