

TURBO 2 ULTRA-FAST HIGH VOLTAGE RECTIFIER

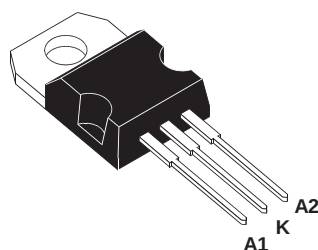
PRELIMINARY DATASHEET

MAJOR PRODUCTS CHARACTERISTICS

$I_{F(AV)}$	2x4 A
V_{RRM}	600 V
T_j (max)	175 °C
V_F (max)	1.8 V
t_{rr} (max)	45 ns

FEATURES AND BENEFITS

- COMBINES HIGHEST RECOVERY AND VOLTAGE PERFORMANCE.
- ULTRA-FAST, SOFT AND NOISE-FREE RECOVERY FOR LOW SIDE EFFECTS.
- LOW INDUCTANCE, ALLOWS SIMPLIFIED LAYOUT.



TO-220AB

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter			Value	Unit
V _{RRM}	Repetitive peak reverse voltage			600	V
I _{F(RMS)}	RMS forward current			20	A
I _{F(AV)}	Average forward current	Tc = 138°C δ = 0.5	Per diode Per device	4 8	A
I _{FSM}	Surge non repetitive forward current		tp = 10 ms sinusoidal	35	A
T _{stg}	Storage temperature range			-65 +175	°C
Tj	Maximum operating junction temperature			+ 175	°C

STTH806CT

THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
$R_{th(j-c)}$	Junction to case thermal resistance	Per diode Total	3.9 2.45	$^{\circ}\text{C/W}$

STATIC ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Tests Conditions		Min.	Typ.	Max.	Unit
I_R^*	Reverse leakage current	$V_R = 600\text{ V}$	$T_j = 25^{\circ}\text{C}$			30	μA
			$T_j = 125^{\circ}\text{C}$		3	120	
V_F^{**}	Forward voltage drop	$I_F = 4\text{ A}$	$T_j = 25^{\circ}\text{C}$			2.3	V
			$T_j = 125^{\circ}\text{C}$		1.4	1.8	

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

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

To evaluate the maximum conduction losses use the following equation :

$$P = 1.25 \times I_{F(AV)} + 0.135 I_{F(RMS)}^2$$

DYNAMIC ELECTRICAL CHARACTERISTICS

Symbol	Tests Conditions			Min.	Typ.	Max.	Unit
t_{rr}	$I_F = 0.5\text{ A}$	$I_{rr} = 0.25\text{ A}$	$I_R = 1\text{ A}$	$T_j = 25^{\circ}\text{C}$		30	ns
	$I_F = 1\text{ A}$	$dI_F/dt = -50\text{ A}/\mu\text{s}$	$V_R = 30\text{ V}$			45	
I_{RM}	$V_R = 400\text{ V}$ $I_F = 4\text{ A}$ $dI_F/dt = -200\text{ A}/\mu\text{s}$			$T_j = 125^{\circ}\text{C}$		6.5	A
S_{factor}					1.5		
t_{fr}	$I_F = 4\text{ A}$ $dI_F/dt = 40\text{ A}/\mu\text{s}$ $V_{FR} = 1.1 \times V_F \text{ max}$			$T_j = 25^{\circ}\text{C}$		200	ns
V_{FP}						6	
Q_{rr}	$V_R = 400\text{ V}$ $I_F = 4\text{ A}$ $dI_F/dt = -200\text{ A}/\mu\text{s}$			$T_j = 125^{\circ}\text{C}$	175		nC

Fig. 1: Conduction losses versus average current (per diode).

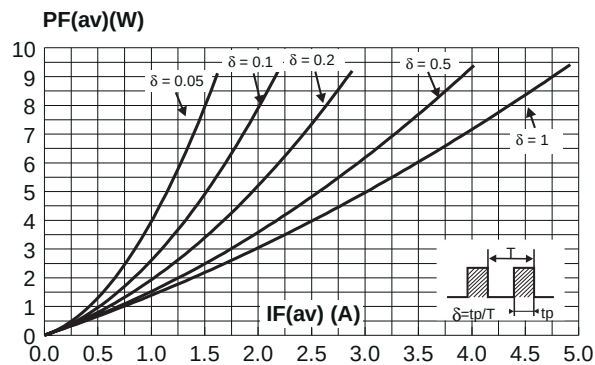


Fig. 2: Forward voltage drop versus forward current (per diode).

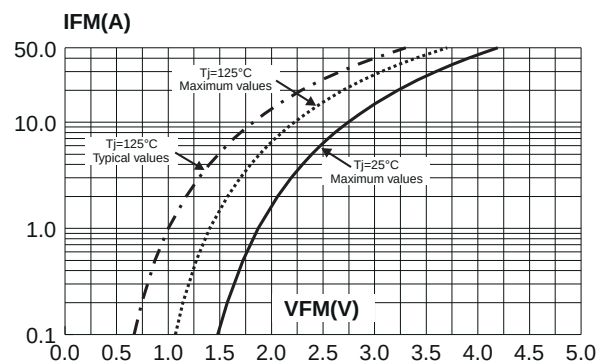


Fig. 3: Relative variation of thermal impedance junction to case versus pulse duration.

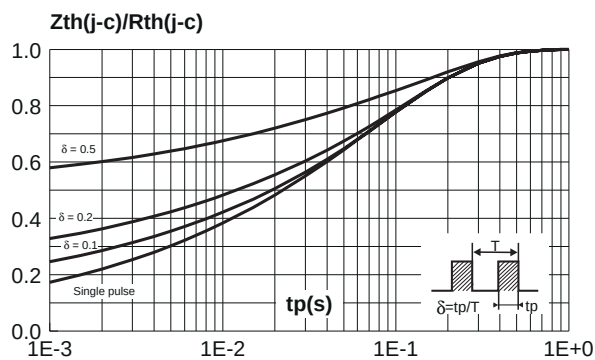


Fig. 4: Peak reverse recovery current versus dI_F/dt (90% confidence, per diode).

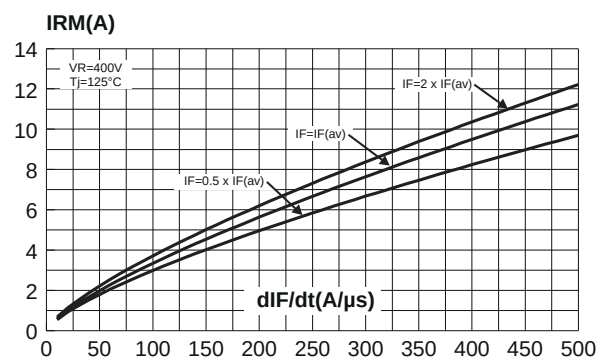


Fig. 5: Reverse recovery time versus dI_F/dt (90% confidence, per diode).

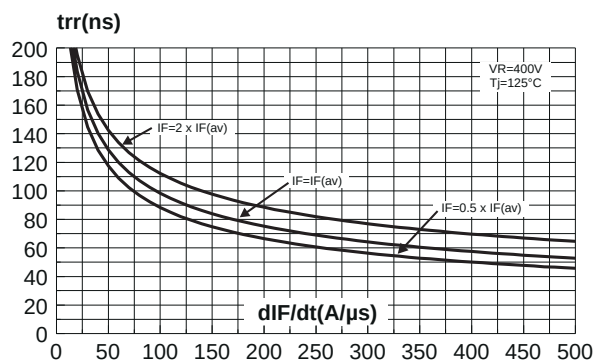
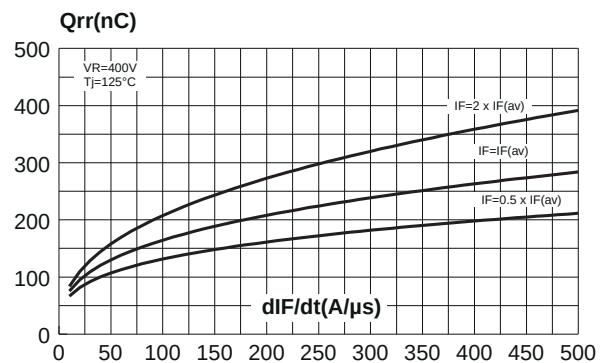
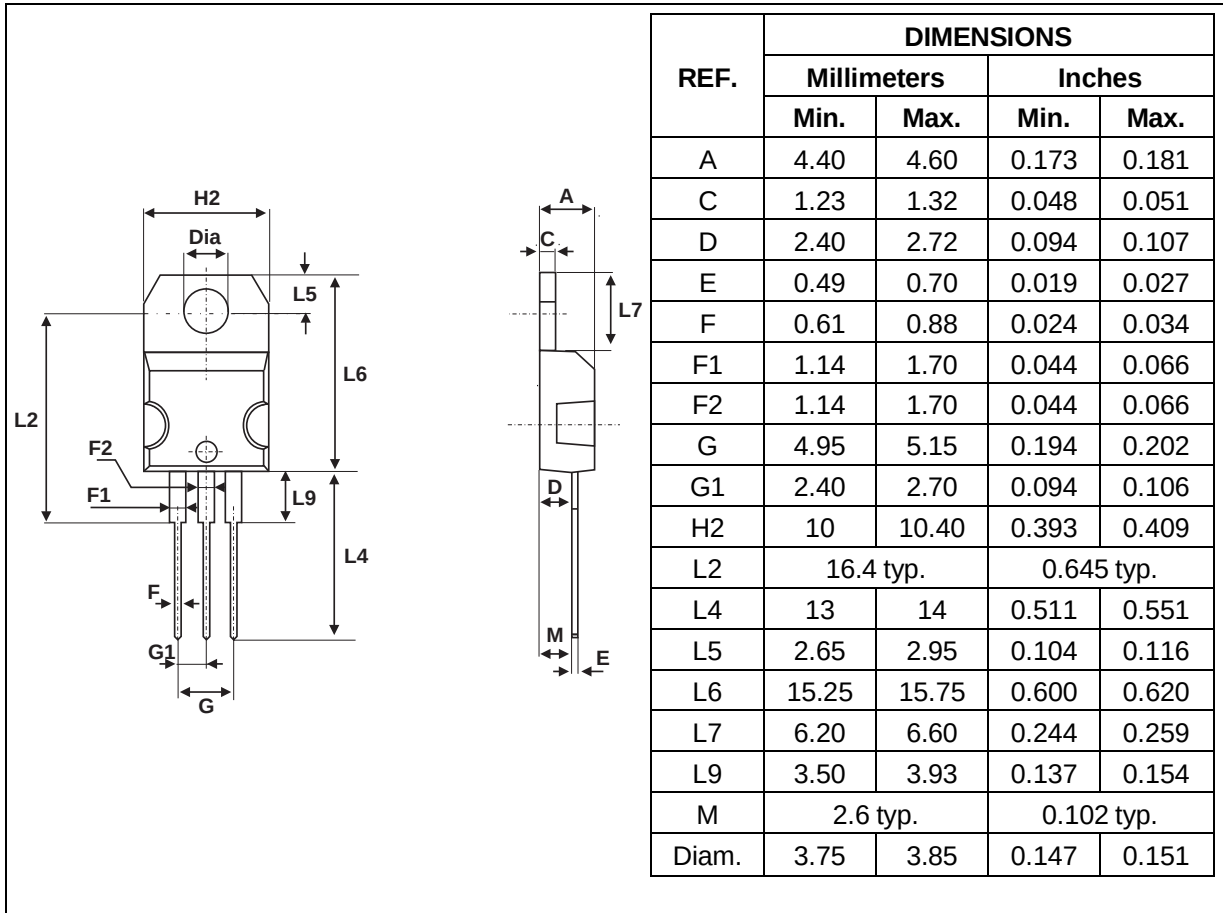


Fig. 6: Reverse charges versus dI_F/dt (90% confidence, per diode).



PACKAGE MECHANICAL DATA
 TO-220AB


Ordering code	Marking	Package	Weight	Base qty	Delivery mode
STTH806CT	STTH806CT	TO-220AB	2.2 g.	50	Tube

- Cooling method: C
- Recommended torque value: 0.8 N.m.
- Maximum torque value: 1 N.m.
- Epoxy meets UL94,V0