

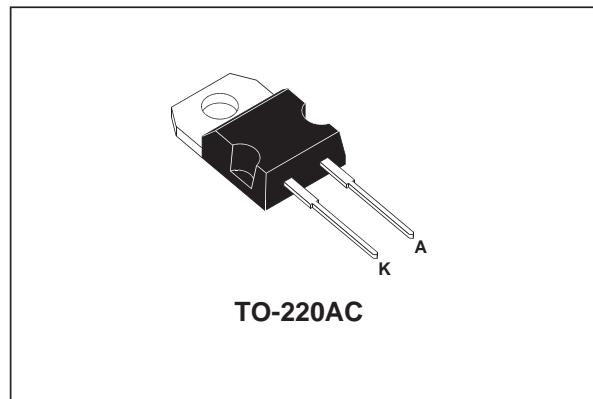


STPS1645D

POWER SCHOTTKY RECTIFIER

MAIN PRODUCT CHARACTERISTICS

$I_{F(AV)}$	16 A
V_{RRM}	45 V
$T_j(\text{max})$	175 °C
$V_F(\text{max})$	0.57 V



FEATURES AND BENEFITS

- Very small conduction losses
- Negligible switching losses
- Extremely fast switching

DESCRIPTION

Single chip Schottky rectifier suited for Switch Mode Power Supply and high frequency DC to DC converters.

Packaged in TO-220AC, 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	30	A
$I_{F(AV)}$	Average forward current $\delta = 0.5$ $T_c = 155^\circ\text{C}$	16	A
I_{FSM}	Surge non repetitive forward current $t_p = 10 \text{ ms}$ Sinusoidal	220	A
I_{RRM}	Repetitive peak reverse current $t_p = 2 \mu\text{s}$ square $F = 1\text{kHz}$	1	A
I_{RSM}	Non repetitive peak reverse current $t_p = 100 \mu\text{s}$ square	3	A
T_{stg}	Storage temperature range	- 65 to + 175	°C
T_j	Maximum operating junction temperature *	175	°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	1.6	$^{\circ}\text{C}/\text{W}$

STATIC ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Tests Conditions	Min.	Typ.	Max.	Unit
I_R^*	Reverse leakage current	$T_j = 25^{\circ}\text{C}$			200	μA
		$T_j = 125^{\circ}\text{C}$				11
V_F^*	Forward voltage drop	$T_j = 125^{\circ}\text{C}$		0.5	0.57	V

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

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.

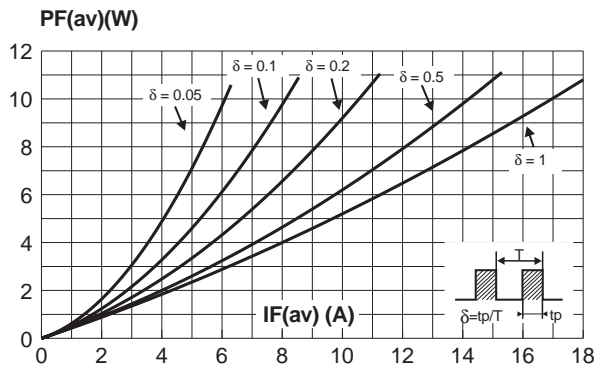


Fig. 3: Non repetitive surge peak forward current versus overload duration (maximum values).

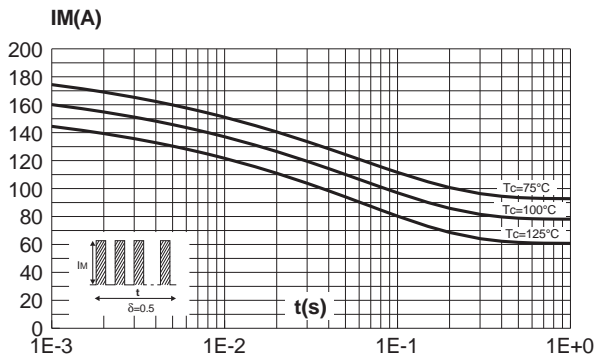


Fig. 2: Average current versus ambient temperature ($\delta : 0.5$).

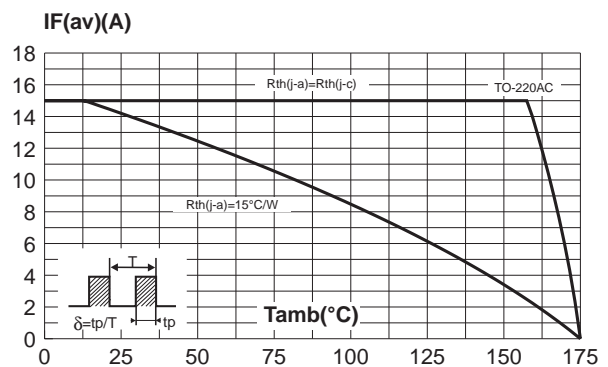


Fig. 4: Relative variation of thermal transient impedance junction to case versus pulse duration.

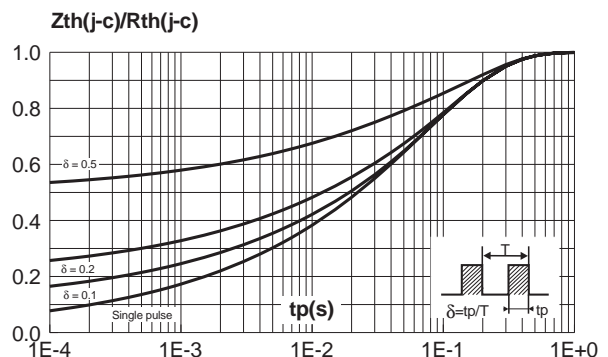


Fig. 5: Reverse leakage current versus reverse voltage applied (typical values).

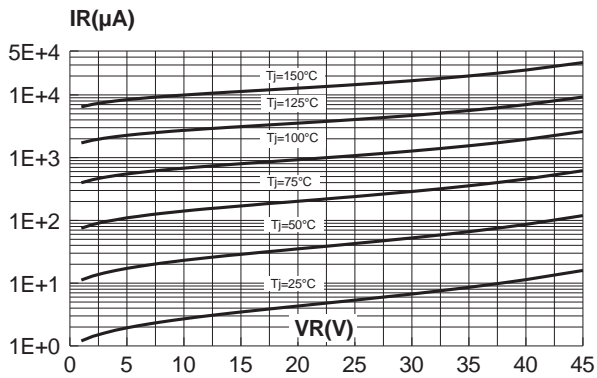


Fig. 6: Junction capacitance versus reverse voltage applied (typical values).

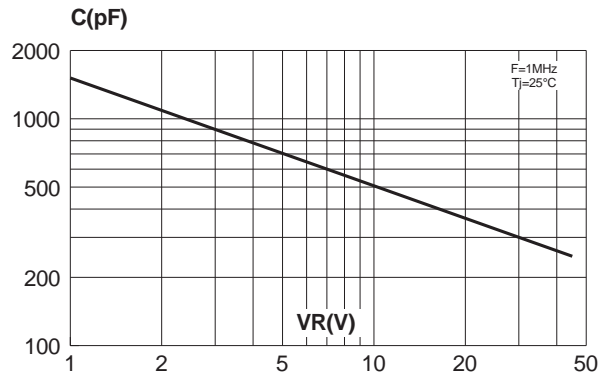
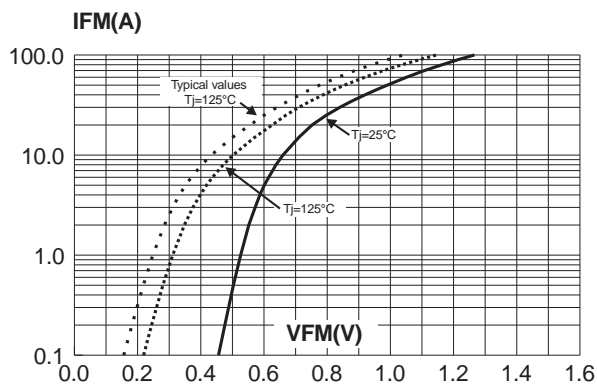
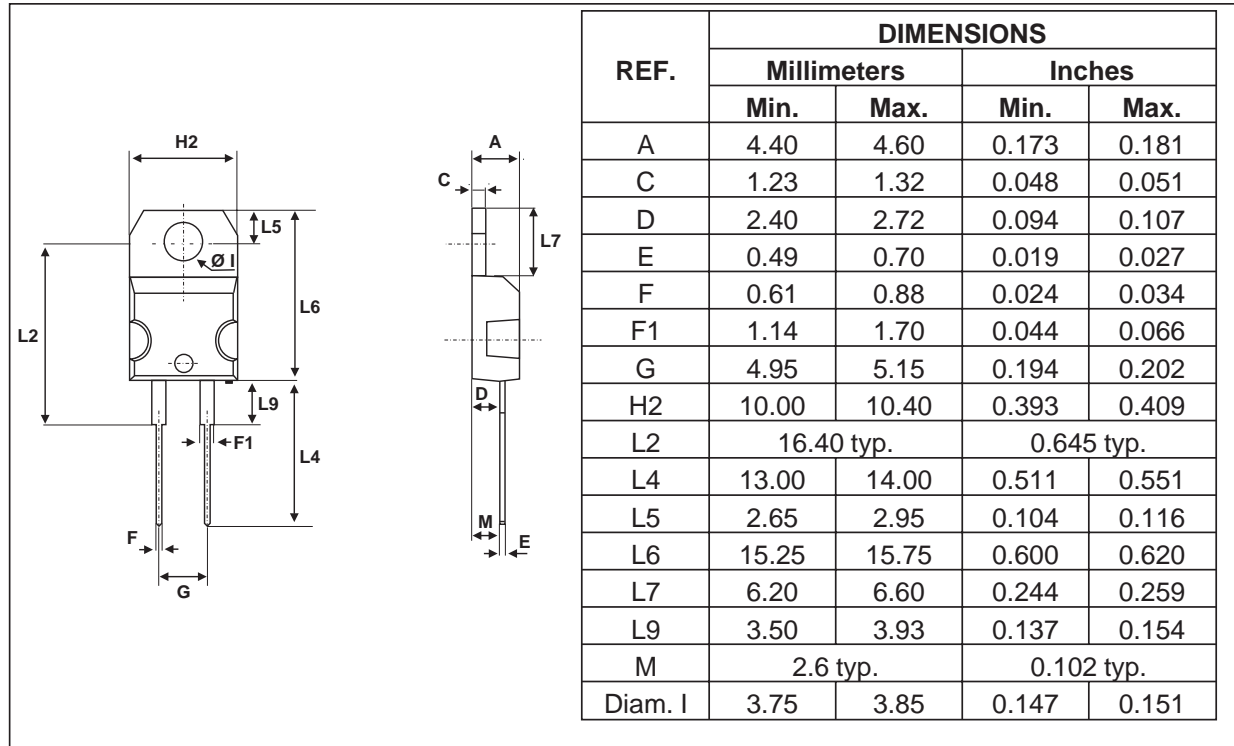


Fig. 7: Forward voltage drop versus forward current (maximum values).



STPS1645D

PACKAGE MECHANICAL DATA TO-220AC



Type	Marking	Package	Weight	Base qty	Delivery mode
STPS1645D	STPS1645D	TO-220AC	1.86 g	50	Tube

- Cooling method: by conduction (C)
- Recommended torque value: 0.55 N.m.
- Maximum torque value: 0.7 N.m.
- Epoxy meets UL94,V0

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