

HIGH VOLTAGE ULTRAFAST RECTIFIER

MAIN PRODUCT CHARACTERISTICS

$I_{F(AV)}$	2 A
V_{RRM}	800 V
$T_j (max)$	175 °C
$V_F (max)$	1.25 V

FEATURES AND BENEFITS

- Low forward voltage drop
- High reliability
- High surge current capability
- Soft switching for reduced EMI disturbances
- Planar technology

DESCRIPTION

The STTH208, which is using ST ultrafast high voltage planar technology, is specially suited for free-wheeling, clamping, snubbing, demagnetization in power supplies and other power switching applications.



ABSOLUTE RATINGS (limiting values)

Symbol	Parameter			Value	Unit
V _{RRM}	Repetitive peak reverse voltage			800	V
V _(RMS)	RMS voltage			560	V
I _{F(AV)}	Average forward current	TI = 60°C δ=0.5	DO-15	2	A
		TI = 100°C δ=0.5	SMB	2	
I _{FSM}	Forward surge current t = 8.3 ms	DO-15		45	A
		SMB		35	
T _{stg}	Storage temperature range			- 50 + 175	°C
T _j	Maximum operating junction temperature			+ 175	°C

THERMAL PARAMETERS

Symbol	Parameter			Value	Unit
$R_{th(j-l)}$	Junction to lead	L = 10 mm	DO-15	40	°C/W
			SMB	25	
$R_{th(j-a)}$	Junction to ambient	L = 10 mm	DO-15	110	

STATIC ELECTRICAL CHARACTERISTICS

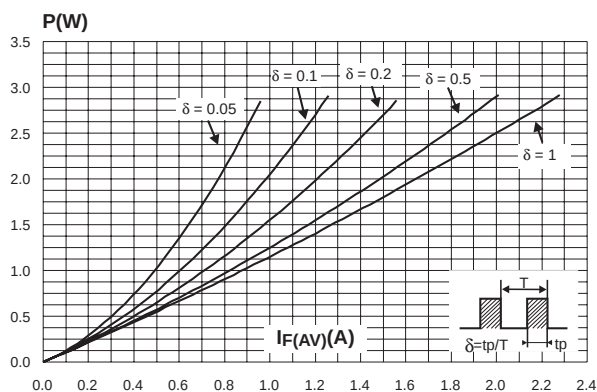
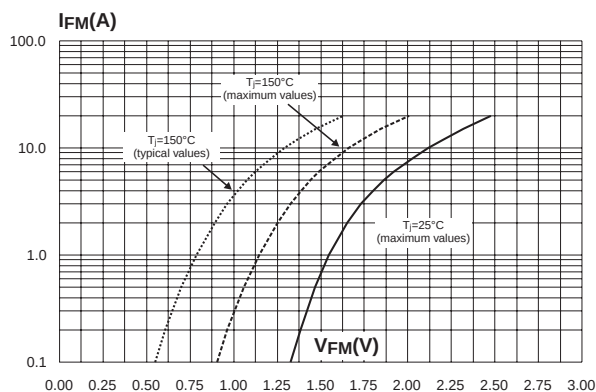
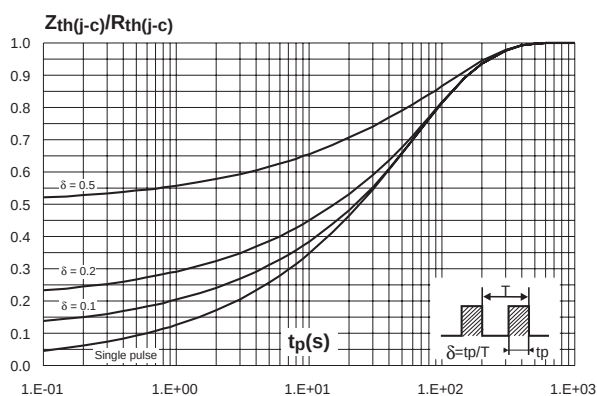
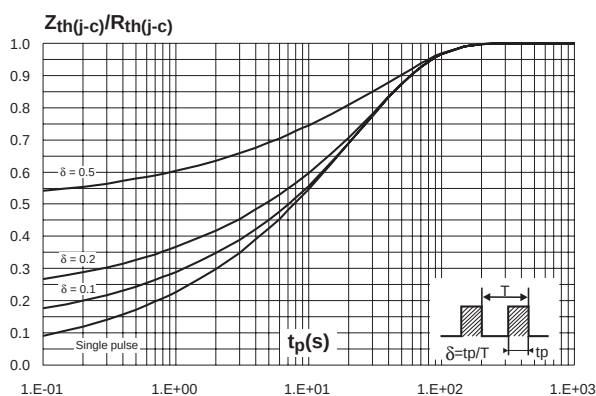
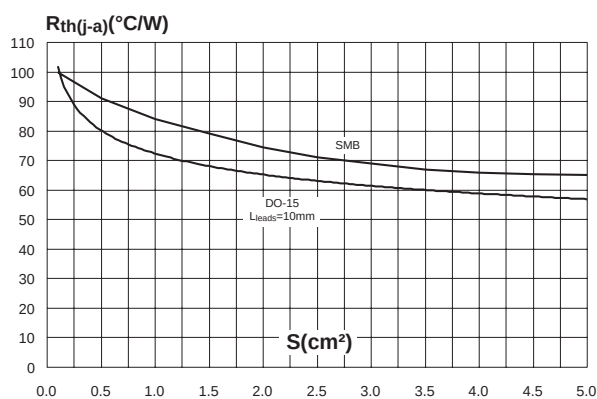
Symbol	Parameter	Tests conditions		Min.	Typ.	Max.	Unit
I_R	Reverse leakage current	$V_R = 800V$	$T_j = 25^\circ C$			5	μA
			$T_j = 125^\circ C$			50	
V_F	Forward voltage drop	$I_F = 2 A$	$T_j = 25^\circ C$			1.65	V
			$T_j = 150^\circ C$		0.89	1.25	

To evaluate the maximum conduction losses use the following equation :

$$P = 1.05 \times I_{F(AV)} + 0.10 \times I_F^2(RMS)$$

DYNAMIC ELECTRICAL CHARACTERISTICS

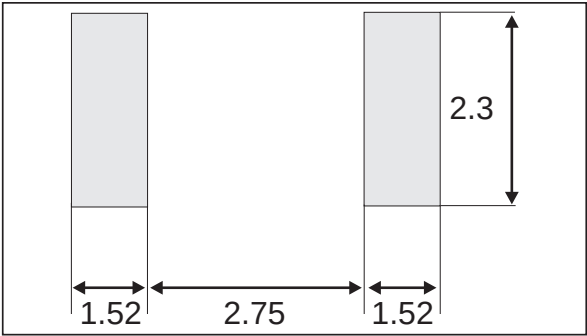
Symbol	Parameter	Tests conditions		Min.	Typ.	Max.	Unit
t_{rr}	Reverse recovery time	$I_F = 0.5 A$ $I_{rr} = 0.25 A$ $I_R = 1A$	$T_j = 25^\circ C$			75	ns
t_{fr}	Forward recovery time	$I_F = 2 A$ $dI_F/dt = 50 A/\mu s$ $V_{FR} = 1.1 \times V_F \text{ max}$	$T_j = 25^\circ C$			200	ns
V_{FP}	Forward recovery voltage					9	V

Fig. 1: Conduction losses versus average current.**Fig. 2:** Forward voltage drop versus forward current.**Fig. 3-1:** Relative variation of thermal impedance junction ambient versus pulse duration (epoxy FR4, $L_{leads} = 10mm$) (DO-15).**Fig. 3-2:** Relative variation of thermal impedance junction ambient versus pulse duration (epoxy FR4, $S=1cm^2$) (SMB).**Fig. 4:** Thermal resistance junction to ambient versus copper surface under each lead (epoxy printed circuit board FR4, copper thickness: $35\mu m$).

PACKAGE MECHANICAL DATA
SMB

REF.	DIMENSIONS			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A1	1.90	2.45	0.075	0.096
A2	0.05	0.20	0.002	0.008
b	1.95	2.20	0.077	0.087
c	0.15	0.41	0.006	0.016
E	5.10	5.60	0.201	0.220
E1	4.05	4.60	0.159	0.181
D	3.30	3.95	0.130	0.156
L	0.75	1.60	0.030	0.063

FOOTPRINT (in millimeters)



PACKAGE MECHANICAL DATA

DO-15

REF.	DIMENSIONS			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	6.05	6.75	0.238	0.266
B	2.95	3.53	0.116	0.139
C	26	31	1.024	1.220
D	0.71	0.88	0.028	0.035

Ordering code	Marking	Package	Weight	Base qty	Delivery mode
STTH208	STTH208	DO-15	0.4 g	1000	Ammopack
STTH208U	U08	SMB	0.11 g	2500	Tape & reel
STTH208RL	STTH208	DO-15	0.4 g	6000	Tape & reel

- Epoxy meets UL 94,V0

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