



STPS60L45CW

LOW DROP POWER SCHOTTKY RECTIFIER

MAJOR PRODUCTS CHARACTERISTICS

I_{F(AV)}	2 x 30 A
T_{j (max)}	150°C
V_{RRM}	45 V
V_{F(max)}	0.50 V

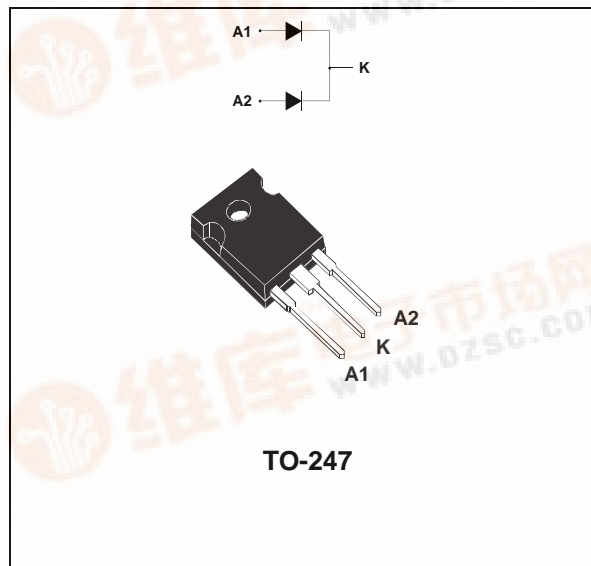
FEATURES AND BENEFITS

- VERY SMALL CONDUCTION LOSSES
- NEGLIGIBLE SWITCHING LOSSES
- EXTREMELY FAST SWITCHING
- LOW FORWARD VOLTAGE DROP
- LOW THERMAL RESISTANCE

DESCRIPTION

Dual center tap schottky barrier rectifier suited for 5V output in off line AC/DC power supplies.

Packaged in TO-247, this device is intended for use in low voltage, high frequency converters, free wheeling and polarity protection applications.



ABSOLUTE RATINGS (limiting values, per diode)

Symbol	Parameter		Value	Unit
V _{RRM}	Repetitive peak reverse voltage		45	V
I _{F(RMS)}	RMS forward current		50	A
I _{F(AV)}	Average forward current	T _c = 135°C δ = 0.5	Per diode: 30 Per device: 60	A
I _{FSM}	Surge non repetitive forward current	tp = 10 ms Sinusoidal	600	A
I _{RRM}	Repetitive peak reverse current	tp = 2 μs square F=1kHz	2	A
I _{RSM}	Non repetitive peak reverse current	tp = 100 μs square	4	A
T _{stg}	Storage temperature range		- 65 to + 150	°C
T _j	Maximum operating junction temperature (*)		150	°C
dV/dt	Critical rate of rise of reverse voltage		10000	V/μs

* : $\frac{dP_{tot}}{dT_j} < \frac{1}{R_{th(j-a)}}$ thermal runaway condition for a diode on its own heatsink



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THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
R _{th(j-c)}	Junction to case	Per diode	0.75	°C/W
		Total	0.42	
R _{th(c)}		Coupling	0.1	°C/W

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

STATIC ELECTRICAL CHARACTERISTICS (per diode)

Symbol	Parameter	Tests Conditions		Min.	Typ.	Max.	Unit
I _R *	Reverse leakage current	T _j = 25°C	V _R = 45 V			1.5	mA
		T _j = 125°C			175	350	
V _F *	Forward voltage drop	T _j = 25°C	I _F = 30 A			0.55	V
		T _j = 125°C	I _F = 30 A		0.44	0.5	
		T _j = 25°C	I _F = 60 A			0.73	
		T _j = 125°C	I _F = 60 A		0.64	0.72	

Pulse test : * t_p = 380 μs, δ < 2%

To evaluate the conduction losses use the following equation :
 $P = 0.28 \times I_{F(AV)} + 0.0073 I_{F(RMS)}^2$

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

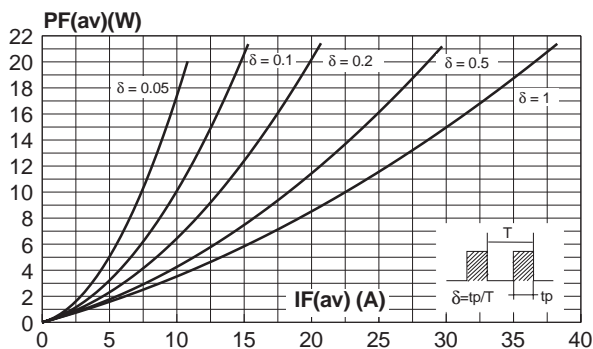


Fig. 2: Average current versus ambient temperature (δ=0.5, per diode).

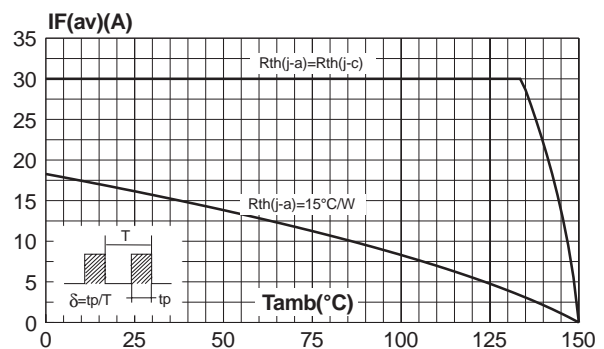


Fig. 3: Non repetitive surge peak forward current versus overload duration (maximum values, per diode).

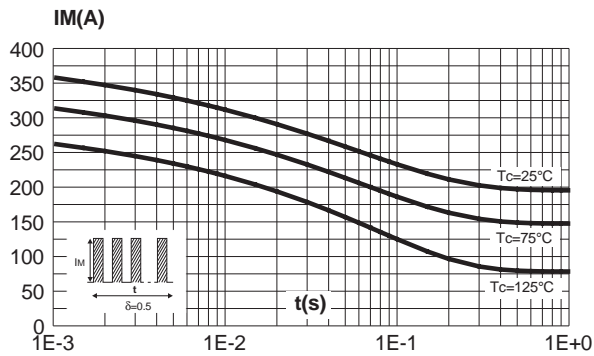


Fig. 4: Relative variation of thermal transient impedance junction to case versus pulse duration.

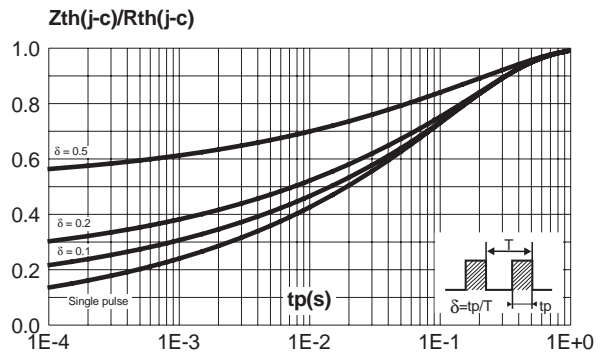


Fig. 5: Reverse leakage current versus reverse voltage applied (typical values, per diode).

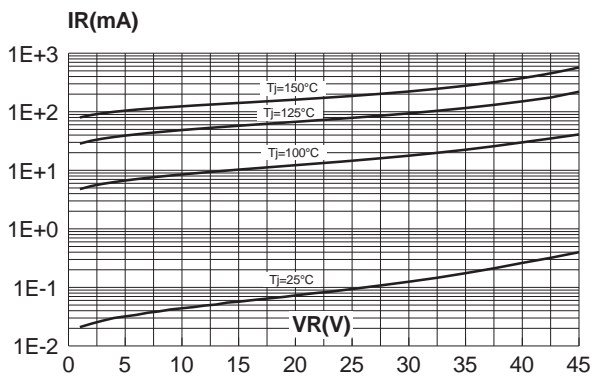


Fig. 6: Junction capacitance versus reverse voltage applied (typical values, per diode).

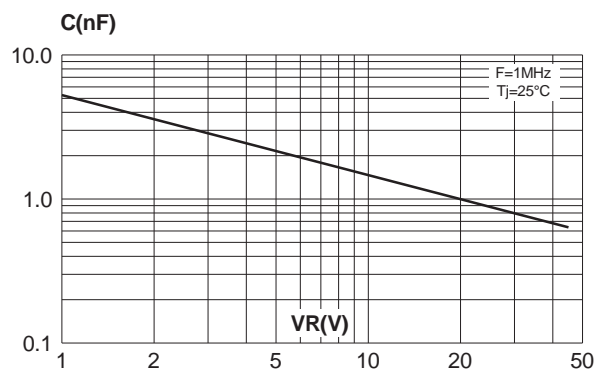
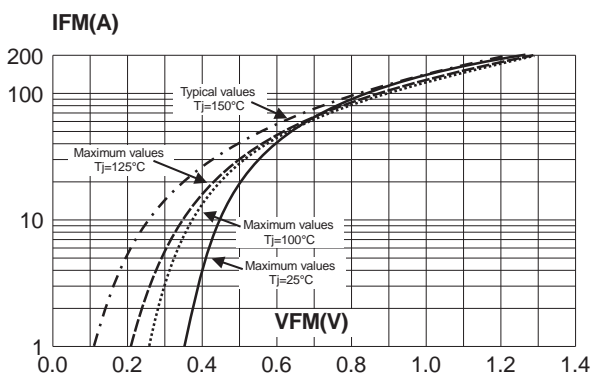
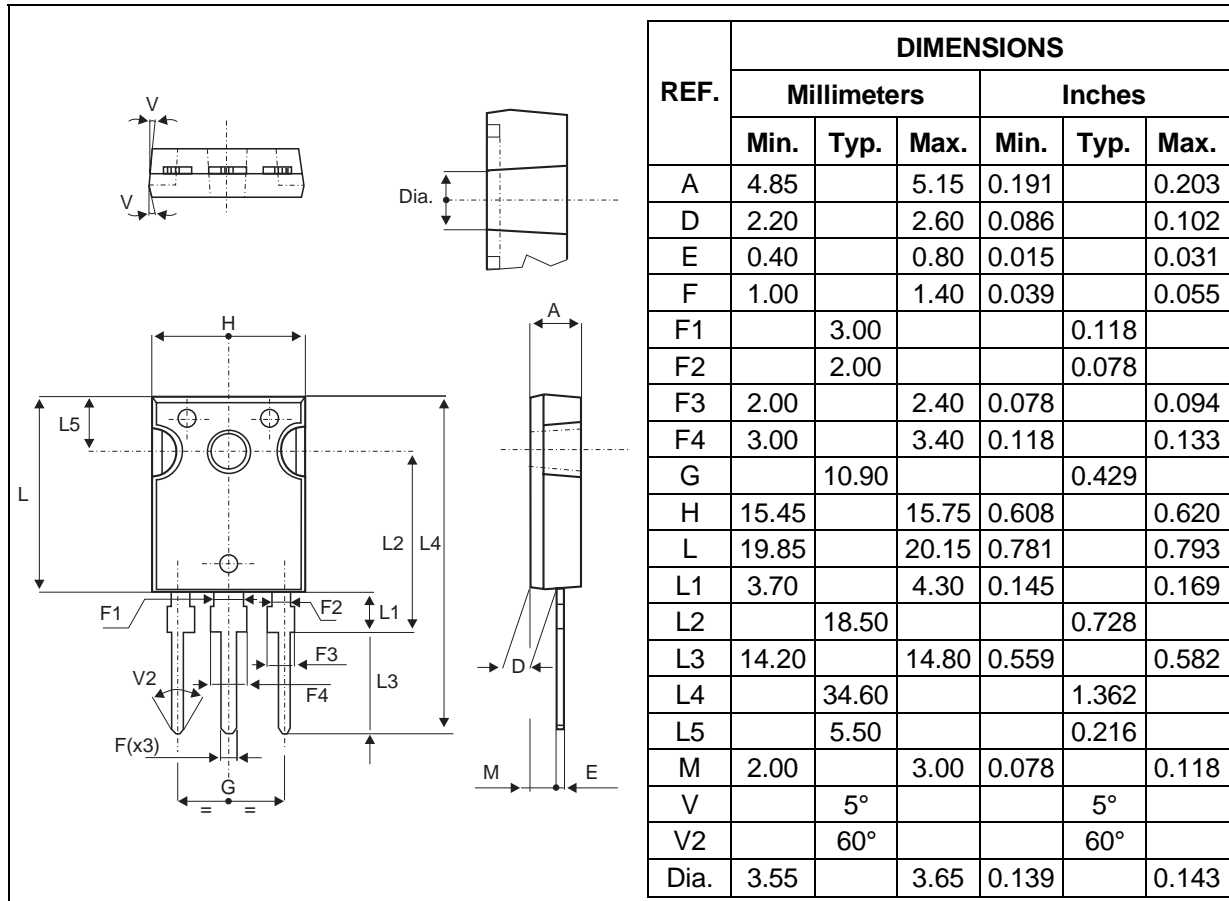


Fig. 7: Forward voltage drop versus forward current (per diode).



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PACKAGE MECHANICAL DATA TO-247



Type	Marking	Package	Weight	Base qty	Delivery mode
STPS60L45CW	STPS60L45CW	TO-247	4.36 g	30	Tube

- Cooling method : C
- Recommended torque value : 0.8m.N
- Maximum torque value : 1.0m.N
- Epoxy meets UL94,V0

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