

HIGH VOLTAGE ULTRAFAST RECTIFIER

MAIN PRODUCT CHARACTERISTICS

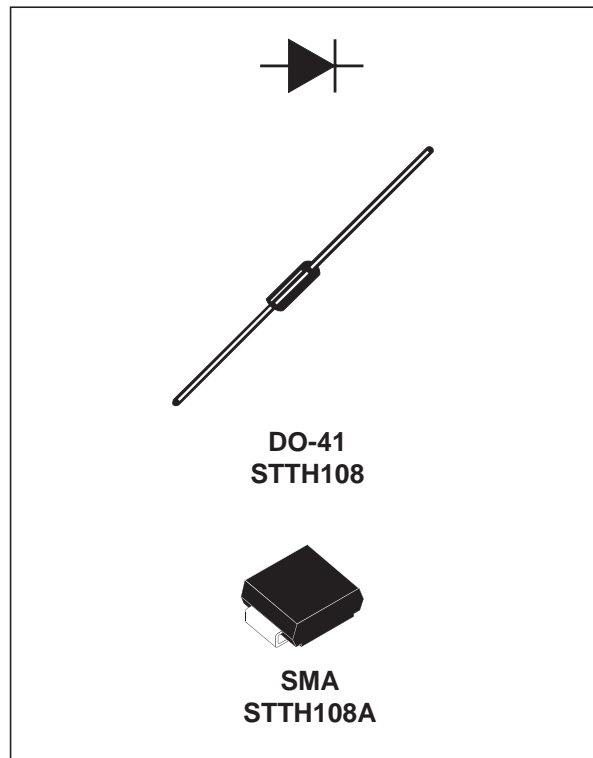
I_{F(AV)}	1 A
V_{RRM}	800 V
T_j (max)	175 °C
V_F (max)	1.25 V

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°C			5	μA
			T _j = 125°C			50	
V _F	Forward voltage drop	I _F = 1 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 :

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

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°C			75	ns
t _{fr}	Forward recovery time	I _F = 1 A dI _F /dt = 50 A/μs V _{FR} = 1.1 x V _{Fmax}	T _j = 25°C			200	ns
V _{FP}	Forward recovery voltage						12

Fig. 1: Conduction losses versus average current.

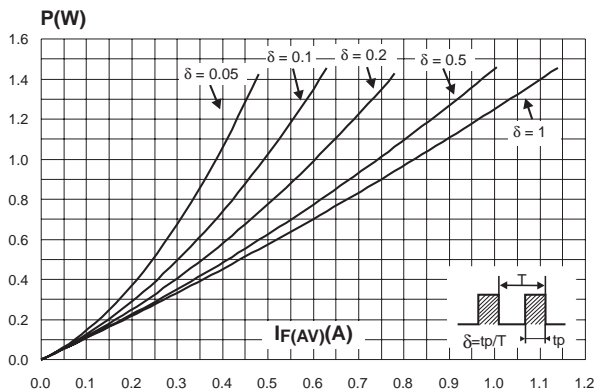


Fig. 2: Forward voltage drop versus forward current.

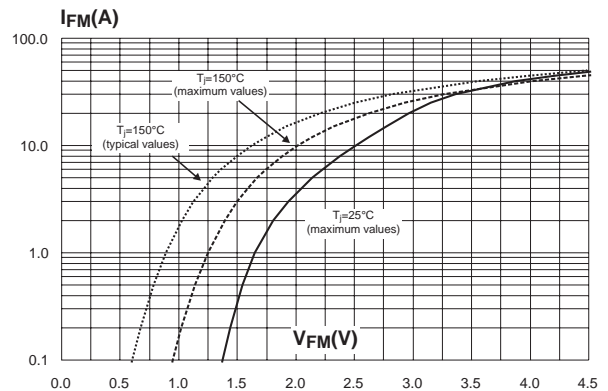


Fig. 3-1: Relative variation of thermal impedance junction ambient versus pulse duration (epoxy FR4, $L_{leads} = 10\text{mm}$) (DO-41).

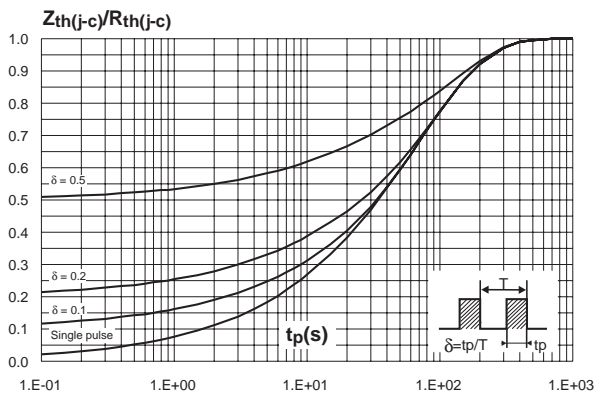


Fig. 3-2: Relative variation of thermal impedance junction ambient versus pulse duration (epoxy FR4) (SMA).

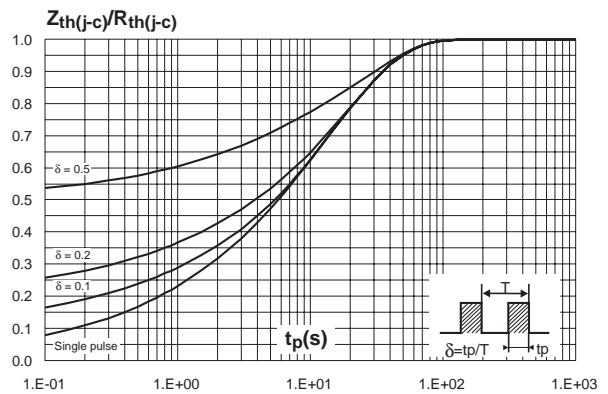


Fig. 4-1: Thermal resistance junction to ambient versus copper surface under each lead (epoxy printed circuit board FR4, copper thickness: $35\mu\text{m}$) (DO-41).

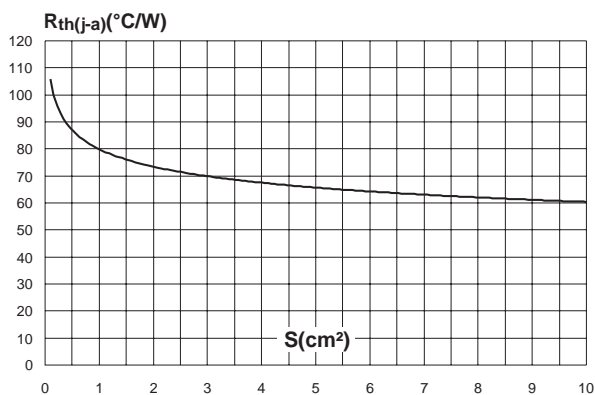
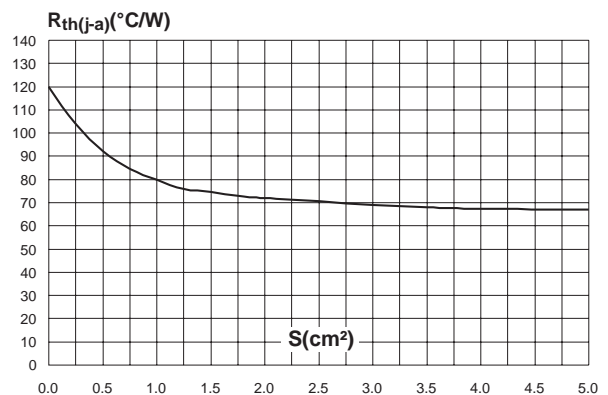
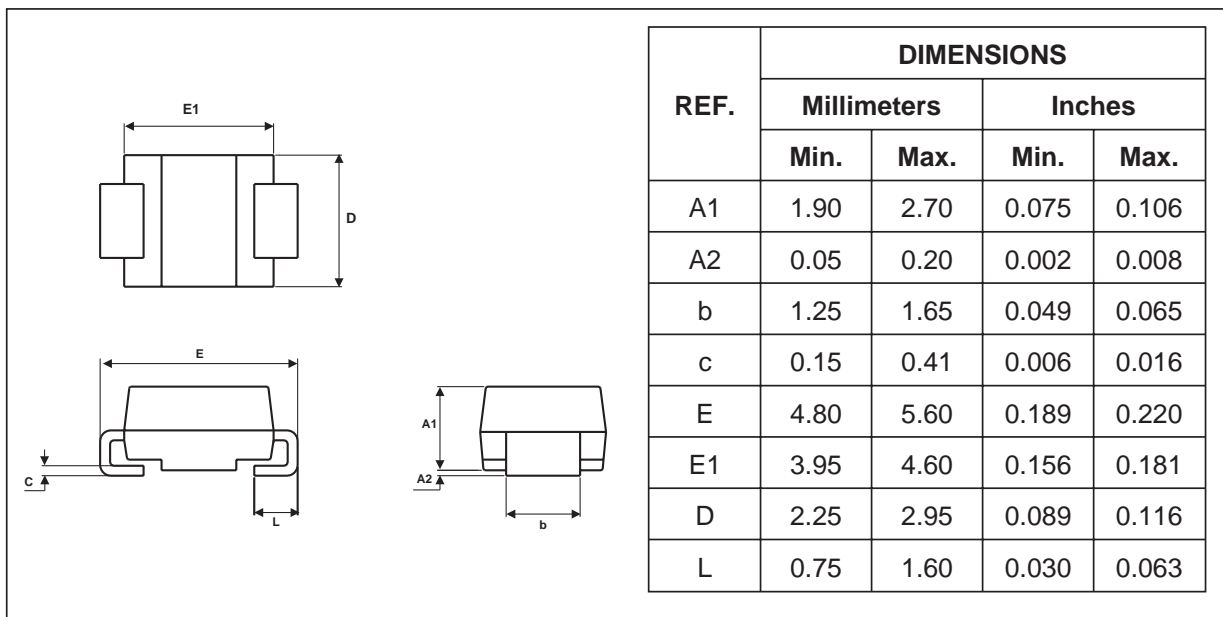


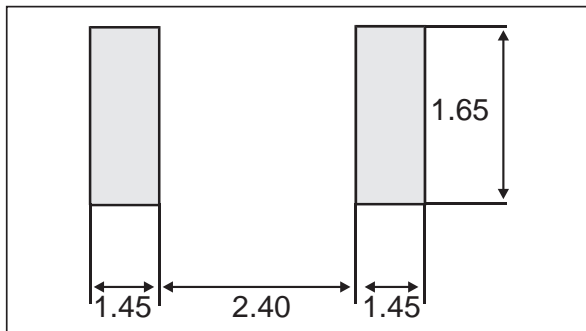
Fig. 4-2: Thermal resistance junction to ambient versus copper surface under each lead (epoxy printed circuit board FR4, copper thickness: $35\mu\text{m}$) (SMA).

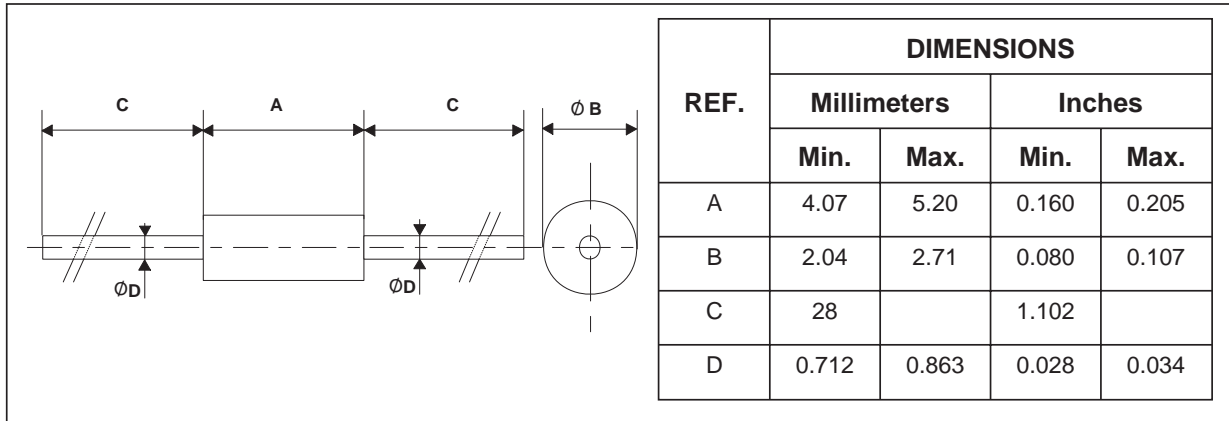


PACKAGE MECHANICAL DATA
SMA



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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