

HIGH VOLTAGE ULTRAFAST RECTIFIER

MAIN PRODUCT CHARACTERISTICS

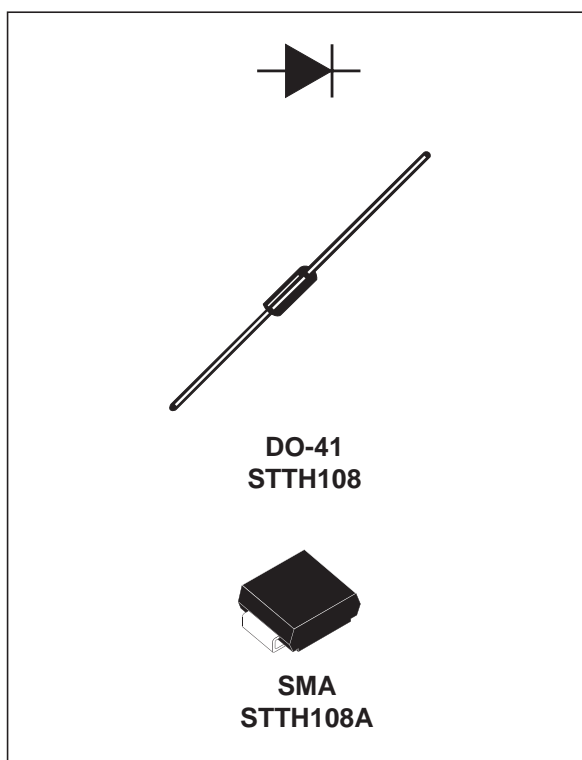
I_{F(AV)}	1 A
V_{RRM}	800 V
T_j (max)	175 °C
V_F (max)	1.25 V

FEATURES AND BENEFITS

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

DESCRIPTION

The STTH108, 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 = 110°C δ = 0.5	DO-41	1	A
		TI = 130°C δ = 0.5	SMA	1	
I _{FSM}	Forward surge current t = 8.3 ms	DO-41		25	A
		SMA		20	
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-41	45	°C/W
			SMA	30	
$R_{th(j-a)}$	Junction to ambient	L = 10 mm	DO-41	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	$I_F = 1 A$	$T_j = 25^\circ C$			1.65	V
			$T_j = 150^\circ C$		0.89	1.25	

To evaluate the maximum conduction losses use the following equation :

$$P = 1.05 \times I_{F(AV)} + 0.20 I_{F(RMS)}^2$$

DYNAMIC ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Tests conditions		Min.	Typ.	Max.	Unit
t_{rr}	Reverse recovery time	$I_F = 0.5 A$ $I_{rr} = 0.25 A$ $I_R = 1A$	$T_j = 25^\circ C$			75	ns
t_{fr}	Forward recovery time	$I_F = 1 A$ $dI_F/dt = 50 A/\mu s$ $V_{FR} = 1.1 \times V_{Fmax}$	$T_j = 25^\circ C$			200	ns
V_{FP}	Forward recovery voltage						12

Fig. 1: Conduction losses versus average current.

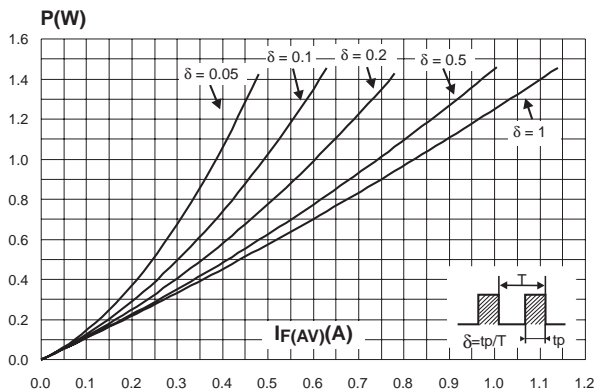


Fig. 2: Forward voltage drop versus forward current.

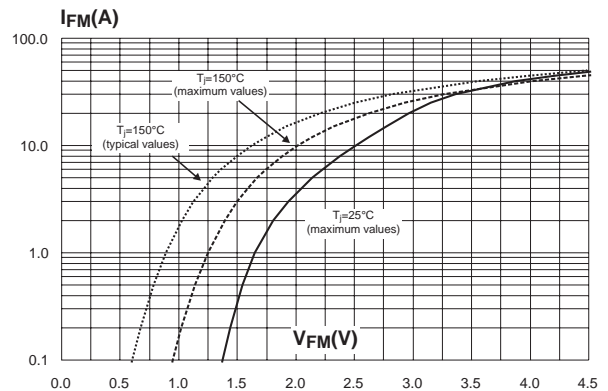


Fig. 3-1: Relative variation of thermal impedance junction ambient versus pulse duration (epoxy FR4, L_{leads} = 10mm) (DO-41).

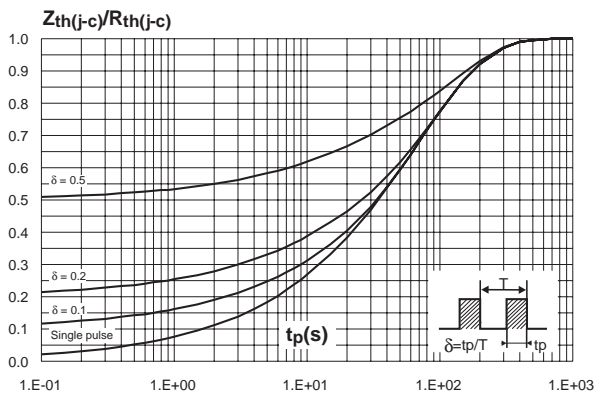


Fig. 3-2: Relative variation of thermal impedance junction ambient versus pulse duration (epoxy FR4) (SMA).

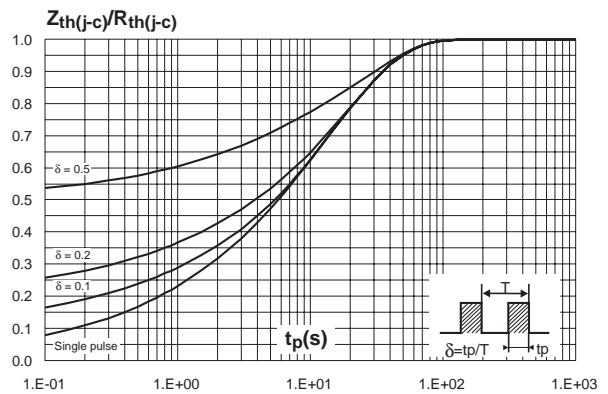


Fig. 4-1: Thermal resistance junction to ambient versus copper surface under each lead (epoxy printed circuit board FR4, copper thickness: 35µm) (DO-41).

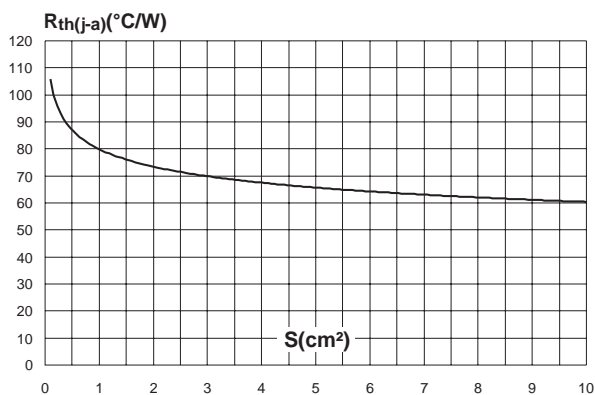
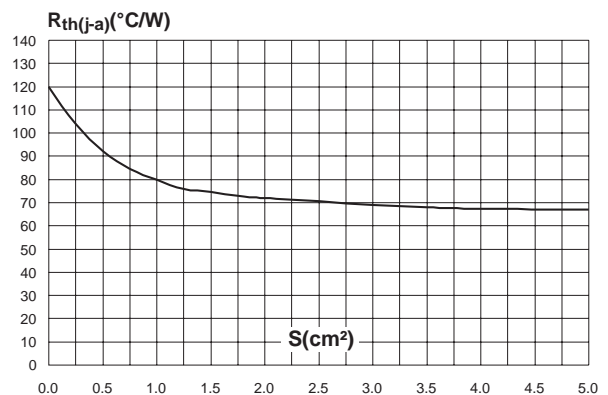
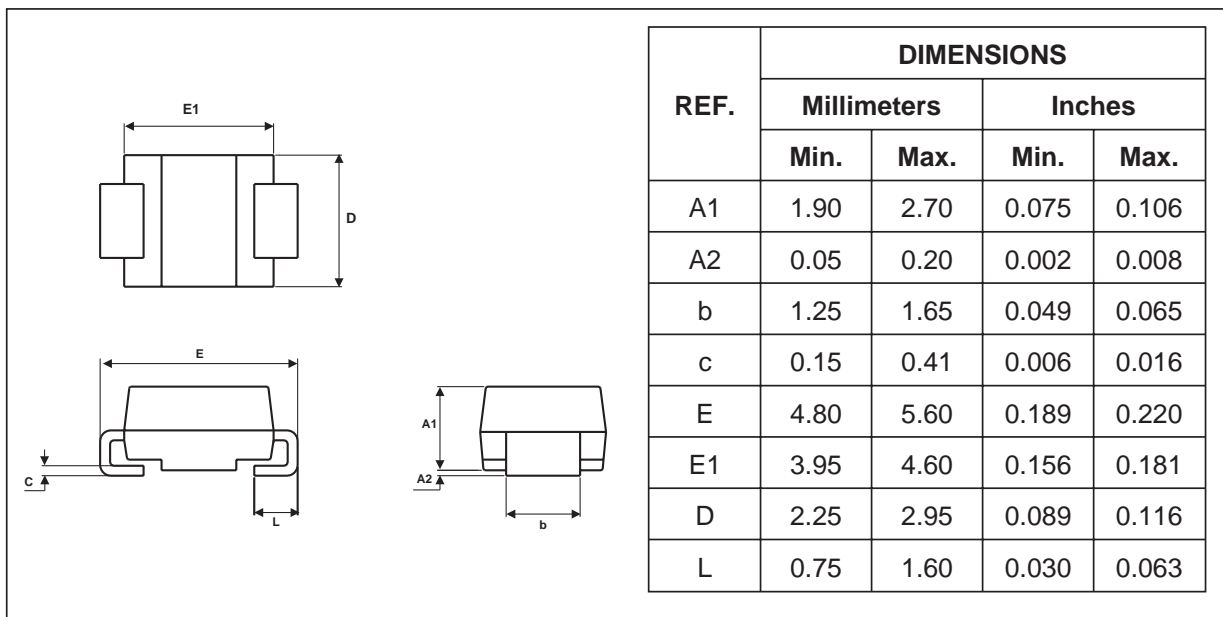


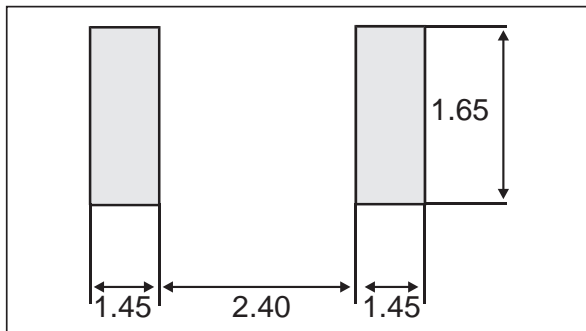
Fig. 4-2: Thermal resistance junction to ambient versus copper surface under each lead (epoxy printed circuit board FR4, copper thickness: 35µm) (SMA).

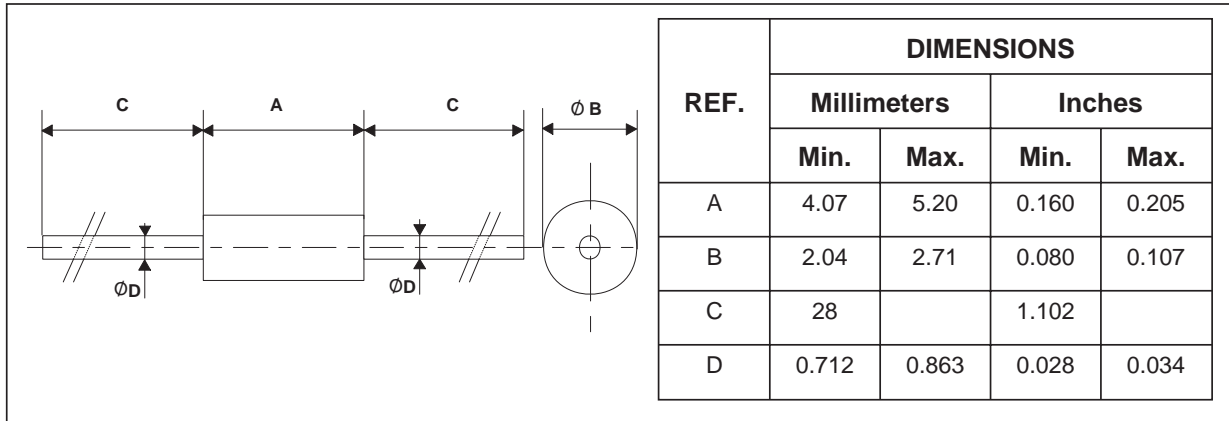


PACKAGE MECHANICAL DATA
SMA



FOOTPRINT (in millimeters)



PACKAGE MECHANICAL DATA
DO41


Ordering code	Marking	Package	Weight	Base qty	Delivery mode
STTH108	STTH108	DO-41	0.34 g	2000	Ammopack
STTH108A	H08	SMA	0.068 g	5000	Tape & reel
STTH108RL	STTH108	DO-41	0.34 g	5000	Tape & reel

- Epoxy meets UL 94,V0

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