



STPS4045CP/CW

POWER SCHOTTKY RECTIFIERS

MAJOR PRODUCTS CHARACTERISTICS

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

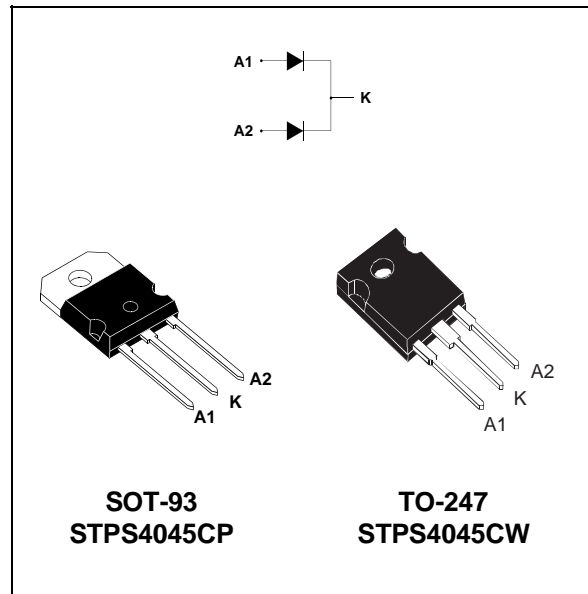
FEATURES AND BENEFITS

- VERY SMALL CONDUCTION LOSSES
- NEGLIGIBLE SWITCHING LOSSES
- NON ISOLATED VERSION

DESCRIPTION

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

Packaged in SOT-93 or TO-247 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	$T_c = 125^\circ\text{C}$ $\delta = 0.5$ Per diode Per device	20 40	A
I_{FSM}	Surge non repetitive forward current	$t_p = 10 \text{ ms}$ Sinusoidal Per diode	220	A
I_{RRM}	Peak repetitive reverse current	$t_p = 2 \mu\text{s}$ $F = 1 \text{ kHz}$ Per diode	1	A
T_{stg} T_j	Storage temperature range Maximum junction temperature		- 65 to + 150 150	$^\circ\text{C}$
dV/dt	Critical rate of rise of reverse voltage		10000	$\text{V}/\mu\text{s}$

THERMAL RESISTANCE

Symbol	Parameter		Value	Unit
$R_{th(j-c)}$	Junction to case	Per diode total	1.5 0.8	$^\circ\text{C}/\text{W}$
$R_{th(c)}$	Coupling		0.1	$^\circ\text{C}/\text{W}$

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

STATIC ELECTRICAL CHARACTERISTICS (per diode)

Symbol	Parameter	Tests Conditions		Min.	Typ.	Max.	Unit
I_R^*	Reverse leakage current	$T_j = 25^\circ\text{C}$	$V_R = V_{RRM}$			200	μA
		$T_j = 125^\circ\text{C}$				40	mA
V_F^{**}	Forward voltage drop	$T_j = 125^\circ\text{C}$	$I_F = 15\text{ A}$			0.57	V
		$T_j = 125^\circ\text{C}$	$I_F = 20\text{ A}$			0.63	
		$T_j = 125^\circ\text{C}$	$I_F = 30\text{ A}$			0.72	
		$T_j = 125^\circ\text{C}$	$I_F = 40\text{ A}$			0.83	
		$T_j = 25^\circ\text{C}$	$I_F = 30\text{ A}$			0.84	

Pulse test : * $t_p = 5\text{ ms}$, $\delta < 2\%$
 ** $t_p = 380\text{ }\mu\text{s}$, $\delta < 2\%$

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

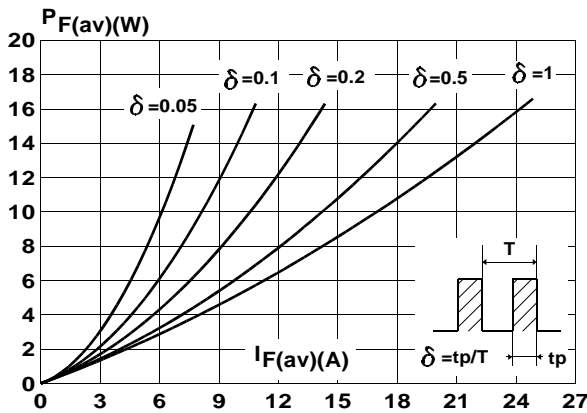


Fig. 3: Non repetitive surge peak forward current versus overload duration (maximum values) (per diode).

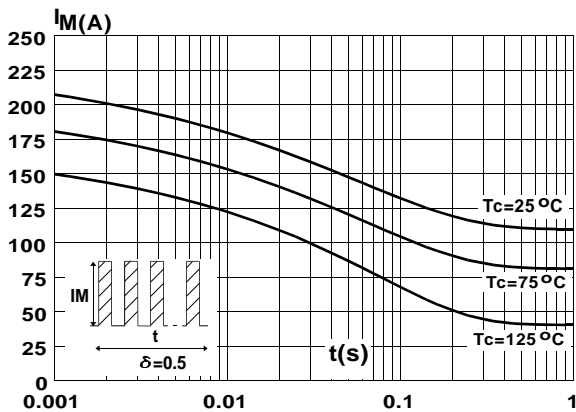


Fig. 2: Average current versus ambient temperature (per diode).

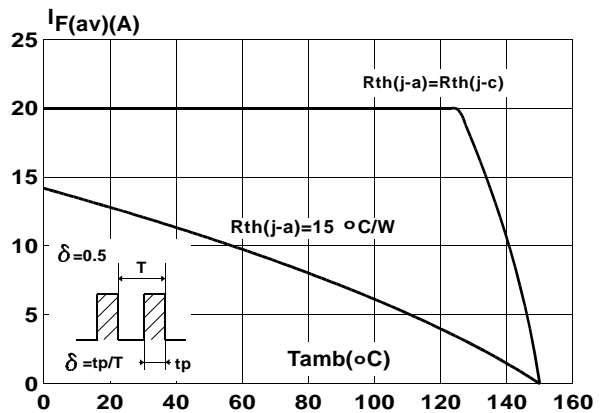


Fig. 4: Relative variation of thermal transient impedance junction to case versus pulse duration.

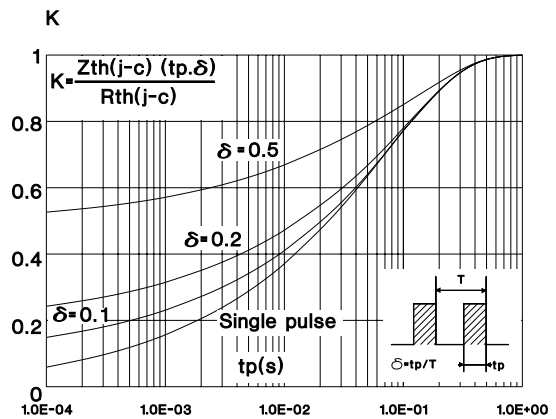


Fig. 5: Reverse leakage current versus reverse voltage applied (typical values) (per diode).

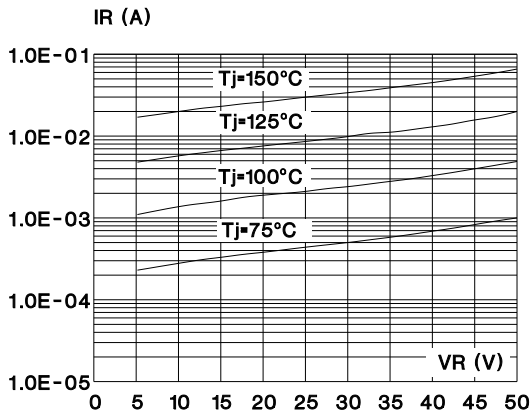


Fig. 6: Junction capacitance versus reverse voltage applied (typical values) (per diode).

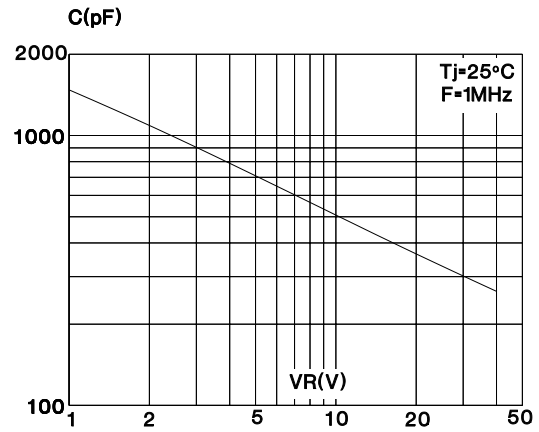
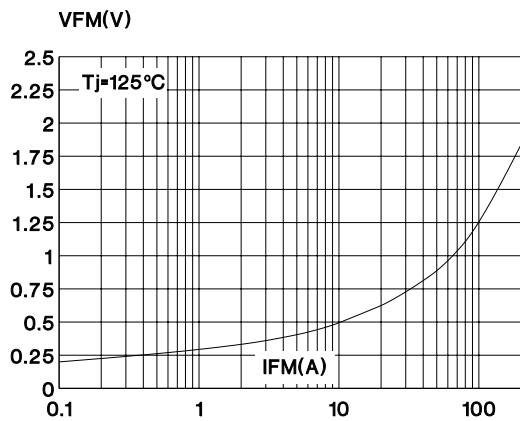
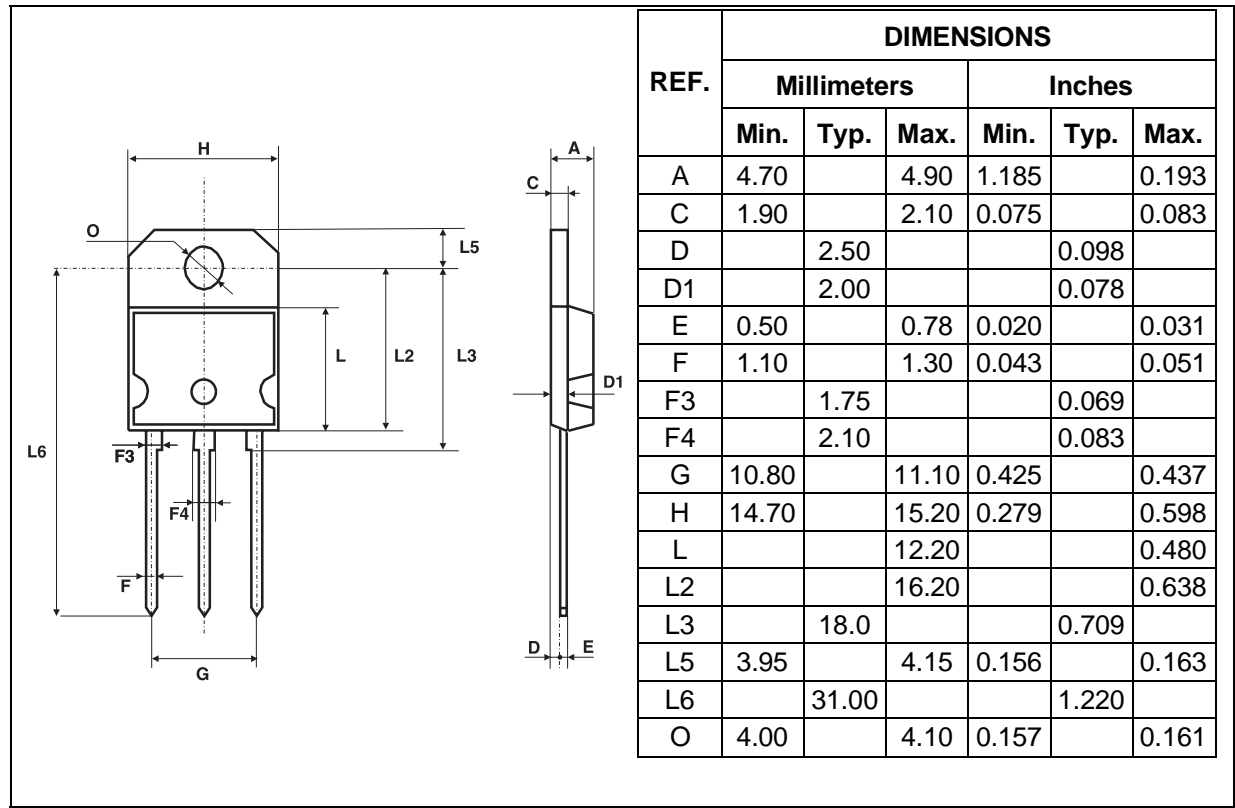


Fig. 7: Forward voltage drop versus forward current (maximum values) (per diode).

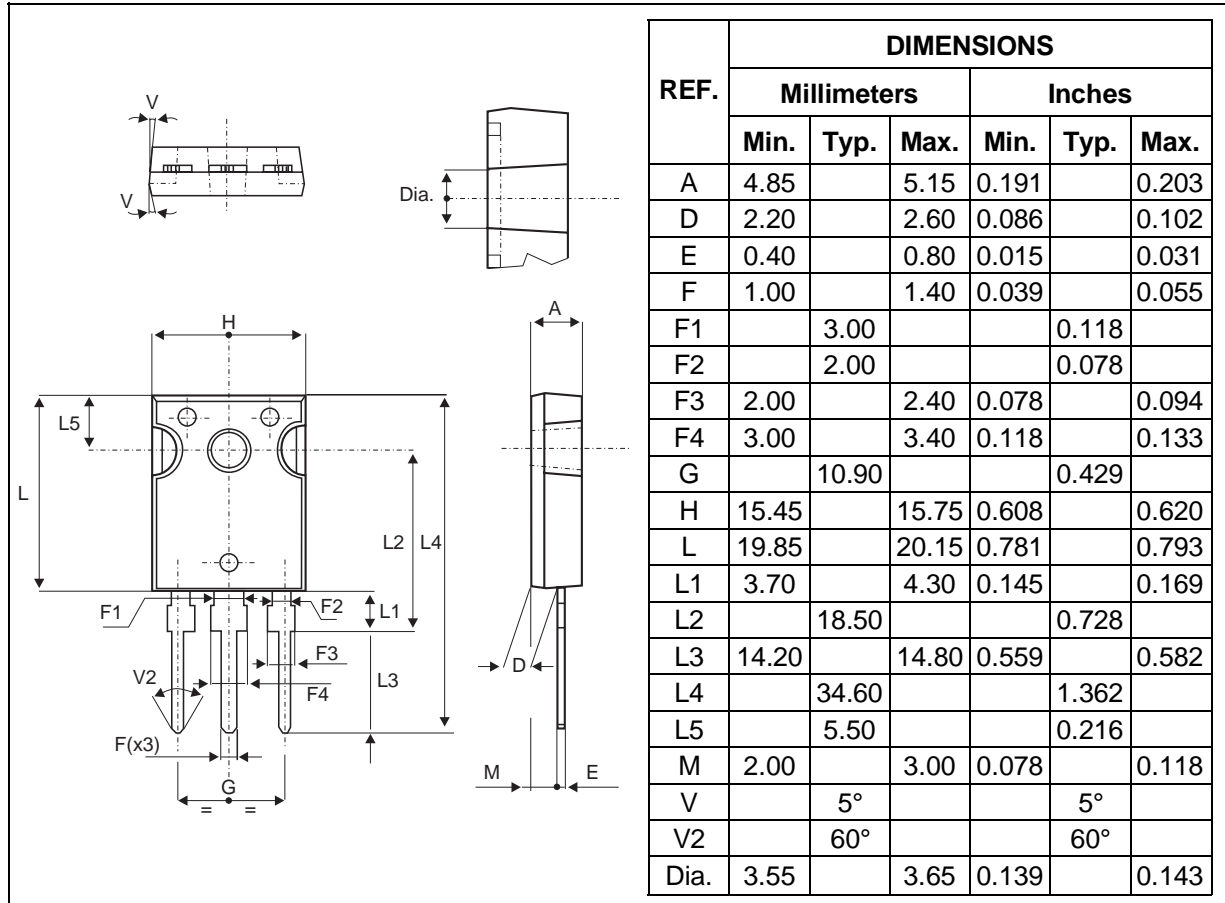


STPS4045CP/CW

PACKAGE MECHANICAL DATA SOT-93



- **Marking** : Type number
- **Cooling method** : C
- **Weight** : 5.3 g
- **Recommended torque value** : 0.8m.N
- **Maximum torque value** : 1.0m.N

PACKAGE MECHANICAL DATA
TO-247


- **Marking** : Type number
- **Cooling method** : C
- **Weight** : 4.4 g
- **Recommended torque value** : 0.8m.N
- **Maximum torque value** : 1.0m.N

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