

HIGH VOLTAGE ULTRAFAST RECTIFIER

MAIN PRODUCT CHARACTERISTICS

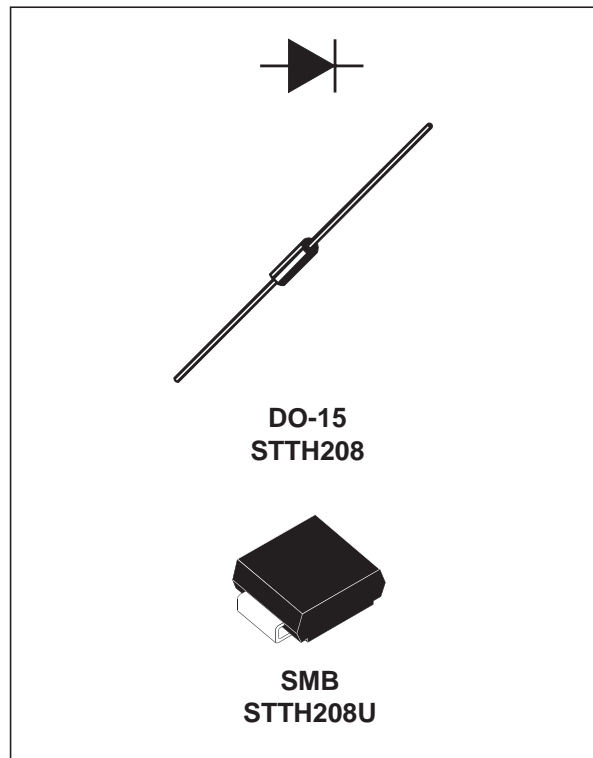
I_{F(AV)}	2 A
V_{RRM}	800 V
T_j (max)	175 °C
V_F (max)	1.25 V

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°C			5	µA
			T _j = 125°C			50	
V _F	Forward voltage drop	I _F = 2 A	T _j = 25°C			1.65	V
			T _j = 150°C		0.89	1.25	

To evaluate the maximum conduction losses use the following equation :
 $P = 1.05 \times I_{F(AV)} + 0.10 \times I_{F(RMS)}^2$

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°C			75	ns
t _{fr}	Forward recovery time	I _F = 2 A dI _F /dt = 50 A/µs V _{FR} = 1.1 x V _F max	T _j = 25°C			200	ns
V _{FP}	Forward recovery voltage						9

Fig. 1: Conduction losses versus average current.

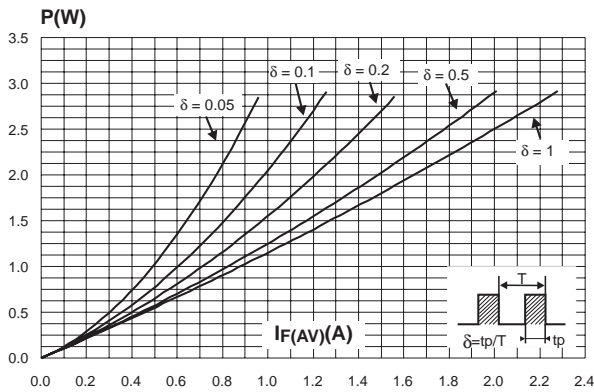


Fig. 2: Forward voltage drop versus forward current.

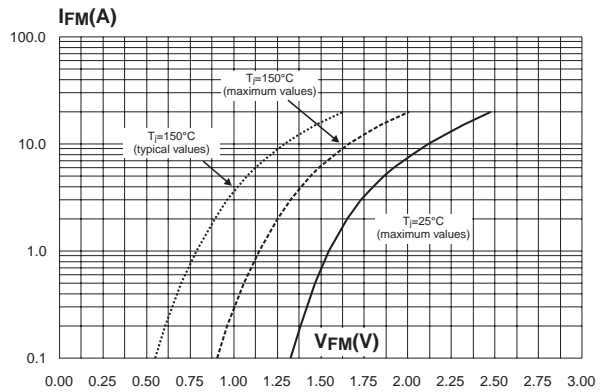


Fig. 3-1: Relative variation of thermal impedance junction ambient versus pulse duration (epoxy FR4, Leads = 10mm) (DO-15).

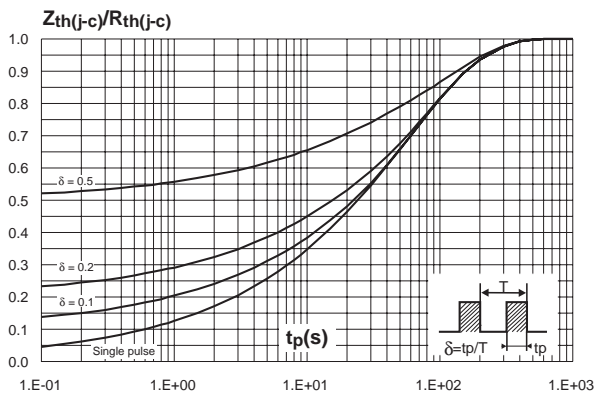


Fig. 3-2: Relative variation of thermal impedance junction ambient versus pulse duration (epoxy FR4, S=1cm²) (SMB).

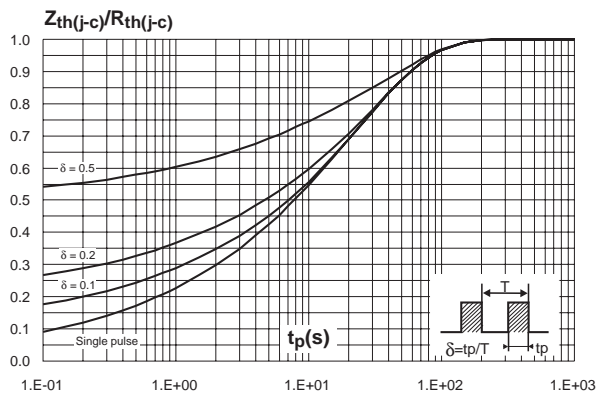
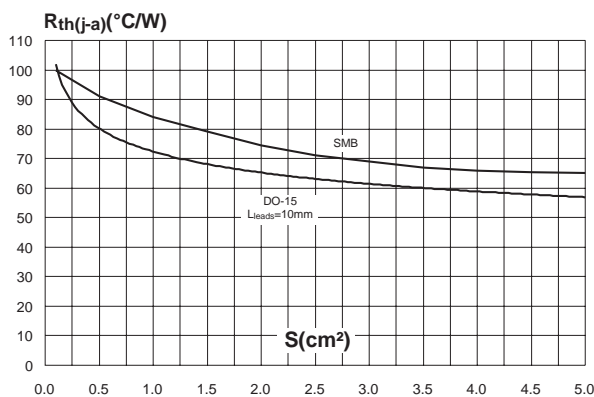
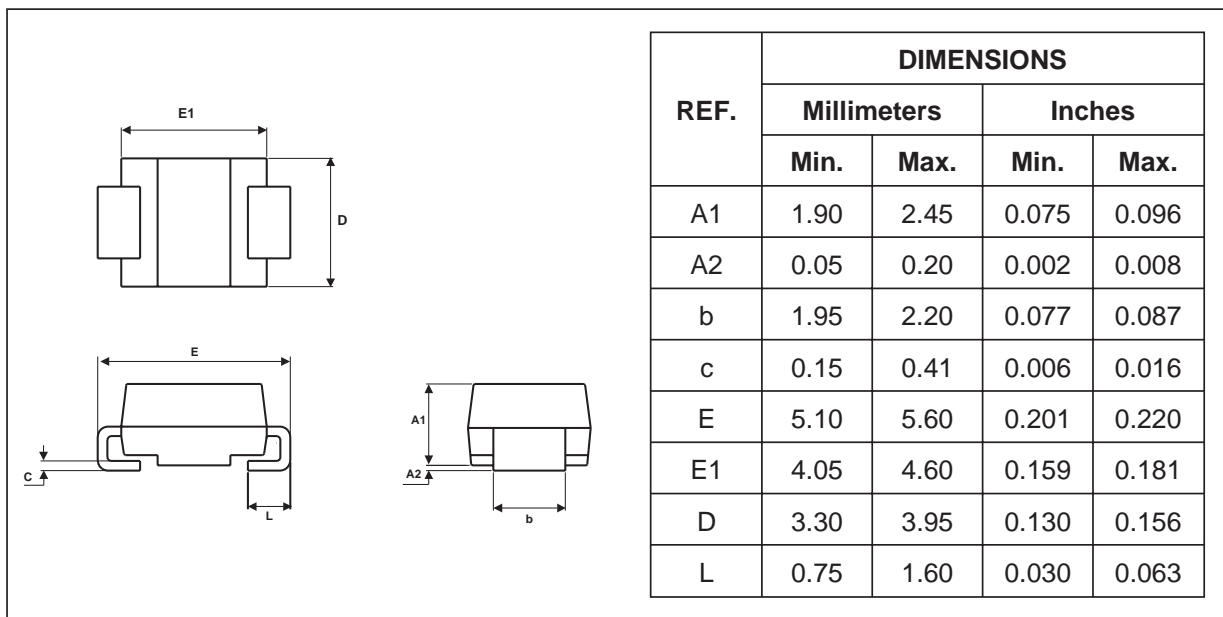


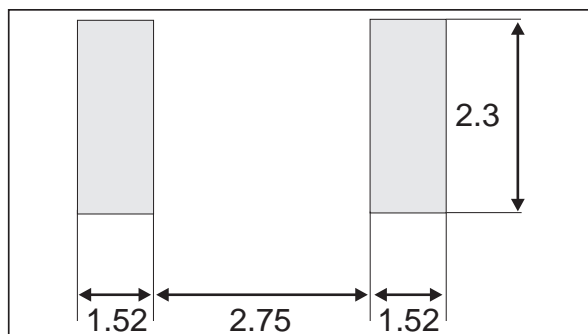
Fig. 4: Thermal resistance junction to ambient versus copper surface under each lead (epoxy printed circuit board FR4, copper thickness: 35µm).



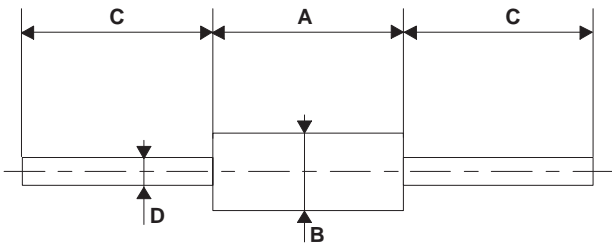
PACKAGE MECHANICAL DATA
SMB



FOOTPRINT (in millimeters)



PACKAGE MECHANICAL DATA
 DO-15

	DIMENSIONS			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
	A	6.05	6.75	0.238
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

Information furnished is believed to be accurate and reliable. However, STMicroelectronics assumes no responsibility for the consequences of use of such information nor for any infringement of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of STMicroelectronics. Specifications mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information previously supplied. STMicroelectronics products are not authorized for use as critical components in life support devices or systems without express written approval of STMicroelectronics.

The ST logo is a registered trademark of STMicroelectronics

© 2003 STMicroelectronics - Printed in Italy - All rights reserved.

STMicroelectronics GROUP OF COMPANIES

Australia - Brazil - Canada - China - Finland - France - Germany
 Hong Kong - India - Israel - Italy - Japan - Malaysia - Malta - Morocco - Singapore
 Spain - Sweden - Switzerland - United Kingdom - United States.

<http://www.st.com>

