



STTH208/U

HIGH VOLTAGE ULTRAFAST RECTIFIER

MAIN PRODUCT CHARACTERISTICS

$I_{F(AV)}$	2 A
V_{RRM}	800 V
$T_j(\text{max})$	175 °C
$V_F(\text{max})$	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	$T_I = 60^\circ\text{C} \quad \delta = 0.5$	DO-15	2	A
		$T_I = 100^\circ\text{C} \quad \delta = 0.5$	SMB	2	
I_{FSM}	Forward surge current $t = 8.3 \text{ ms}$		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.

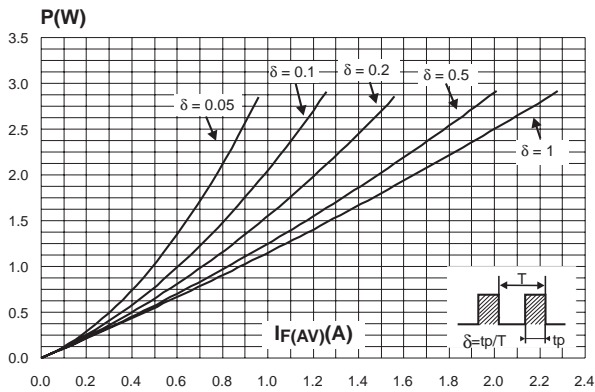


Fig. 2: Forward voltage drop versus forward current.

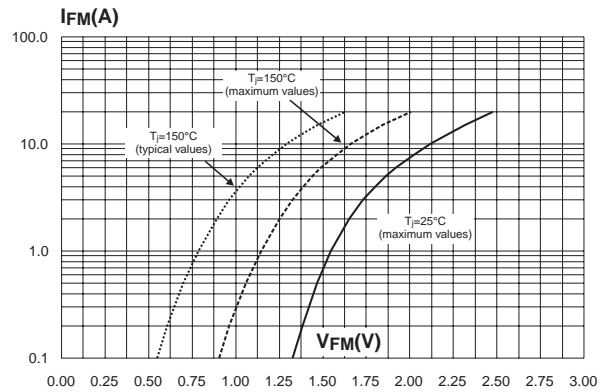


Fig. 3-1: Relative variation of thermal impedance junction ambient versus pulse duration (epoxy FR4, Leads = 10mm) (DO-15).

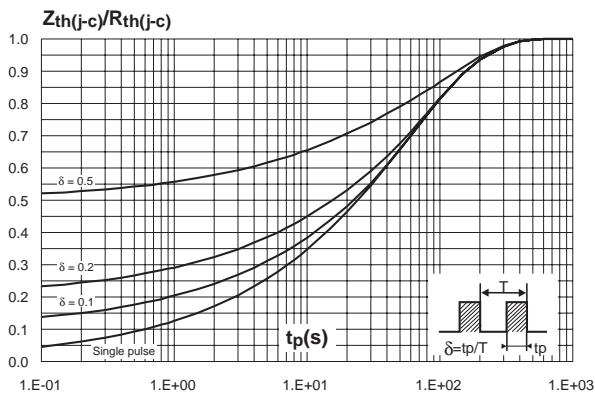


Fig. 3-2: Relative variation of thermal impedance junction ambient versus pulse duration (epoxy FR4, S=1cm²) (SMB).

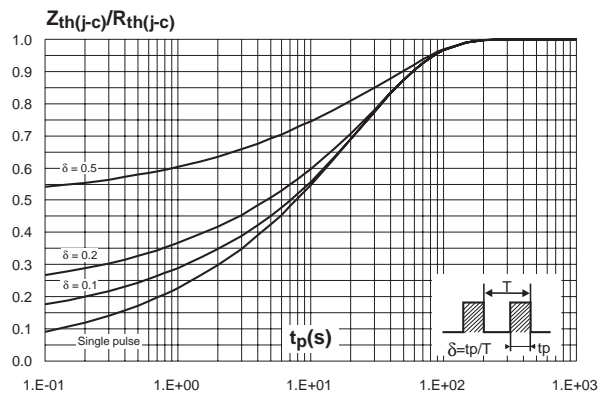
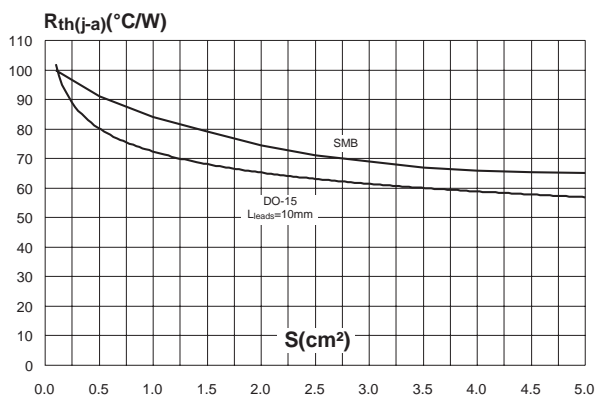
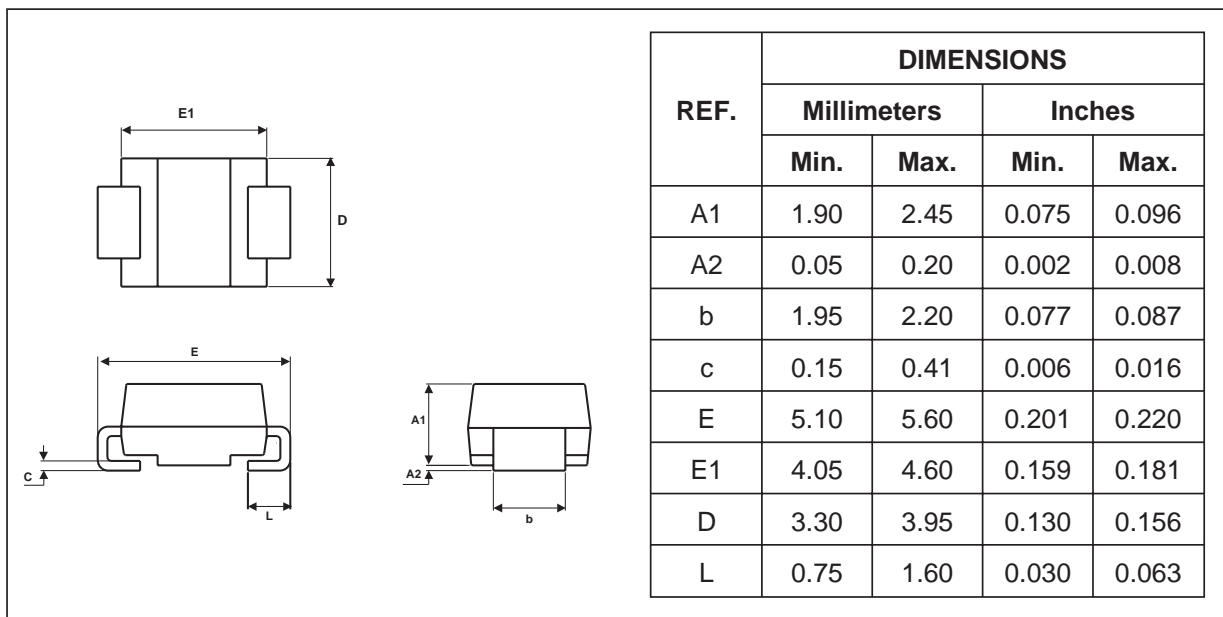


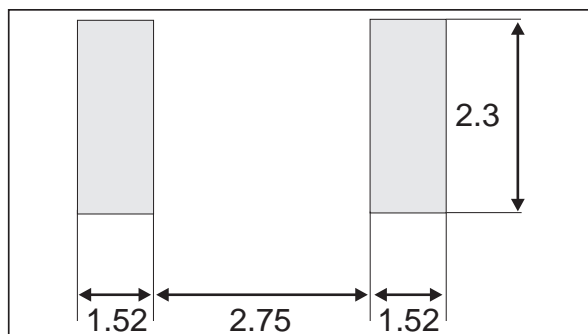
Fig. 4: Thermal resistance junction to ambient versus copper surface under each lead (epoxy printed circuit board FR4, copper thickness: 35µm).



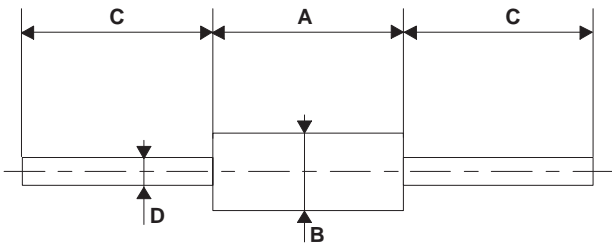
PACKAGE MECHANICAL DATA
SMB



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

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