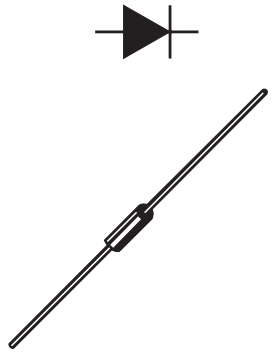
STTH208/U

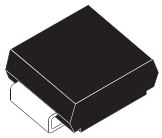
HIGH VOLTAGE ULTRAFAST RECTIFIER

MAIN PRODUCT CHARACTERISTICS

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



DO-15
STTH208



SMB
STTH208U

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, snubbering, 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	Tl = 60°C δ =0.5	DO-15	2	A
		Tl = 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
Tj	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	Tj = 25°C			5	µA
			Tj = 125°C			50	
V_F	Forward voltage drop	I_F = 2 A	Tj = 25°C			1.65	V
			Tj = 150°C		0.89	1.25	

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

DYNAMIC ELECTRICAL CHARACTERISTICS

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

Fig. 1: Conduction losses versus average current.

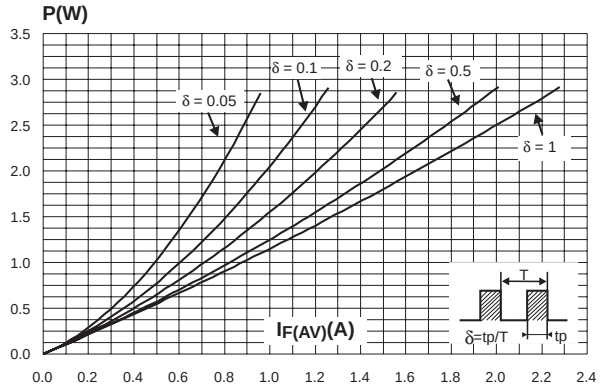


Fig. 2: Forward voltage drop versus forward current.

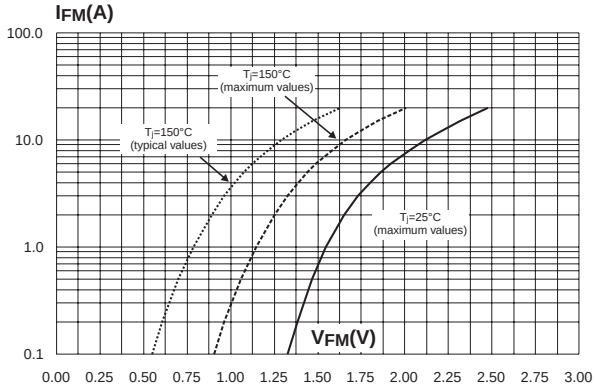


Fig. 3-1: Relative variation of thermal impedance junction ambient versus pulse duration (epoxy FR4, L_{leads} = 10mm) (DO-15).

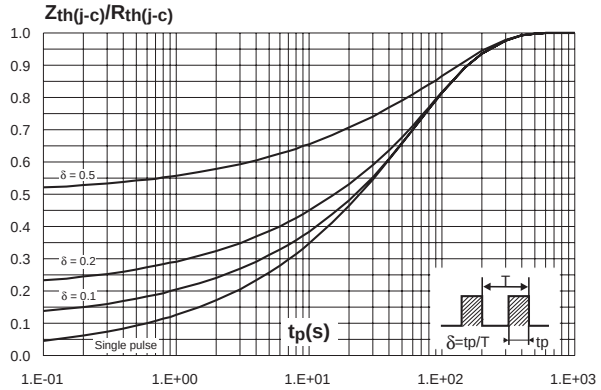


Fig. 3-2: Relative variation of thermal impedance junction ambient versus pulse duration (epoxy FR4, S=1cm^2) (SMB).

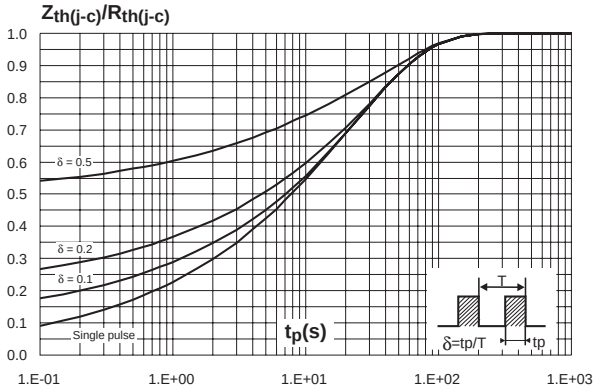
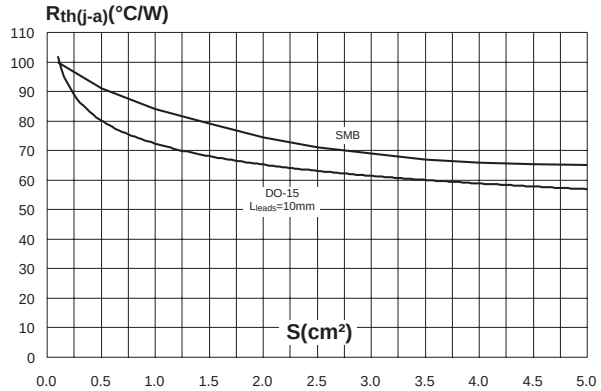
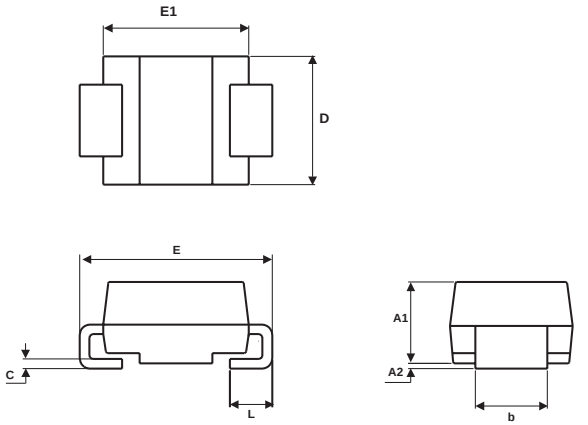


Fig. 4: Thermal resistance junction to ambient versus copper surface under each lead (epoxy printed circuit board FR4, copper thickness: 35µm)**.**



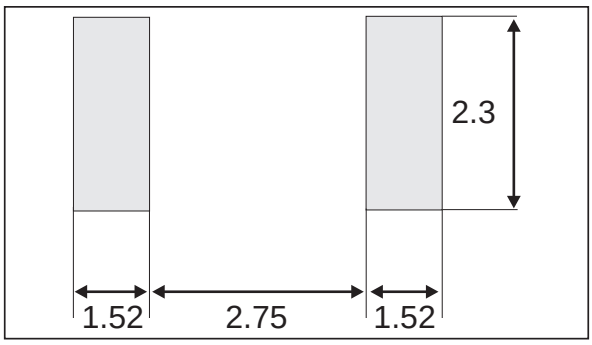
PACKAGE MECHANICAL DATA

SMB



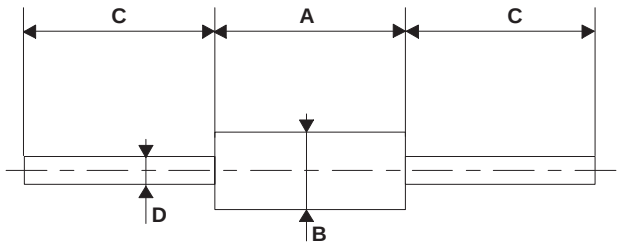
REF.	DIMENSIONS			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A1	1.90	2.45	0.075	0.096
A2	0.05	0.20	0.002	0.008
b	1.95	2.20	0.077	0.087
c	0.15	0.41	0.006	0.016
E	5.10	5.60	0.201	0.220
E1	4.05	4.60	0.159	0.181
D	3.30	3.95	0.130	0.156
L	0.75	1.60	0.030	0.063

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