



STPS3045CT/CG

POWER SCHOTTKY RECTIFIER

MAIN PRODUCT CHARACTERISTICS

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

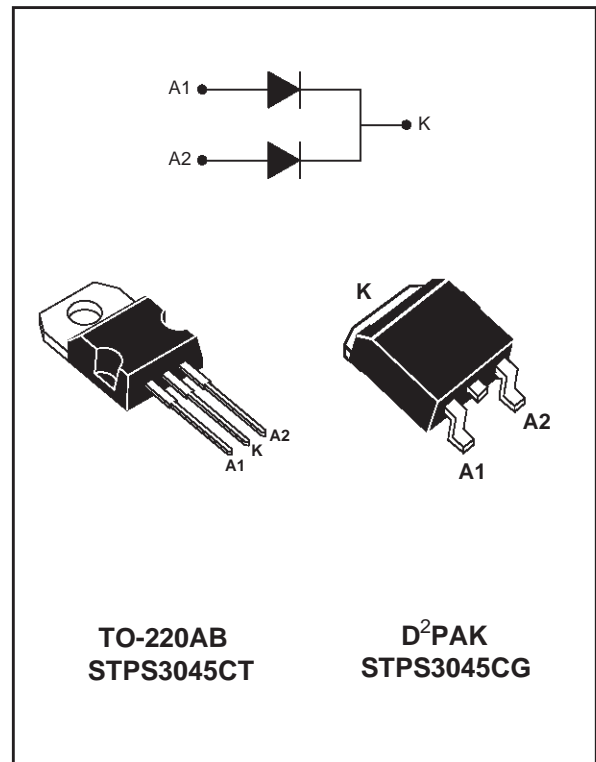
FEATURES AND BENEFITS

- 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.



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).

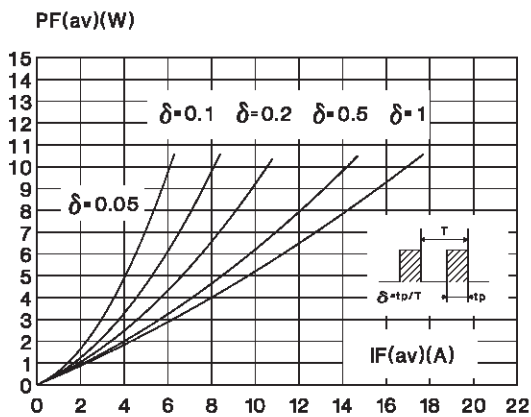


Fig. 2: Average current versus ambient temperature ($\delta: 0.5$) (per diode).

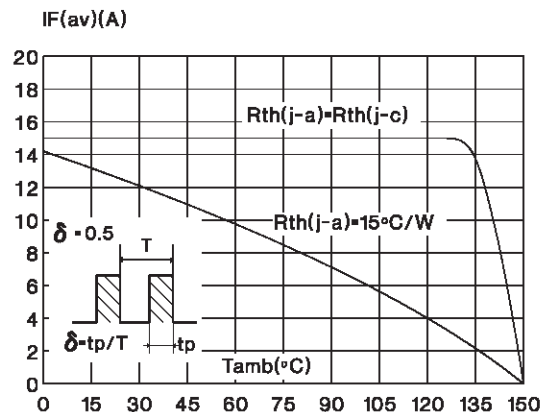


Fig. 3: Non repetitive surge peak forward current versus overload duration (maximum values) (per diode).

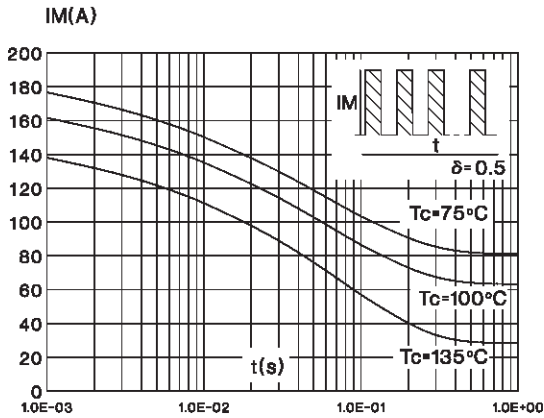


Fig. 4: Relative variation of thermal transient impedance junction to case versus pulse duration.

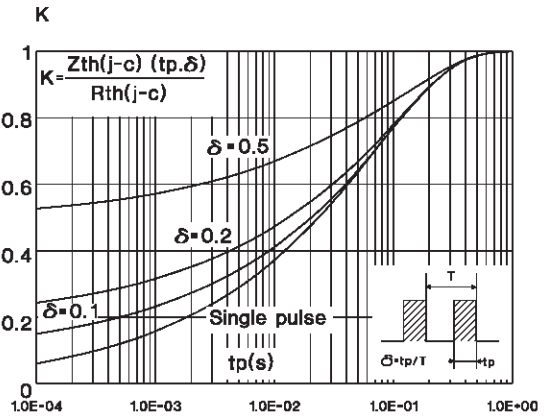


Fig. 5: Reverse leakage current versus reverse voltage applied (typical values) (per diode).

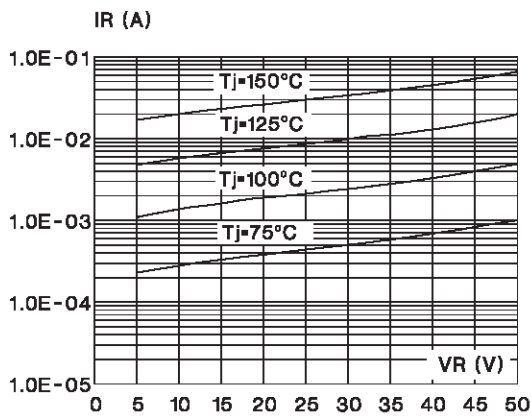


Fig. 6: Junction capacitance versus reverse voltage applied (typical values) (per diode).

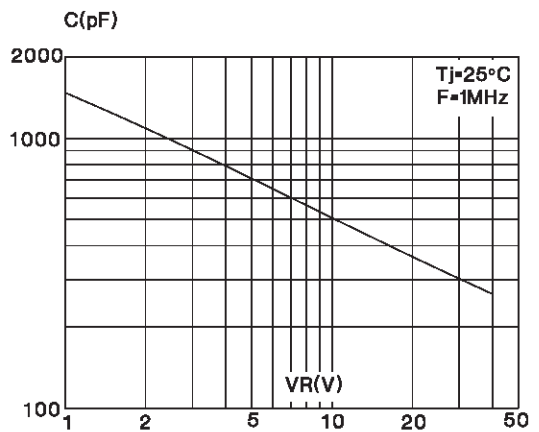
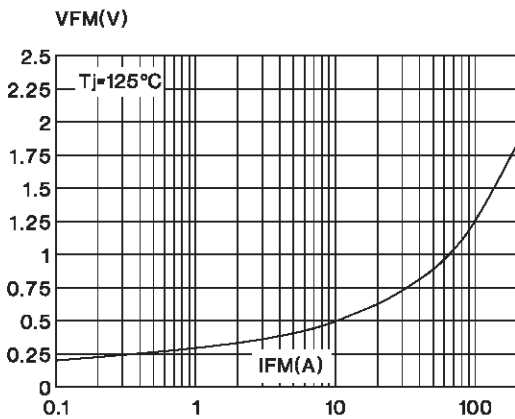
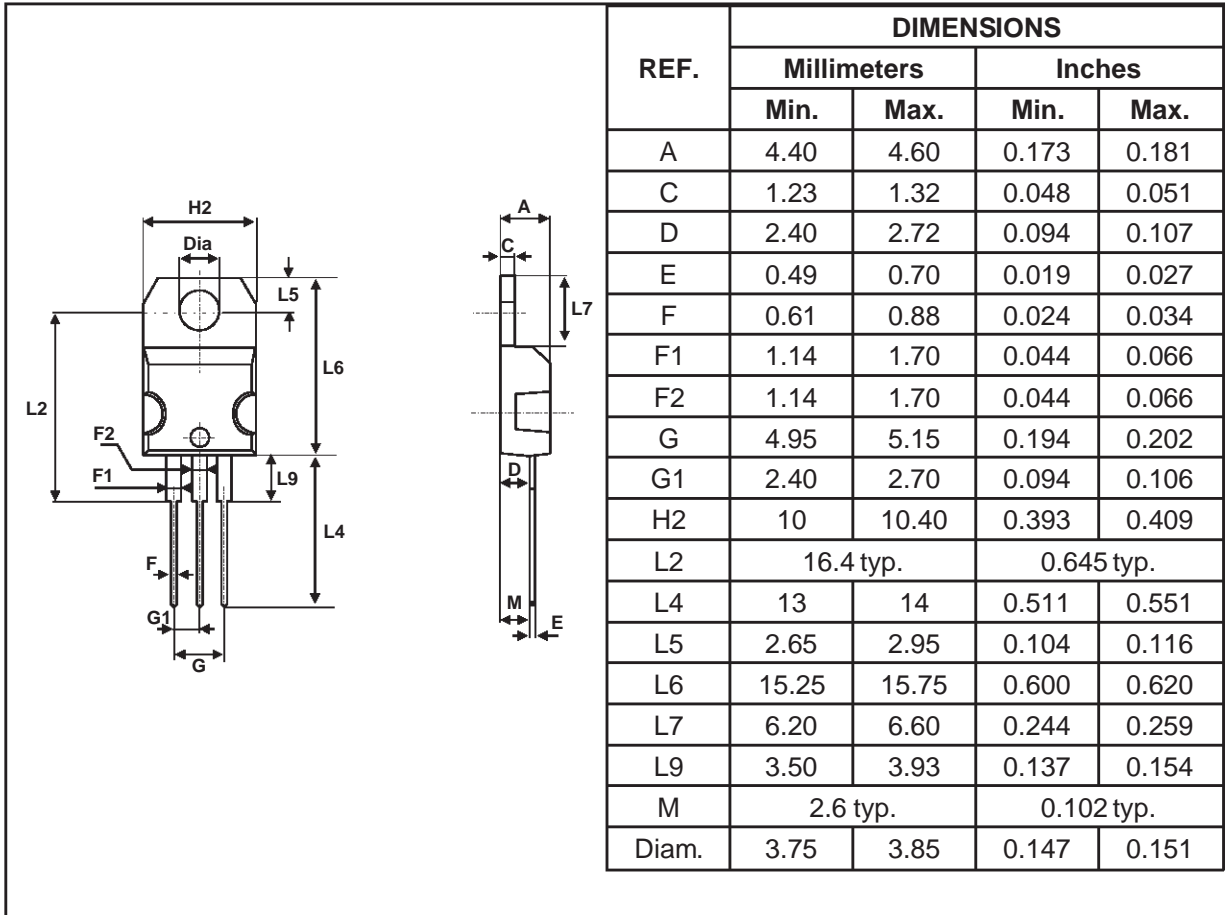


Fig. 7: Forward voltage drop versus forward current (maximum values) (per diode).

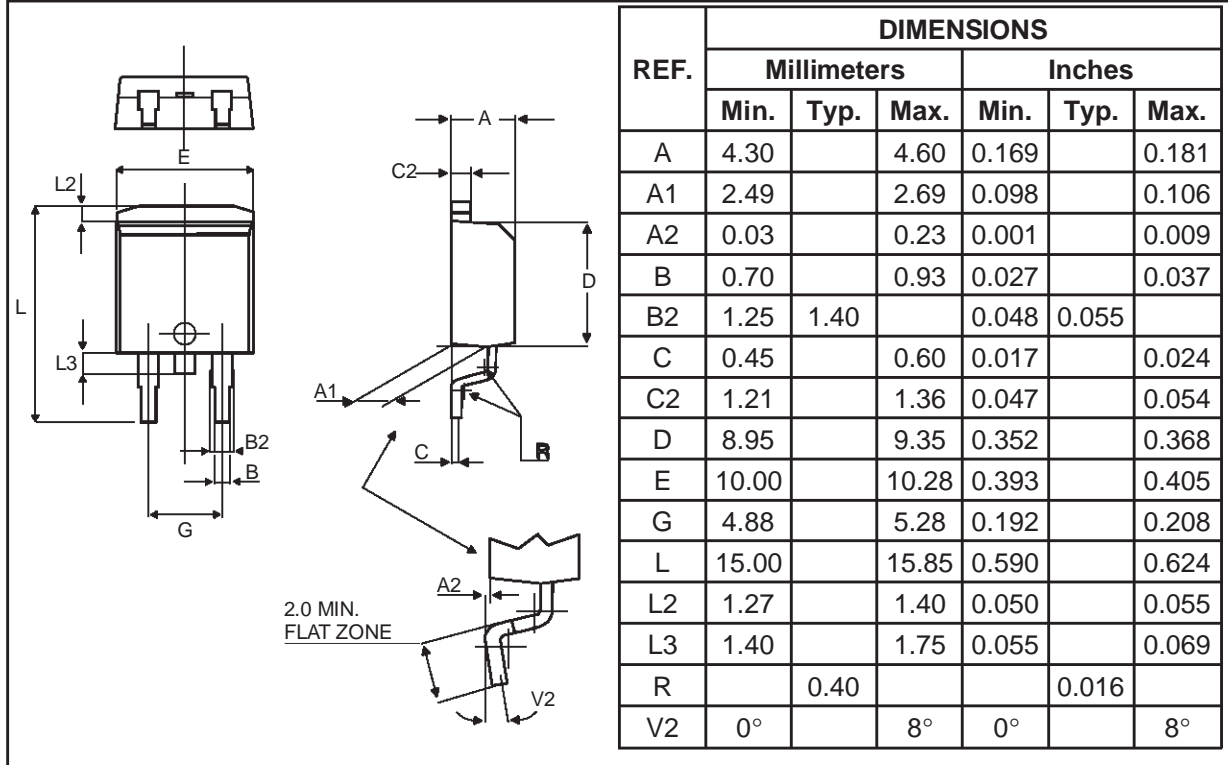


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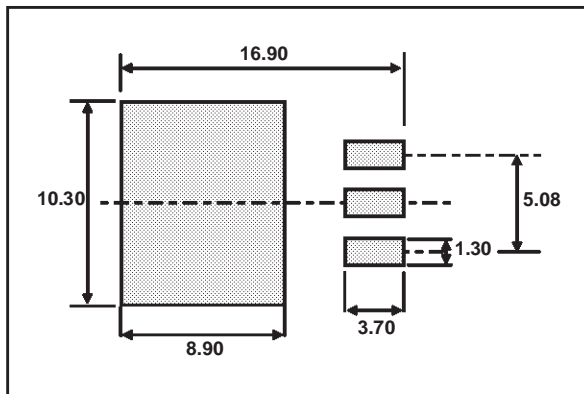
PACKAGE MECHANICAL DATA TO-220AB



PACKAGE MECHANICAL DATA
D²PAK



FOOTPRINT DIMENSIONS (in millimeters)



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

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