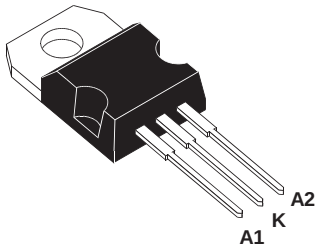
STTH806CT

TURBO 2 ULTRA-FAST HIGH VOLTAGE RECTIFIER

PRELIMINARY DATASHEET

MAJOR PRODUCTS CHARACTERISTICS

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



TO-220AB

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.

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

THERMAL RESISTANCES

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

STATIC ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Tests Conditions		Min.	Typ.	Max.	Unit
I_R *	Reverse leakage current	V_R = 600 V	Tj = 25°C			30	µA
			Tj = 125°C		3	120	
V_F **	Forward voltage drop	I_F = 4 A	Tj = 25°C			2.3	V
			Tj = 125°C		1.4	1.8	

Pulse test : * tp = 5 ms, δ < 2 %
** tp = 380 µs, δ < 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
trr	I_F = 0.5 A Irr = 0.25 A I_R = 1 A	Tj = 25°C			30	ns
	I_F = 1 A dI_F/dt = - 50 A/µs V_R = 30 V				45	
I_{RM}	V_R = 400 V I_F = 4 A dI_F/dt = -200 A/µs	Tj = 125°C			6.5	A
S_{factor}				1.5		-
tfr	I_F = 4 A dI_F/dt = 40 A/µs V_{FR} = 1.1 x V_F max	Tj = 25°C			200	ns
V_{FP}					6	V
Qrr	V_R = 400V I_F = 4 A dI_F/dt = -200 A/µs	Tj = 125°C		175		nC

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

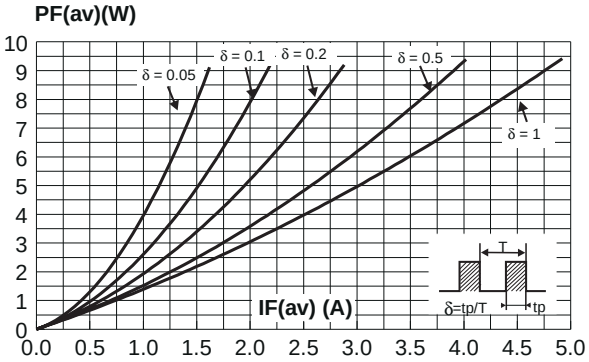


Fig. 2: Forward voltage drop versus forward current (per diode).

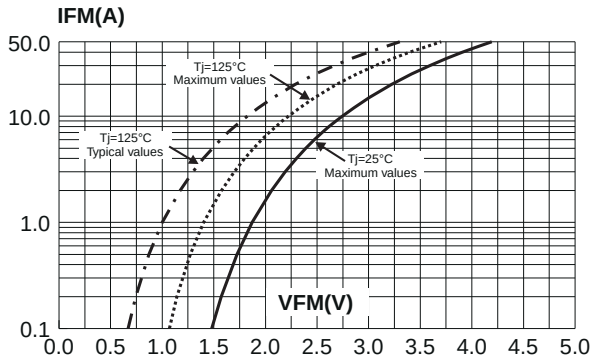


Fig. 3: Relative variation of thermal impedance junction to case versus pulse duration.

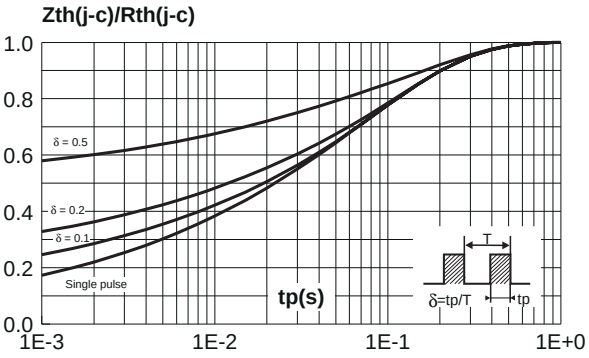


Fig. 4: Peak reverse recovery current versus dI_F/dt (90% confidence, per diode).

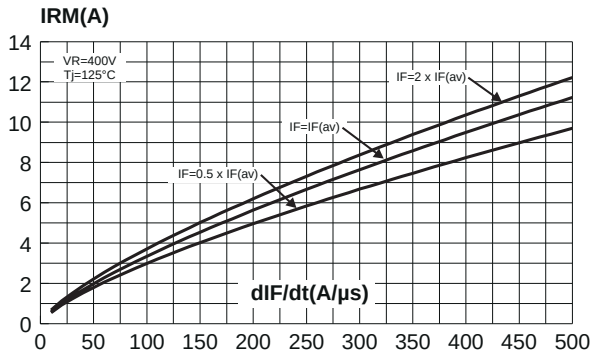


Fig. 5: Reverse recovery time versus dI_F/dt (90% confidence, per diode).

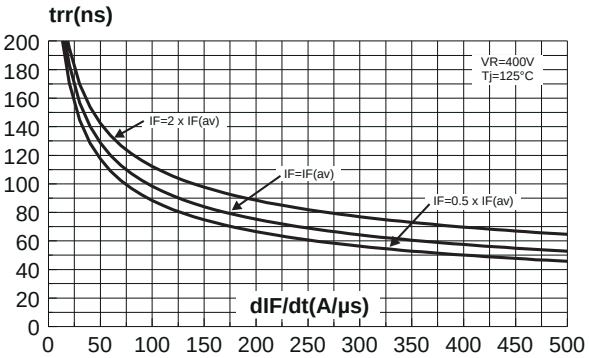


Fig. 6: Reverse charges versus dI_F/dt (90% confidence, per diode).

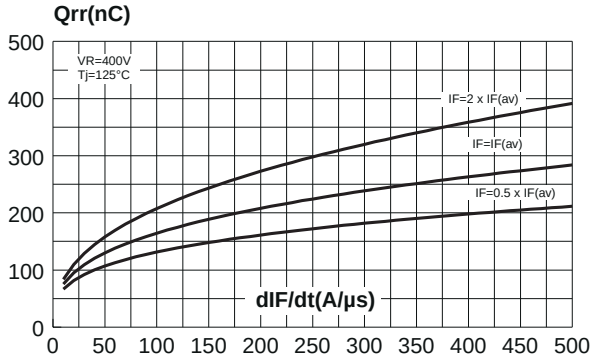


Fig. 7: Softness factor (tb/ta) versus dI_F/dt (typical values, per diode).

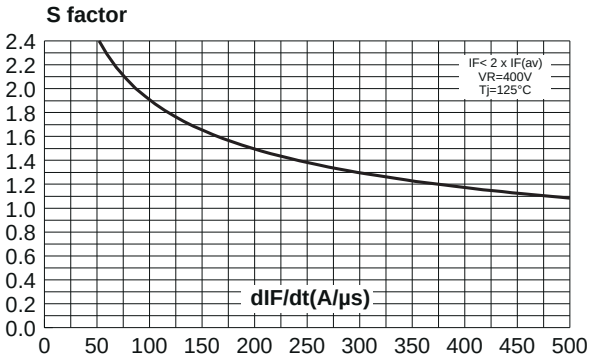


Fig. 8: Relative variation of dynamic parameters versus junction temperature (Reference: Tj=125°C).

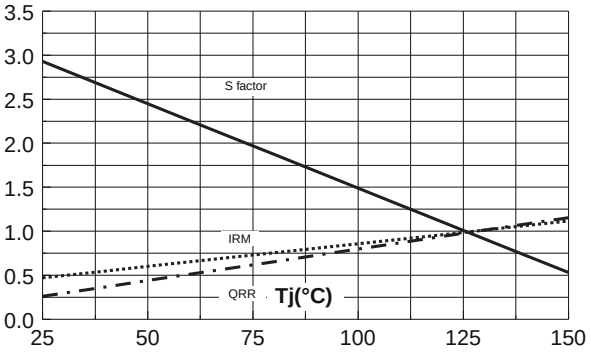


Fig. 9: Transient peak forward voltage versus dI_F/dt (90% confidence, per diode).

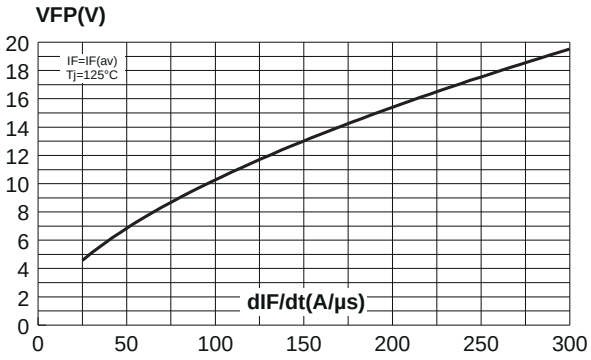
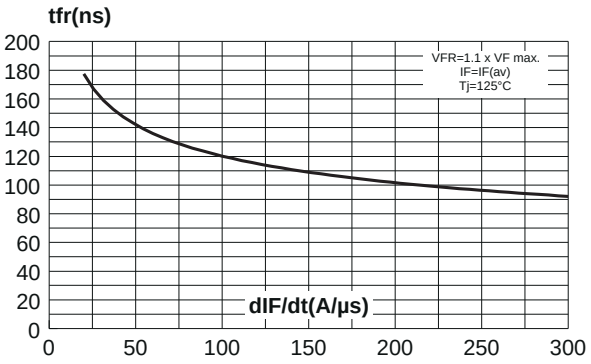
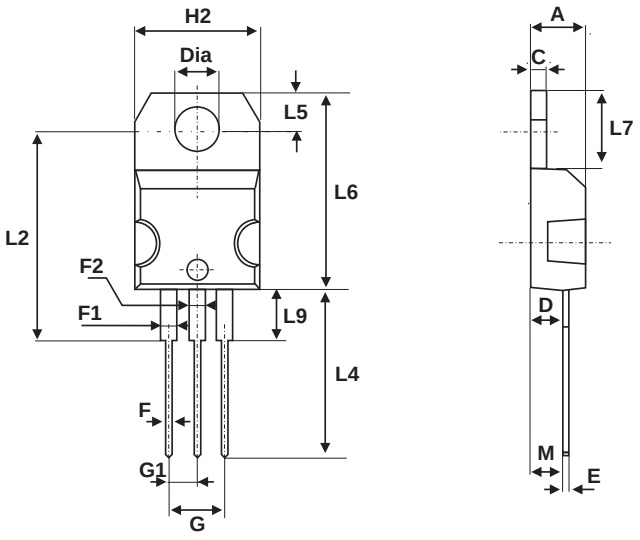


Fig. 10: Forward recovery time versus dI_F/dt (90% confidence, per diode).



PACKAGE MECHANICAL DATA

TO-220AB



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
F2	1.14	1.70	0.044	0.066
G	4.95	5.15	0.194	0.202
G1	2.40	2.70	0.094	0.106
H2	10	10.40	0.393	0.409
L2	16.4 typ.		0.645 typ.	
L4	13	14	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.	3.75	3.85	0.147	0.151

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