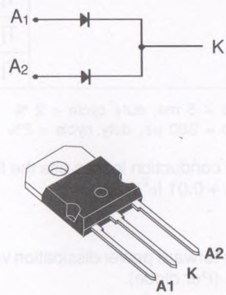
STPS4045CP

POWER SCHOTTKY RECTIFIER

MAJOR PRODUCTS CHARACTERISTICS

$I_{F(av)}$	2 * 20 A
V_{RRM}	45 V
V_F	0.63 V



SOT93
(Plastic)

STPS4045CP

FEATURES AND BENEFITS

- VERY SMALL CONDUCTION LOSSES
- NEGLIGIBLE SWITCHING LOSSES
- HIGH AVALANCHE CAPABILITY
- NON ISOLATED VERSION

DESCRIPTION

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

Packaged in SOT93, 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
V_{RRM}	Repetitive Peak Reverse Voltage			45	V
$I_{F(RMS)}$	RMS Forward Current		Per diode	35	A
$I_{F(AV)}$	Average Forward Current	Tc = 125°C δ = 0.5	Per diode Per device	20 40	A
I_{FSM}	Surge Non Repetitive Forward Current	Tp = 10 ms Sinusoidal	Per diode	220	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

THERMAL RESISTANCE

Symbol	Parameter		Value	Unit
$R_{TH\ (j-c)}$	Junction-case	Per diode total	1.5 0.8	°C/W
$R_{TH\ (c)}$	Coupling		0.1	°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	Parameter	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 = 125°C	I_F = 15 A			0.57	V
		Tj = 125°C	I_F = 20 A			0.63	
		Tj = 125°C	I_F = 30 A			0.72	
		Tj = 125°C	I_F = 40 A			0.83	
		Tj = 25°C	I_F = 30 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 :
$P = 0.42 \times I_{F(AV)} + 0.01\, I_{F}^{2}{}_{(RMS)}$

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

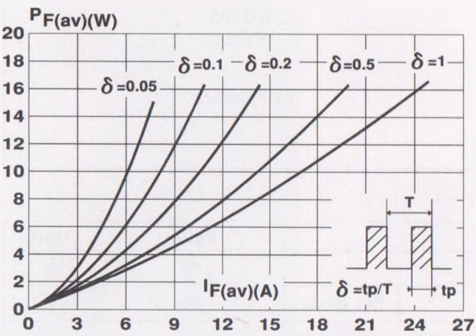


Fig. 2 : Average current versus ambient temperature. (duty cycle : 0.5) (Per diode)

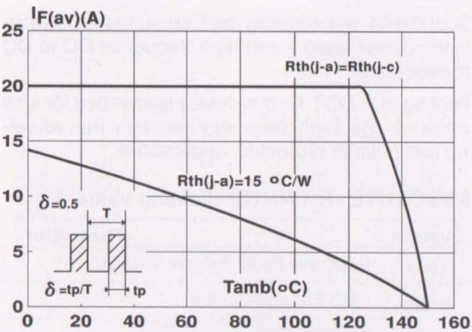


Fig. 3 : Non repetitive surge peak forward current versus overload duration. (Maximum values) (Per diode)

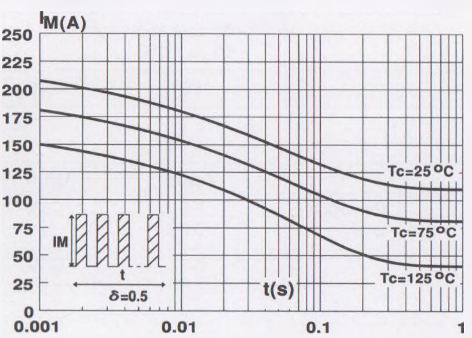


Fig. 4 : Relative variation of thermal transient impedance junction to case versus pulse duration.

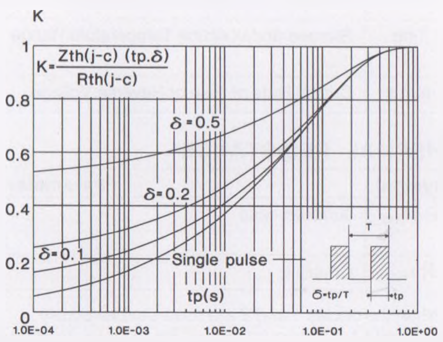


Fig. 5 : Reverse leakage current versus reverse voltage applied. (Typical values) (Per diode)

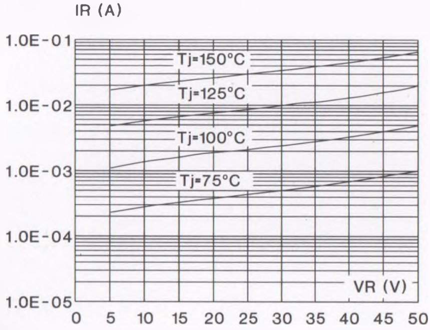


Fig. 6 : Junction capacitance versus reverse voltage applied. (Typical values) (Per diode)

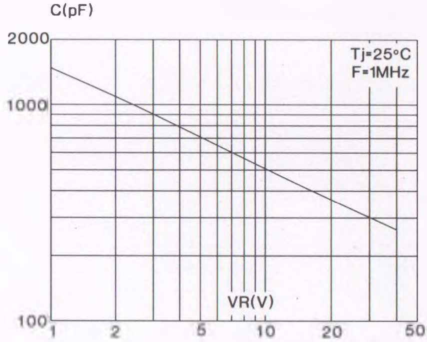


Fig. 7 : Forward voltage drop versus forward current. (Maximum values) (Per diode)