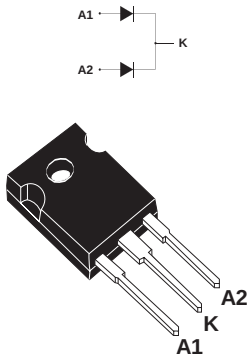
STPS3060CW

HIGH VOLTAGE POWER SCHOTTKY RECTIFIER

MAIN PRODUCT CHARACTERISTICS

$I_{F(AV)}$	2 x 15 A
V_{RRM}	60 V
Tj (max)	150°C
V_F (max)	0.75 V



TO-247
STPS3060CW

FEATURES AND BENEFITS

- Negligible switching losses
- Low forward voltage drop
- Low capacitance
- High reverse avalanche surge capability.

DESCRIPTION

High voltage dual Schottky rectifier suited for switchmode power supplies and other power converters.

Packaged in TO-247, this device is intended for use in medium voltage operation, and particularly, in high frequency circuitries where low switching losses and low noise are required.

ABSOLUTE RATINGS (limiting values, per diode)

Symbol	Parameter			Value	Unit
V_{RRM}	Repetitive peak reverse voltage			60	V
$I_{F(RMS)}$	RMS forward current		Per diode	30	A
$I_{F(AV)}$	Average forward current $\delta = 0.5$	Tc = 130°C	Per diode Per device	15 30	A
I_{FSM}	Surge non repetitive forward current	tp = 10 ms Sinusoidal	Per diode	200	A
I_{RRM}	Repetitive peak reverse current	tp=2 µs F=1kHz	Per diode	1	A
I_{RSM}	Non repetitive peak reverse current	tp = 100µs	Per diode	1	A
T_{stg}	Storage temperature range			- 65 to + 150	°C
Tj	Maximum operating junction temperature *			150	°C
dV/dt	Critical rate of rise of reverse voltage			1000	V/µs

* : $\frac{dPtot}{dTj} < \frac{1}{Rth(j-a)}$ thermal runaway condition for a diode on its own heatsink

THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
$R_{th(j-c)}$	Junction to 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 :
Δ Tj(diode 1) = P(diode1) x $R_{th(j-c)}$(Per diode) + P(diode 2) x $R_{th(c)}$

STATIC ELECTRICAL CHARACTERISTICS (per diode)

Symbol	Parameter	Tests Conditions		Min.	Typ.	Max.	Unit
I_R *	Reverse leakage current	Tj = 25°C	$V_R = V_{RRM}$			150	µA
		Tj = 125°C				100	mA
V_F *	Forward voltage drop	Tj = 25°C	I_F = 15 A			0.85	V
		Tj = 125°C	I_F = 15 A		0.65	0.75	
		Tj = 25°C	I_F = 30 A			1.05	
		Tj = 125°C	I_F = 30 A		0.80	0.90	

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

To evaluate the maximum conduction losses use the following equation :
$P = 0.6 \times I_{F(AV)} + 0.01\ I_F{}^2{}_{(RMS)}$

Fig. 1: Conduction losses versus average current (per diode).

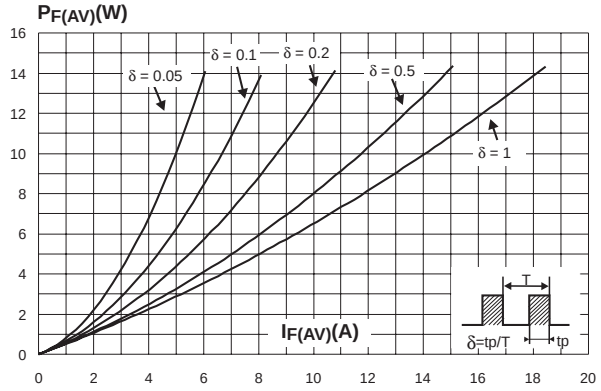


Fig. 2: Average forward current versus ambient temperature (δ=0.5, per diode).

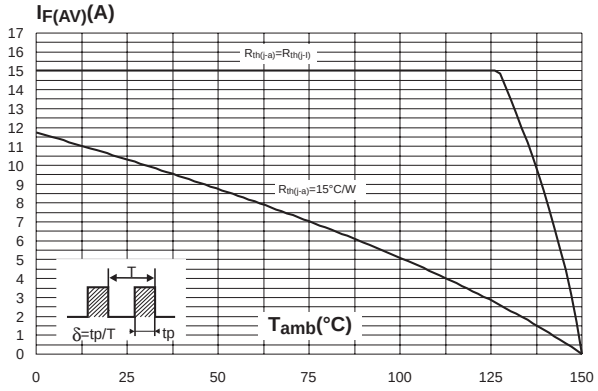


Fig. 3: Non repetitive surge peak forward current versus overload duration (maximum values, per diode)**.**

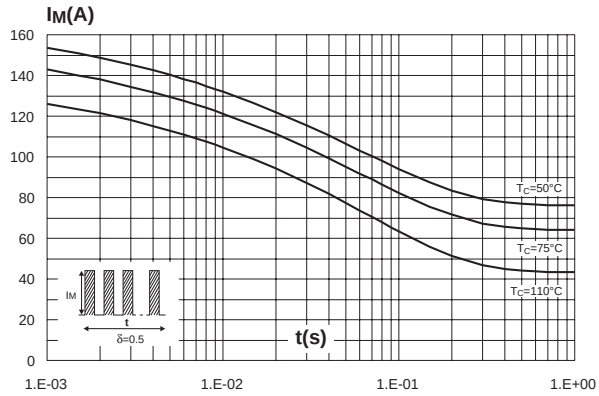


Fig. 4: Relative variation of thermal impedance junction to case versus pulse duration.

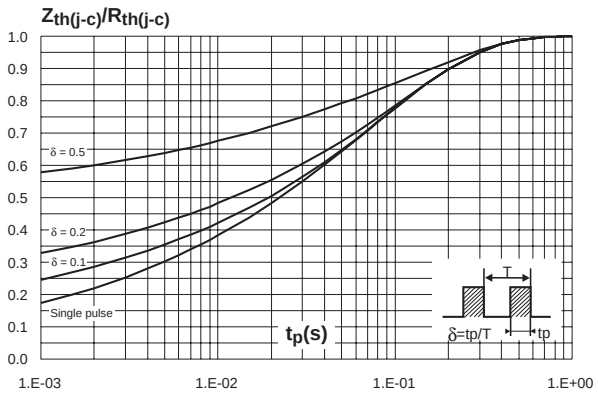


Fig. 5: Reverse leakage currrent versus reverse voltage applied (typical values, per diode).

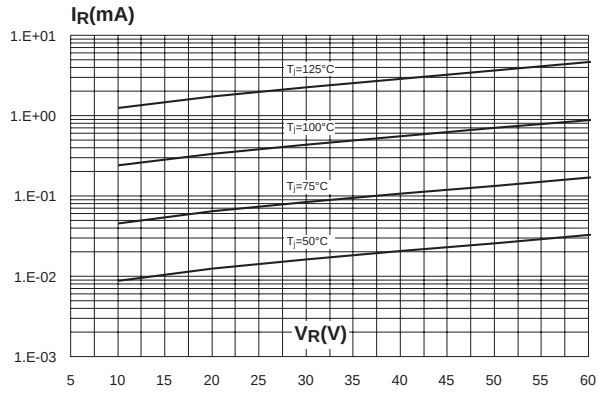


Fig. 6: Junction capacitance versus reverse voltage applied (typical values, per diode).

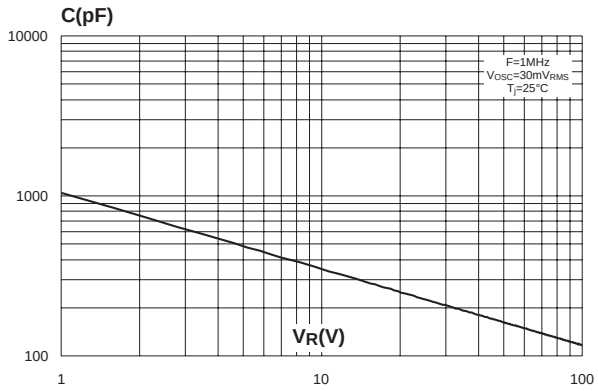


Fig. 7: Forward voltage drop versus forward current (maximum values, per diode).