

HIGH VOLTAGE POWER SCHOTTKY RECTIFIER

MAIN PRODUCT CHARACTERISTICS

$I_{F(AV)}$	2 x 10A
V_{RRM}	100V
V_F (max)	0.7V
T_j (max)	175°C

FEATURES

- Negligible switching losses
- Low forward voltage drop
- Low capacitance
- High reverse avalanche surge capability

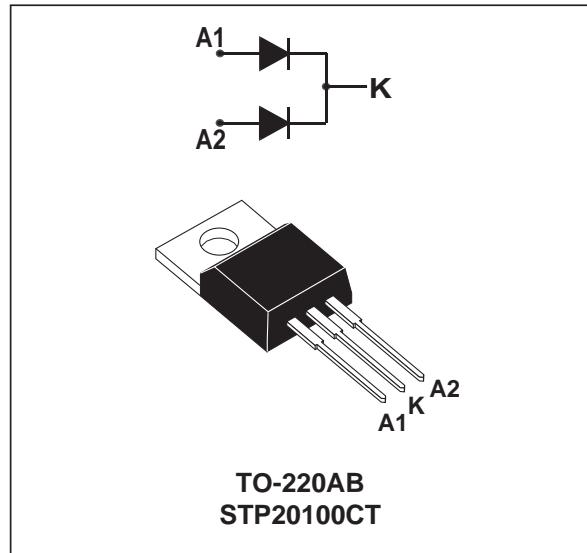
DESCRIPTION

High voltage dual Schottky rectifier suited for switchmode power supplies and other power converters. Packaged in TO-220AB, this device is intended for use in medium voltage operation, and particularly, in high frequency circuitries where low switching losses and low noise are required.

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter			Value	Unit
V_{RRM}	Repetitive peak reverse voltage			100	V
$I_{F(RMS)}$	RMS forward current		Per diode	30	A
$I_{F(AV)}$	Average forward current $\delta = 0.5$	$T_c=110^\circ\text{C}$ $V_R = 60\text{V}$	Per diode Per device	10 20	A A
I_{FSM}	Surge non repetitive forward current	$tp=10\text{ms}$ sinusoidal	Per diode	200	A
I_{RRM}	Repetitive peak reverse current	$tp=2\mu\text{s}$ $F=1\text{KHz}$	Per diode	1	A
I_{RSR}	Non repetitive peak reverse current	$tp=100\mu\text{s}$	Per diode	1	A
T_{stg}	Storage temperature range			- 65 to + 175	°C
T_j	Maximum junction temperature (*)			175	°C
dV/dt	Critical rate of rise of reverse voltage			1000	V/ μs

* : $\frac{dP_{tot}}{dT_j} < \frac{1}{R_{th}(j-a)}$ thermal runaway condition for a diode on its own heatsink



STPS20100CT

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
R _{th} (j-c)	Junction to case	Per diode	1.6
		Total	0.9
R _{th} (c)	Coupling	0.15	°C/W

When the diodes 1 and 2 are used simultaneously :

$$T_j - T_c(\text{diode 1}) = P(\text{diode 1}) \times R_{th(j-c)}(\text{Per diode}) + P(\text{diode 2}) \times R_{th(c)}$$

ELECTRICAL CHARACTERISTICS (Per diode)

STATIC CHARACTERISTICS

Symbol	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
I _R *	Reverse leakage current	V _R = V _{RRM}	T _j = 25°C			150	μA
			T _j = 125°C			100	mA
V _F **	Forward voltage drop	IF = 20A	T _j = 125°C		0.85	V	
		IF = 10A	T _j = 125°C		0.60		
		IF = 20A	T _j = 25°C		0.70		

Pulse test : * tp = 5 ms, duty cycle < 2 %

** tp = 380 μs, duty cycle < 2 %

To evaluate the conduction losses use the following equation :

$$P = 0.55 \times I_{F(AV)} + 0.015 \times I_{F}^2(\text{RMS})$$

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

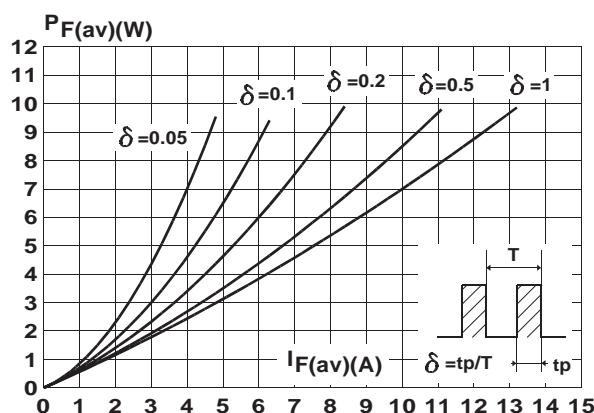


Fig. 2 : Average current versus ambient temperature. (duty cycle : 0.5) (Per diode)

