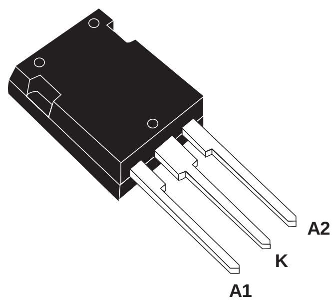
STTH8003CY

HIGH FREQUENCY SECONDARY RECTIFIERS

MAJOR PRODUCTS CHARACTERISTICS

$I_{F(AV)}$	**2x40 A**
V_{RRM}	**300 V**
V_F (max)	**1 V**
trr (max)	**60 ns**



Max247

FEATURES AND BENEFITS

- COMBINES HIGHEST RECOVERY AND VOLTAGE PERFORMANCE.
- ULTRA-FAST, SOFT AND NOISE-FREE RECOVERY.
- HIGH OPERATING TEMPERATURE THANKS TO LOW LEAKAGE CURRENT.

DESCRIPTION

Dual rectifiers suited for Switch Mode Power Supply and high frequency DC to DC converters.

Packaged in Max247, this device is intended for use in low voltage, high frequency inverters, free wheeling operation, welding equipment and telecom power supplies.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter			Value	Unit
V_{RRM}	Repetitive peak reverse voltage			300	V
$I_{F(RMS)}$	RMS forward current			50	A
$I_{F(AV)}$	Average forward current	Tc = 105°C δ = 0.5	Per diode Per device	40 80	A
I_{FSM}	Surge non repetitive forward current		tp = 10 ms sinusoidal	400	A
I_{RSM}	Non repetitive avalanche current		tp = 100 µs square	4	A
T_{stg}	Storage temperature range			-55 +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	0.8 0.5	°C/W
$R_{th\ (c)}$		Coupling	0.2	°C/W

STATIC ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Tests Conditions		Min.	Typ.	Max.	Unit
I_R *	Reverse leakage current	V_R = 300 V	Tj = 25°C			80	µA
			Tj = 125°C		80	800	
V_F **	Forward voltage drop	I_F = 40 A	Tj = 25°C			1.25	V
			Tj = 125°C		0.85	1	

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

To evaluate the maximum conduction losses use the following equation :
$P = 0.75 \times I_{F(AV)} + 0.0062\ I_{F(RMS)}^2$

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			50	ns
	I_F = 1 A dI_F/dt = - 50 A/µs V_R = 30 V				60	
I_{RM}	Vcc = 200 V I_F = 40 A dI_F/dt = -200 A/µs	Tj = 125°C			13	A
S_{factor}				0.3		-
tfr	I_F = 40 A dI_F/dt = 200 A/µs, V_{FR} = 1.1 x V_F max	Tj = 25°C			450	ns
V_{FP}					5	V

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

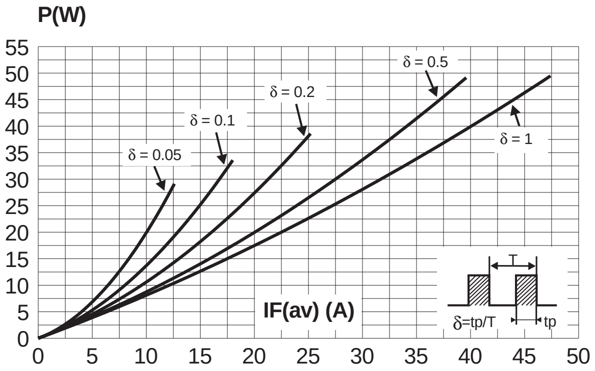


Fig. 2: Forward voltage drop versus forward current (per diode)

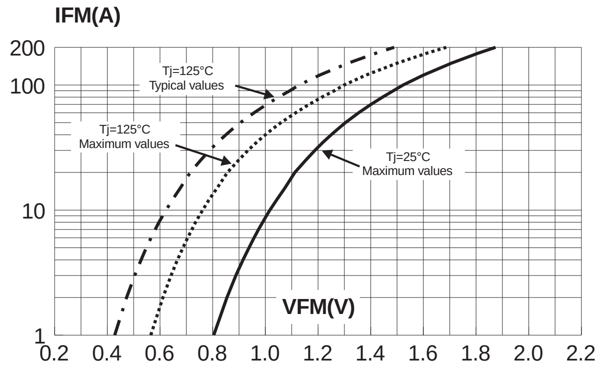


Fig. 3: Relative variation of thermal impedance junction to case versus pulse duration

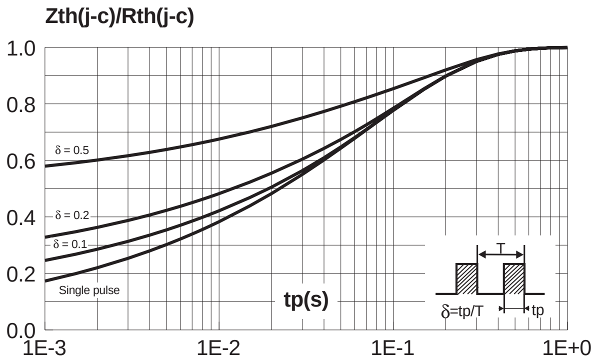


Fig. 4: Peak reverse recovery current versus dIF/dt (90% confidence, per diode)

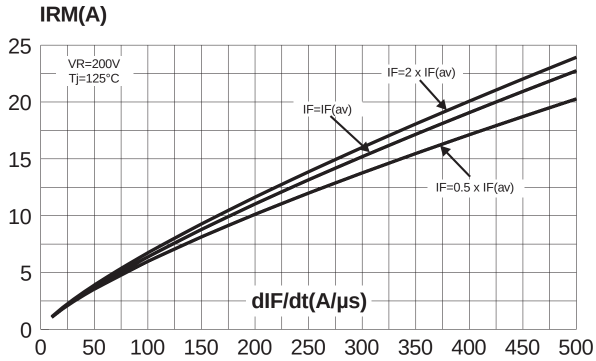


Fig. 5: Reverse recovery time versus dIF/dt (90% confidence, per diode)

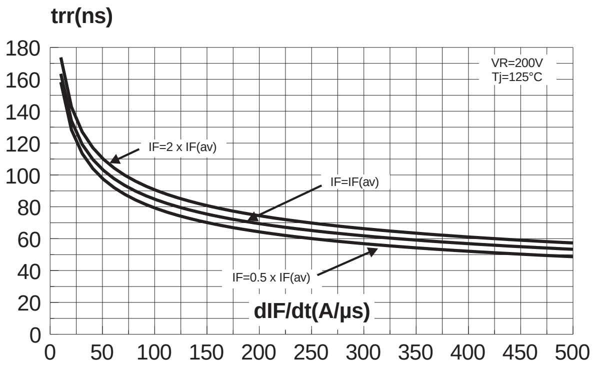


Fig. 6: Softness factor (tb/ta) versus dIF/dt (typical values, per diode)

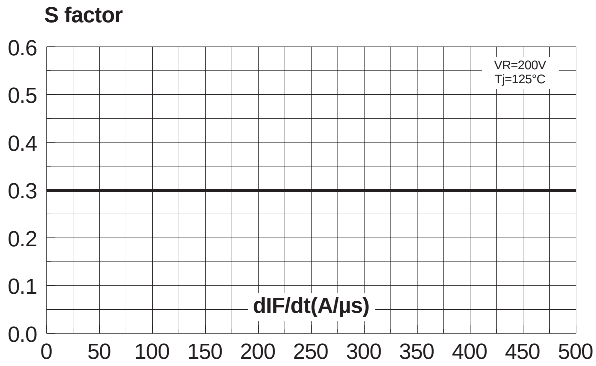


Fig. 7: Relative variation of dynamic parameters versus junction temperature (Reference: Tj = 125°C)

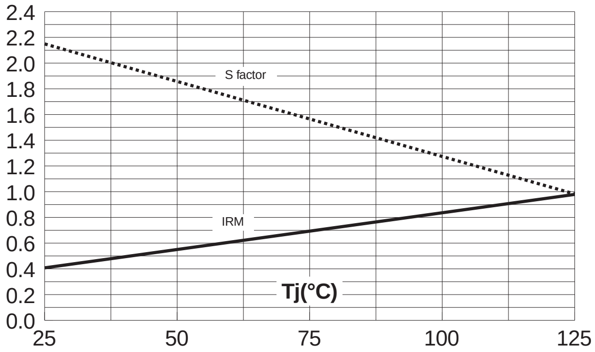


Fig. 8: Transient peak forward voltage versus dIF/dt (90% confidence, per diode)

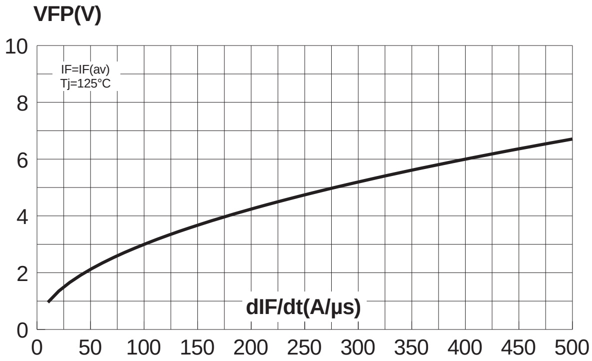
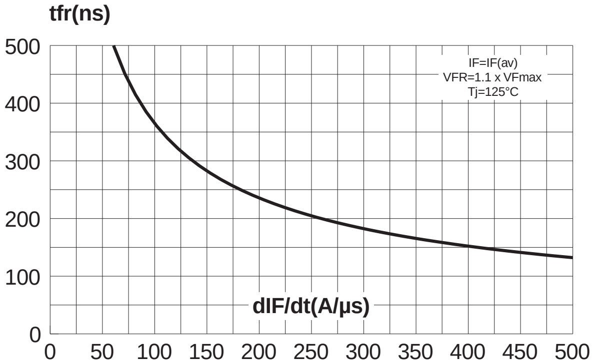
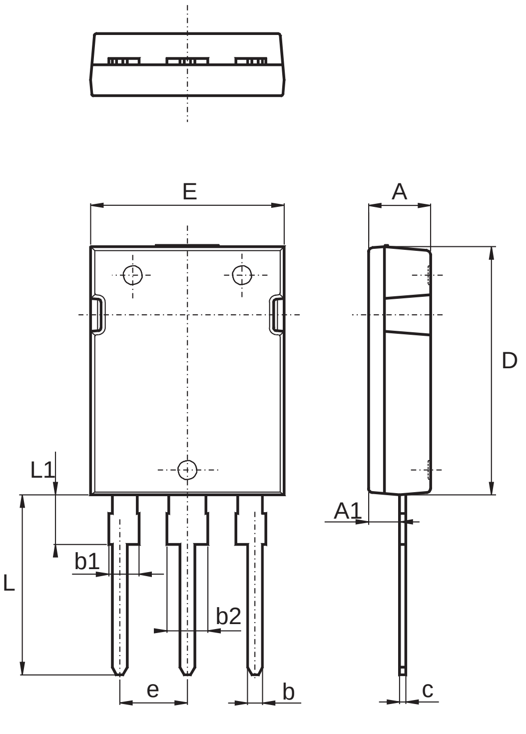


Fig. 9: Forward recovery time versus dIF/dt (90% confidence, per diode)



PACKAGE MECHANICAL DATA
Max247



REF.	DIMENSIONS			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	4.70	5.30	0.185	0.209
A1	2.20	2.60	0.087	0.102
b	1.00	1.40	0.038	0.055
b1	2.00	2.40	0.079	0.094
b2	3.00	3.40	0.118	0.133
c	0.40	0.80	0.016	0.031
D	19.70	10.30	0.776	0.799
e	5.35	5.55	0.211	0.219
E	15.30	15.90	0.602	0.626
L	14.20	15.20	0.559	0.598
L1	3.70	4.30	0.146	0.169

Ordering code	Marking	Package	Weight	Base qty	Delivery mode
STTH8003CY	STTH8003CY	Max247	4.4 g.	30	Tube

- Cooling method: C
- Epoxy meets UL94,V0