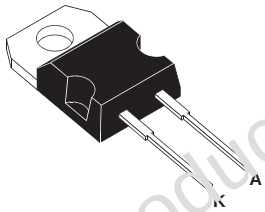
STPS1645D

POWER SCHOTTKY RECTIFIER

MAIN PRODUCT CHARACTERISTICS

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



TO-220AC

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.

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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 $\delta = 0.5$	Tc = 155°C	16	A
I_{FSM}	Surge non repetitive forward current	tp = 10 ms Sinusoidal	220	A
I_{RRM}	Repetitive peak reverse current	tp = 2 µs square F = 1kHz	1	A
I_{RSM}	Non repetitive peak reverse current	tp = 100 µs square	3	A
Tstg	Storage temperature range		- 65 to + 175	°C
Tj	Maximum operating junction temperature *		175	°C
dV/dt	Critical rate of rise of reverse voltage		10000	V/µs

* : $\frac{dPtot}{dTj} < \frac{1}{Rth(j-a)}$ thermal runaway condition for a diode on its own heatsink

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-c)}$	Junction to case	1.6	°C/W

STATIC ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Tests Conditions		Min.	Typ.	Max.	Unit
I_R *	Reverse leakage current	Tj = 25°C	$V_R = V_{RRM}$			200	µA
		Tj = 125°C			11	40	mA
V_F *	Forward voltage drop	Tj = 125°C	I_F = 16 A		0.5	0.57	V

Pulse test : * tp = 380 µs, δ < 2%

To evaluate the conduction losses use the following equation :
$P = 0.42 \times I_{F(AV)} + 0.01\ I_F{}^2{}_{(RMS)}$

Fig. 1: Average forward power dissipation versus average forward current.

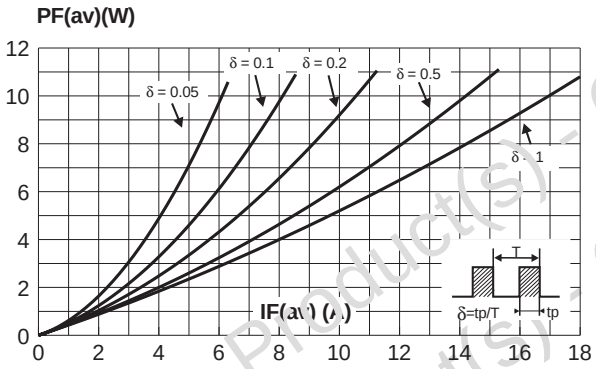


Fig. 2: Average current versus ambient temperature (δ : 0.5).

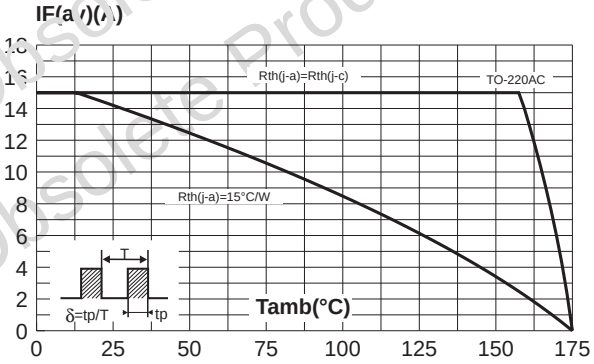


Fig. 3: Non repetitive surge peak forward current versus overload duration (maximum values).

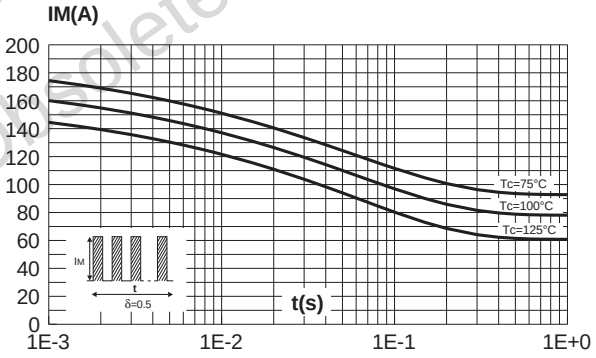
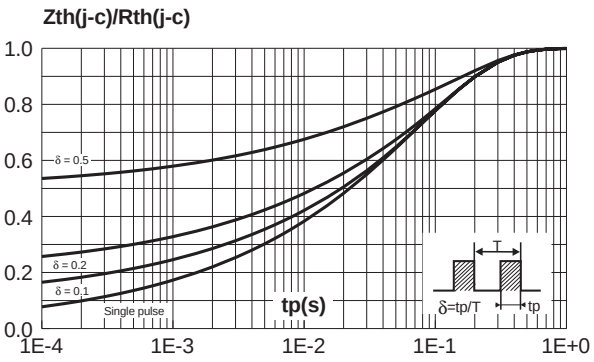


Fig. 4: Relative variation of thermal transient impedance junction to case versus pulse duration.



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

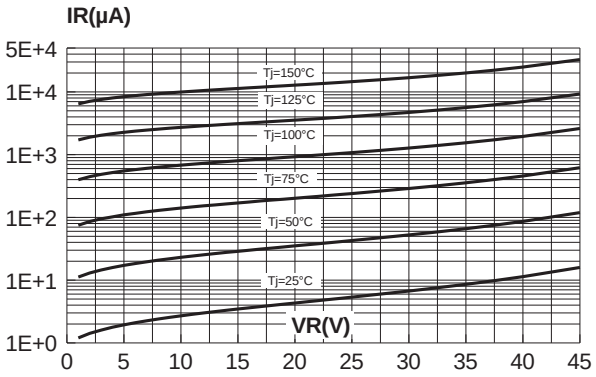


Fig. 6: Junction capacitance versus reverse voltage applied (typical values).

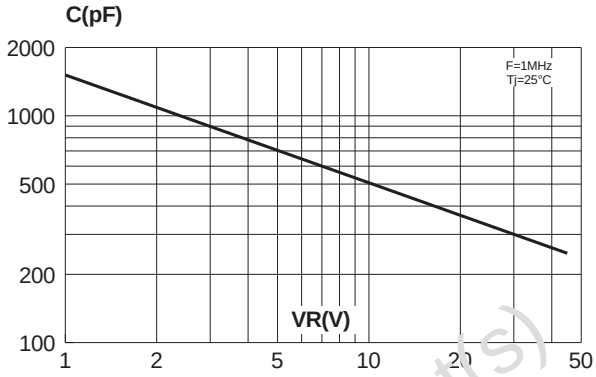
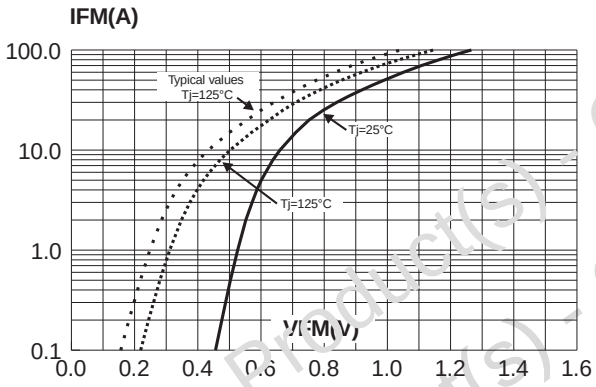


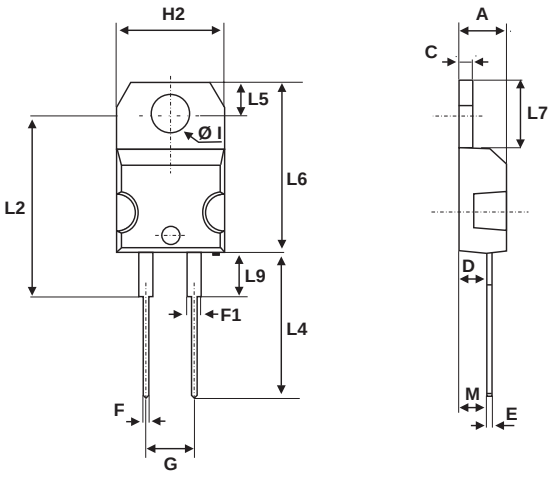
Fig. 7: Forward voltage drop versus forward current (maximum values).



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PACKAGE MECHANICAL DATA

TO-220AC



REF.	DIMENSIONS			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	4.40	4.60	0.173	0.181
C	1.23	1.32	0.048	0.051
D	2.40	2.72	0.094	0.107
E	0.49	0.70	0.019	0.027
F	0.61	0.88	0.024	0.034
F1	1.14	1.70	0.044	0.066
G	4.95	5.15	0.194	0.202
H2	10.00	10.40	0.393	0.409
L2	16.40 typ.		0.645 typ.	
L4	13.00	14.00	0.511	0.551
L5	2.65	2.95	0.104	0.116
L6	15.25	15.75	0.600	0.620
L7	6.20	6.60	0.244	0.259
L9	3.50	3.93	0.137	0.154
M	2.6 typ.		0.102 typ.	
Diam. I	3.75	3.85	0.147	0.151

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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