



STPS3045CT/CG

POWER SCHOTTKY RECTIFIER

MAIN PRODUCT CHARACTERISTICS

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

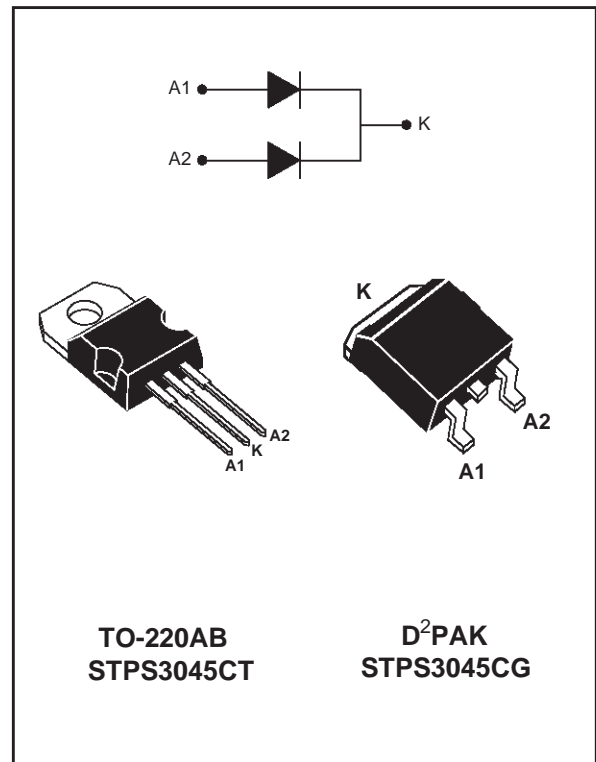
FEATURES AND BENEFITS

- VERY SMALL CONDUCTION LOSSES
- NEGLIGIBLE SWITCHING LOSSES
- EXTREMELY FAST SWITCHING
- LOW FORWARD VOLTAGE DROP
- LOW THERMAL RESISTANCE
- INSULATED PACKAGE:
Insulating voltage = 2000V DC
Capacitance = 12pF
- SMD PACKAGE

DESCRIPTION

Dual center tap Schottky rectifier suited for Switch-Mode Power Supply and high frequency DC to DC converters.

This device is especially intended for use in low voltage, high frequency inverters, free wheeling and polarity protection applications.



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ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
V_{RRM}	Repetitive peak reverse voltage		45	V
$I_{F(AV)}$	Average forward current $\delta = 0.5$	$T_c = 135^\circ\text{C}$	Per diode 15	A
			Per device 30	
$I_{F(RMS)}$	RMS forward current		Per diode 30	A
I_{FSM}	Surge non repetitive forward current	$t_p = 10\text{ ms}$ Sinusoidal	Per diode 220	A
I_{RRM}	Repetitive peak reverse current	$t_p = 2\ \mu\text{s}$ $F = 1\text{ kHz}$	Per diode 1	A
T_{stg}	Storage temperature range		-65 to +150	$^\circ\text{C}$
T_j	Maximum junction temperature		150	$^\circ\text{C}$
dV/dt	Critical rate of rise of reverse voltage		10000	V/ μs

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THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
$R_{th(j-c)}$	Junction to case	Per diode	1.60	$^{\circ}\text{C}/\text{W}$
		Total	0.85	
$R_{th(c)}$	Coupling		0.10	$^{\circ}\text{C}/\text{W}$

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	$T_j = 25^{\circ}\text{C}$	$I_F = 30 \text{ A}$			0.84	V
		$T_j = 125^{\circ}\text{C}$	$I_F = 30 \text{ A}$			0.72	
		$T_j = 125^{\circ}\text{C}$	$I_F = 15 \text{ A}$			0.57	

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

** $t_p = 380 \mu\text{s}$, $\delta < 2\%$

To evaluate the conduction losses use the following equation :

$$P = 0.42 \times I_{F(AV)} + 0.01 I_{F(RMS)}^2$$

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

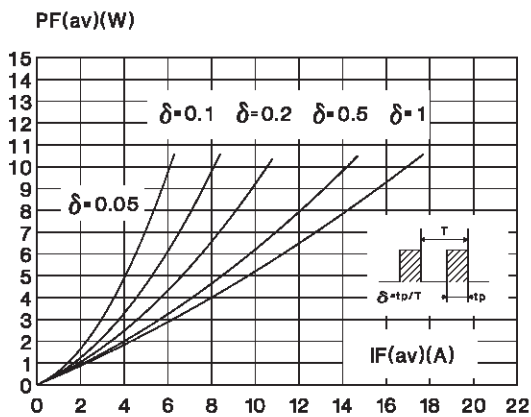


Fig. 2: Average current versus ambient temperature ($\delta: 0.5$) (per diode).

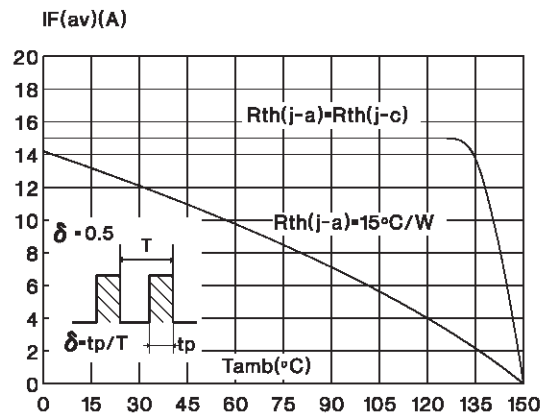


Fig. 3: Non repetitive surge peak forward current versus overload duration (maximum values) (per diode).

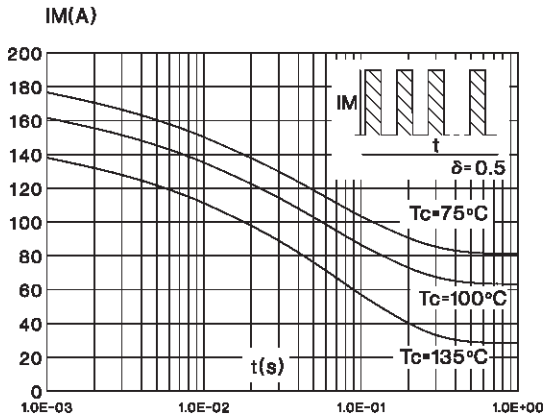


Fig. 4: Relative variation of thermal transient impedance junction to case versus pulse duration.

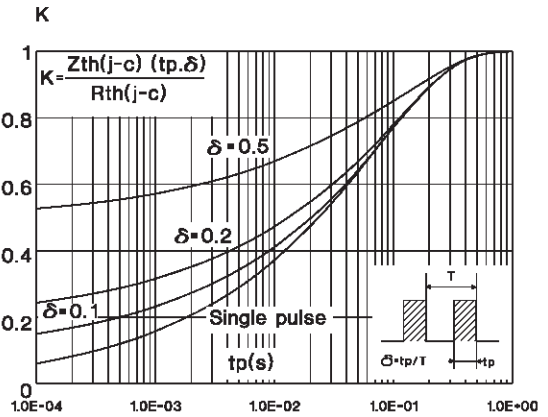


Fig. 5: Reverse leakage current versus reverse voltage applied (typical values) (per diode).

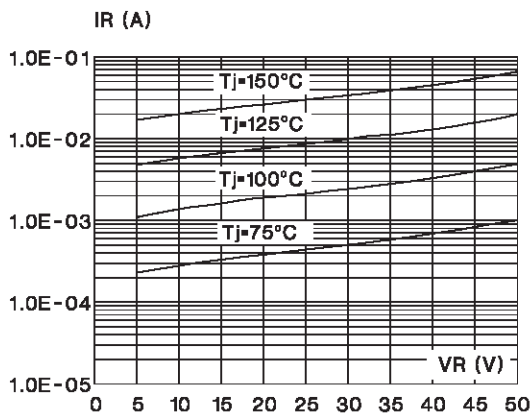


Fig. 6: Junction capacitance versus reverse voltage applied (typical values) (per diode).

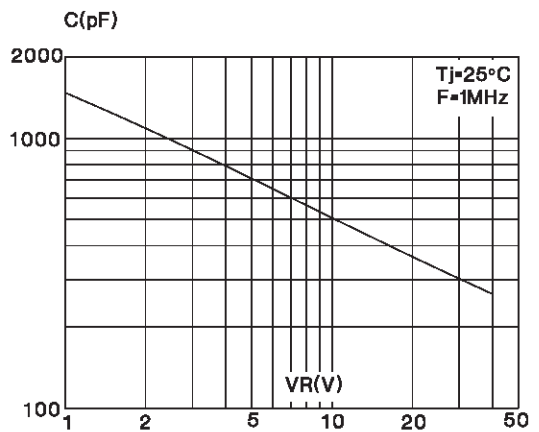
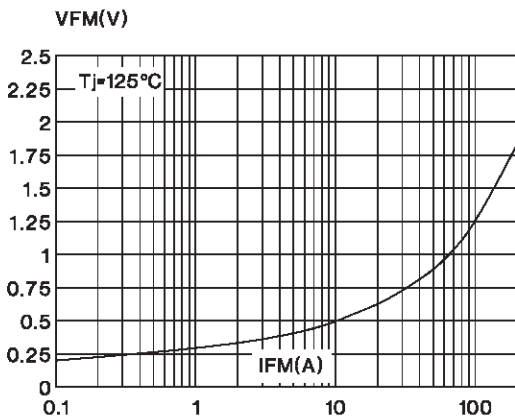
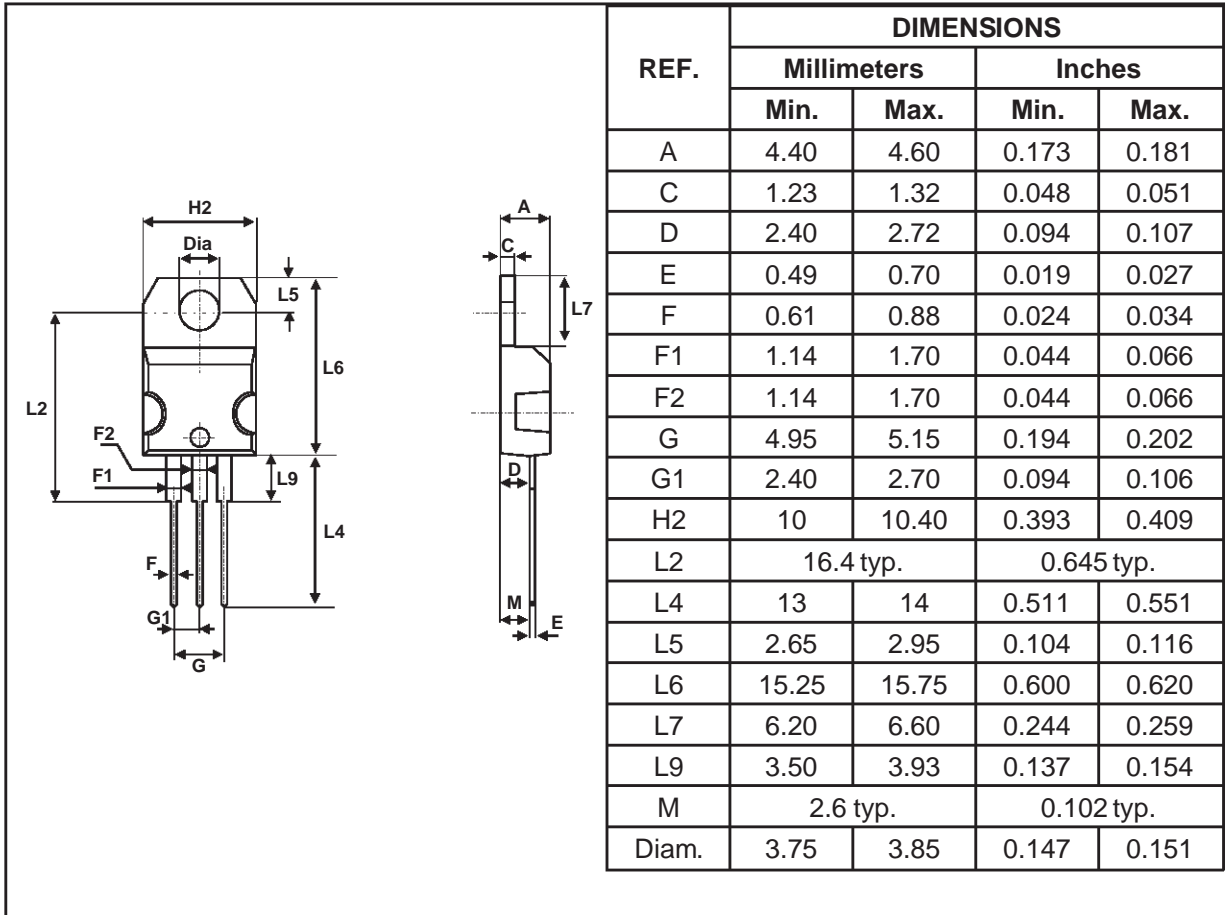


Fig. 7: Forward voltage drop versus forward current (maximum values) (per diode).

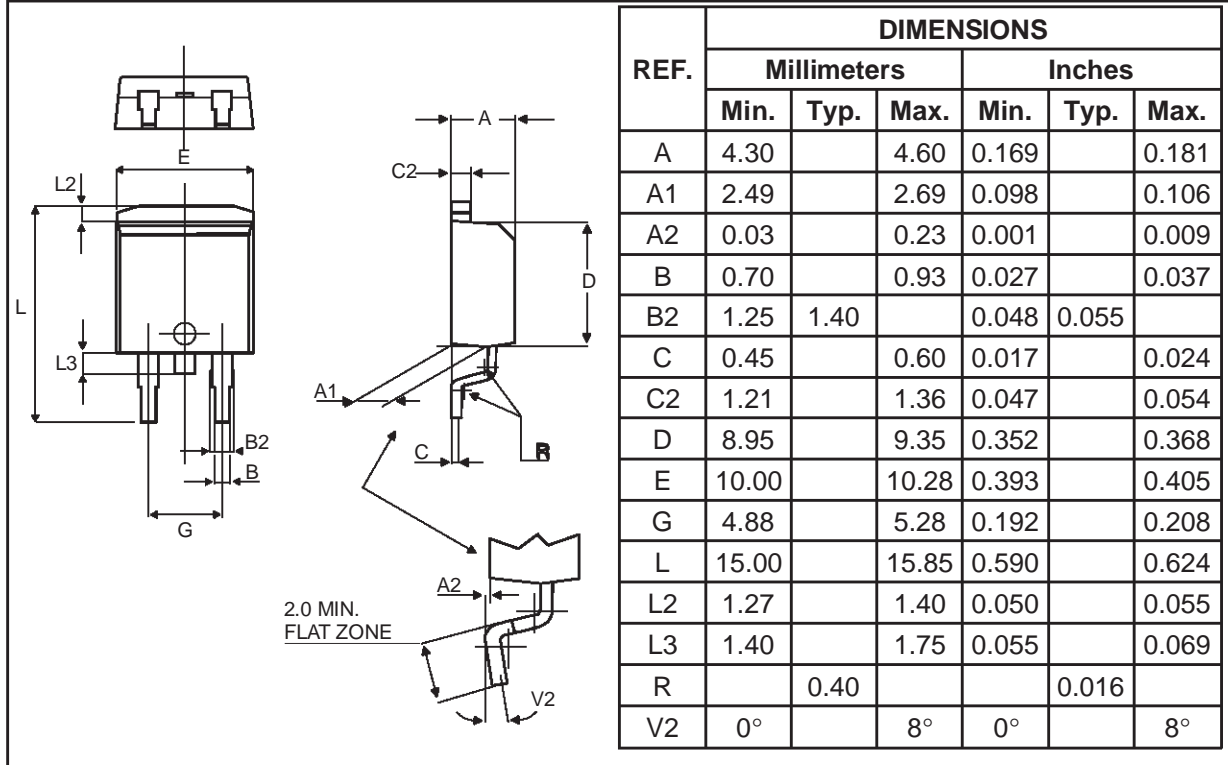


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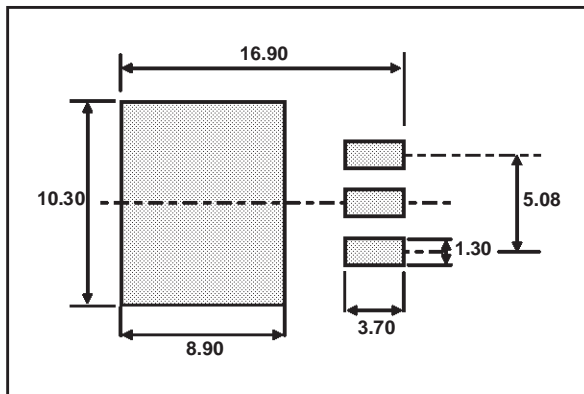
PACKAGE MECHANICAL DATA TO-220AB



PACKAGE MECHANICAL DATA
D²PAK



FOOTPRINT DIMENSIONS (in millimeters)



- **Marking:** Type number
- **Cooling method:** C
- **Weight:** 1.8 g.

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