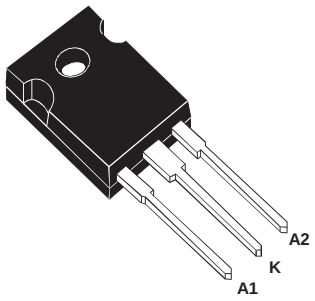
STTH3006CW

TURBO 2 ULTRA-FAST HIGH VOLTAGE RECTIFIER

PRELIMINARY DATASHEET

MAJOR PRODUCTS CHARACTERISTICS

$I_{F(AV)}$	**2x15 A**
V_{RRM}	**600 V**
Tj (max)	**175 °C**
V_F **(max)**	**1.9 V**
trr (max)	**50 ns**



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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			30	A
$I_{F(AV)}$	Average forward current	Tc = 92°C δ = 0.5	Per diode Per device	15 30	A
I_{FSM}	Surge non repetitive forward current		tp = 10 ms sinusoidal	85	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	2.2 1.35	°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			100	µA
			Tj = 125°C		10	400	
V_F **	Forward voltage drop	I_F = 15 A	Tj = 25°C			2.4	V
		per leg	Tj = 125°C		1.5	1.9	
		I_F = 30 A	Tj = 25°C			2.4	V
		total	Tj = 125°C		1.5	1.9	

Pulse test : * tp = 5 ms, δ < 2 %
** tp = 380 µs, δ < 2%

To evaluate the maximum conduction losses use the following equation :
$P = 1.3 \times I_{F(AV)} + 0.04\ I_{F(RMS)}^2$

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			35	ns
	I_F = 1 A dI_F/dt = - 50 A/µs V_R = 30 V				50	
I_{RM}	V_R = 400 V I_F = 15 A dI_F/dt = -200 A/µs	Tj = 125°C			9.5	A
S_{factor}				1		-
tfr	I_F = 15 A dI_F/dt = 120 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 = 15 A dI_F/dt = -200 A/µs	Tj = 125°C		380		nC

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

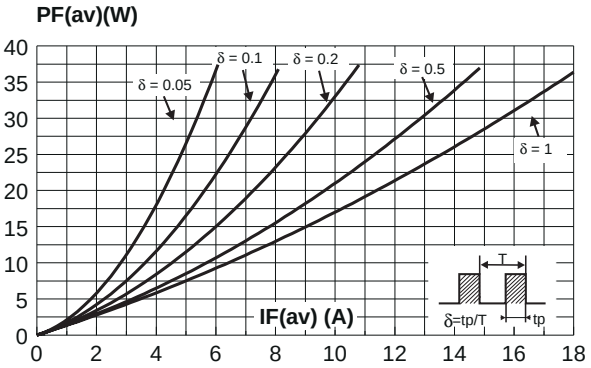


Fig. 2: Forward voltage drop versus current (per diode).

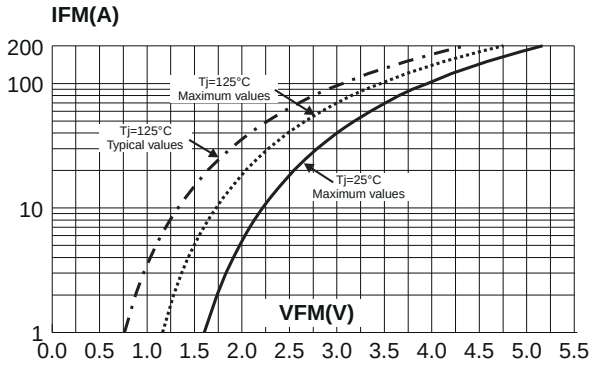


Fig. 3: Relative variation of thermal impedance junction to case versus pulse duration.

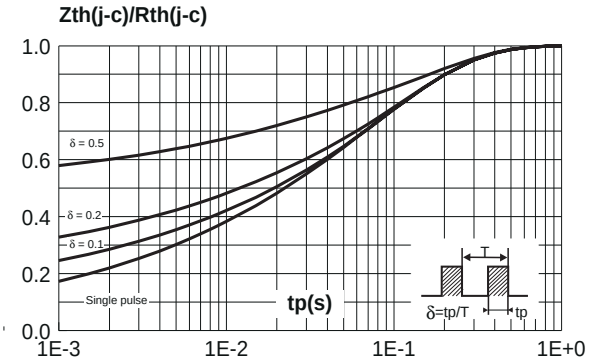


Fig. 4: Peak reverse recovery current versus dI_F/dt (90% confidence, per diode).

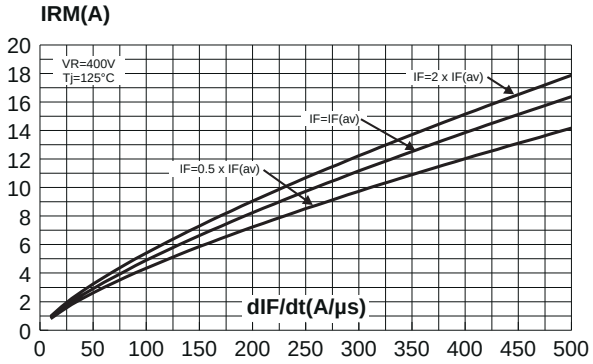


Fig. 5: Reverse recovery time versus dI_F/dt (90% confidence, per diode).

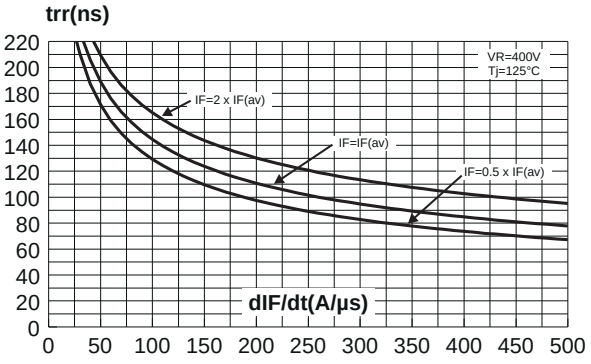


Fig. 6: Reverse charges versus dI_F/dt (90% confidence, per diode).

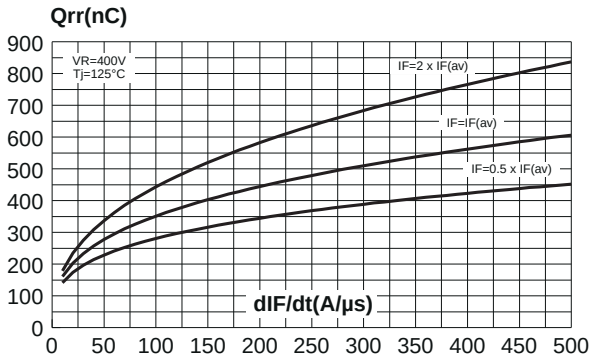


Fig. 7: Softness factor (tb/ta) versus dI_F/dt (typical values, per diode).

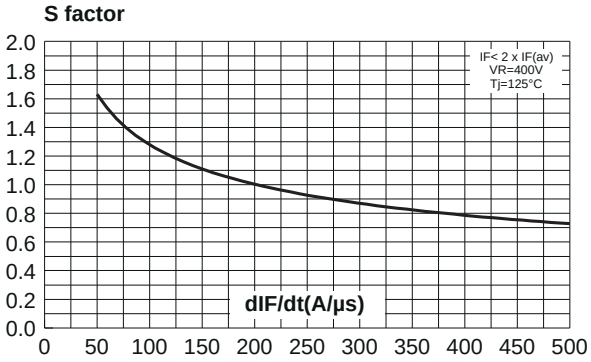


Fig. 8: Relative variation of dynamic parameters versus junction temperature (Reference: Tj=125°C).

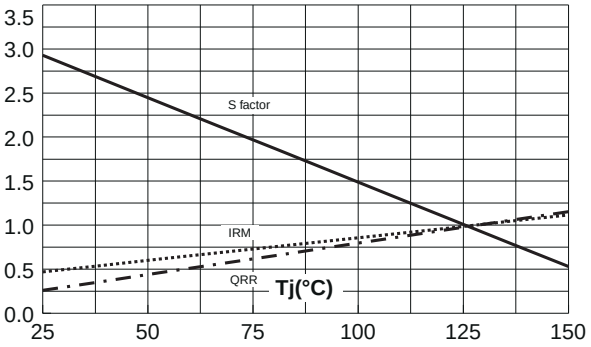


Fig. 9: Transient peak forward voltage versus dI_F/dt (90% confidence, per diode).

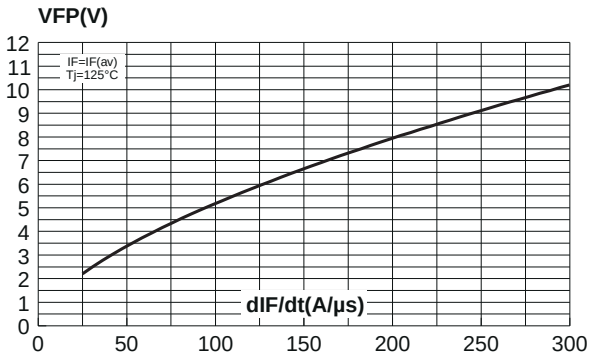
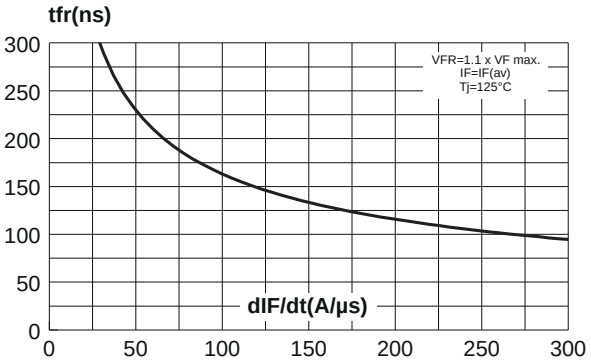


Fig. 10: Forward recovery time versus dI_F/dt (90% confidence, per diode).



PACKAGE MECHANICAL DATA

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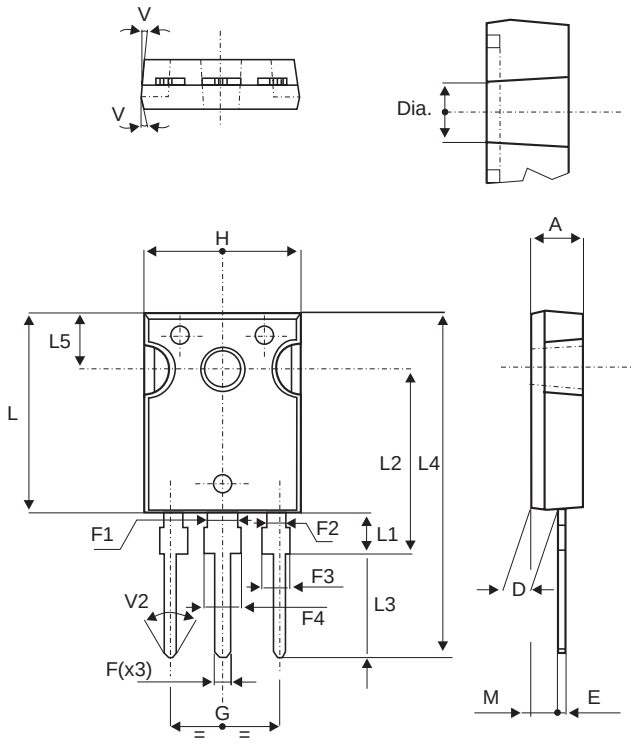

REF.	DIMENSIONS					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.85		5.15	0.191		0.203
D	2.20		2.60	0.086		0.102
E	0.40		0.80	0.015		0.031
F	1.00		1.40	0.039		0.055
F1		3.00			0.118	
F2		2.00			0.078	
F3	2.00		2.40	0.078		0.094
F4	3.00		3.40	0.118		0.133
G		10.90			0.429	
H	15.45		15.75	0.608		0.620
L	19.85		20.15	0.781		0.793
L1	3.70		4.30	0.145		0.169
L2		18.50			0.728	
L3	14.20		14.80	0.559		0.582
L4		34.60			1.362	
L5		5.50			0.216	
M	2.00		3.00	0.078		0.118
V		5°			5°	
V2		60°			60°	
Dia.	3.55		3.65	0.139		0.143

Ordering code	Marking	Package	Weight	Base qty	Delivery mode
STTH3006CW	STTH3006CW	TO-247	4.36 g.	30	Tube

- Cooling method: C
- Epoxy meets UL94,V0