UMW STTH112

High voltage ultrafast rectifier

1.Description

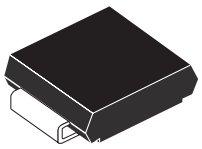
The STTH112, which is using ultrafast high voltage planar technology, is specially suited for free-wheeling, clamping, snubbering, demagnetization in power supplies and other power switching applications

2.Features

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

3.Pinning Information

SMA



SMB

Table 1. Device summary

Symbol	Value
$I_{F(AV)}$	1A
V_{RRM}	1200V
$T_{j(max)}$	175°C
$V_{F(typ)}$	1.65V

4.Absolute Ratings (Limiting Values)

Parameter			Symbol	Value	Unit
Repetitive Peak Reverse Voltage			V_{RRM}	1200	V
Voltage RMS			$V_{(RMS)}$	850	V
Average Forward Current δ = 0.5	SMA	T_L=115°C	$I_{F(AV)}$	1	A
	SMB	T_L=125°C		1	A
Forward Surge Current, t=8.3ms			I_{FSM}	18	A
Storage Temperature Range			T_{STG}	-50 to 175	°C
Maximum Operating Junction Temperature			T_J	175	°C

5.Thermal Parameters

Parameter		Symbol	Max	Units
Junction To Lead	SMA	$R_{th(j-l)}$	30	°C/W
	SMB		25	°C/W

6.Static Electrical Characteristics

Parameter		Symbol	Conditions	Min	Typ	Max	Unit
Reverse Leakage Current	T_J=25°C	I_R	V_R=1200V			5	μA
	T_J=125°C					50	μA
Forward Voltage Drop	T_J=25°C	V_F	I_F=1A			1.9	V
	T_J=125°C				1.17	1.65	V
	T_J=150°C				1.1	1.55	V

7.Dynamic Characteristics

Parameter		Symbol	Conditions	Typ	Max	Unit
Reverse Recovery Time	T_J=25°C	t_{rr}	I_F=0.5A, I_{RR}=0.25A, I_R=1A		75	ns
Forward Recovery Time	T_J=25°C	t_{fr}	I_F=1A,dI_F/dt=50A/μs,V_{FR}=1.1xV_{Fmax}		500	ns
Forward Recovery Voltage	T_J=25°C	V_{FP}	I_F=1A,dI_F/dt=50A/μs,V_{FR}=1.1xV_{Fmax}		30	V

8.Typical Characteristic

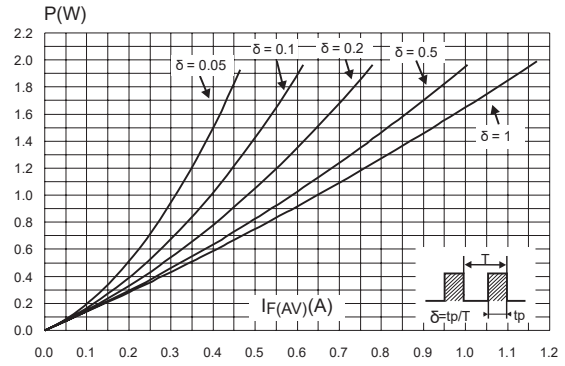


Figure 1: Conduction losses versus average current

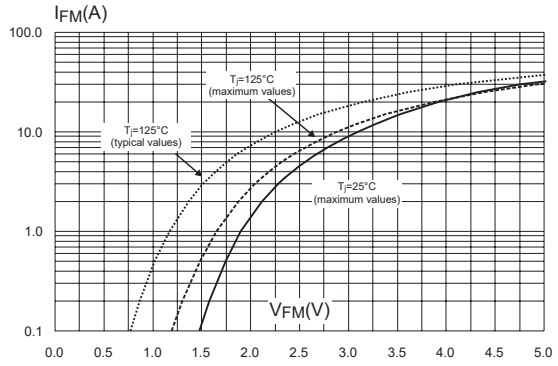


Figure 2: Forward voltage drop versus forward current

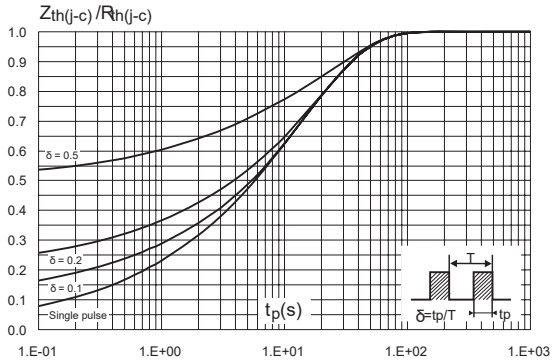


Figure 3: Relative variation of thermal impedance junction ambient versus pulse duration (epoxy FR4) (SMA)

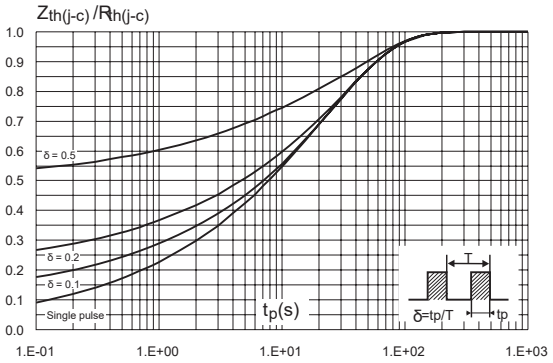


Figure 4: Relative variation of thermal impedance junction ambient versus pulse duration (epoxy FR4)(SMB)

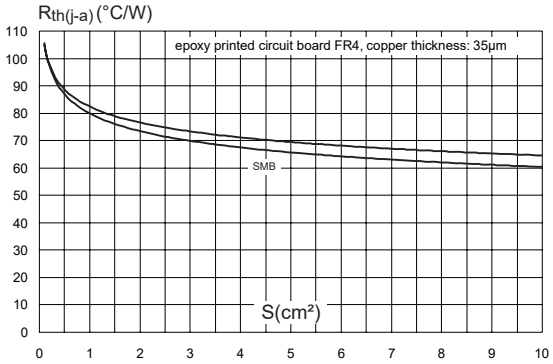


Figure 5: Thermal resistance junction to ambient versus copper surface under each lead (SMB)

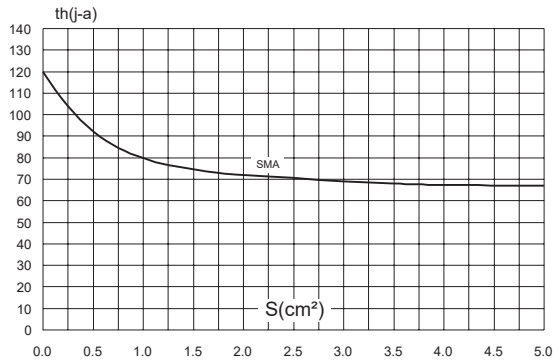
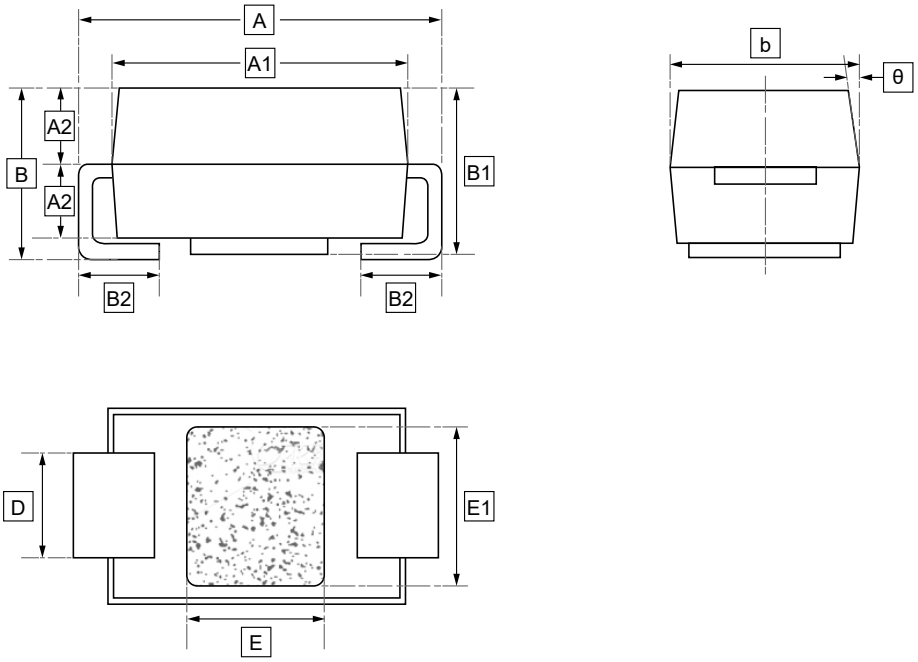


Figure 6: Thermal resistance junction to ambient versus copper surface under each lead (epoxy printed circuit board FR4, copper thickness: 35µm) (SMA)

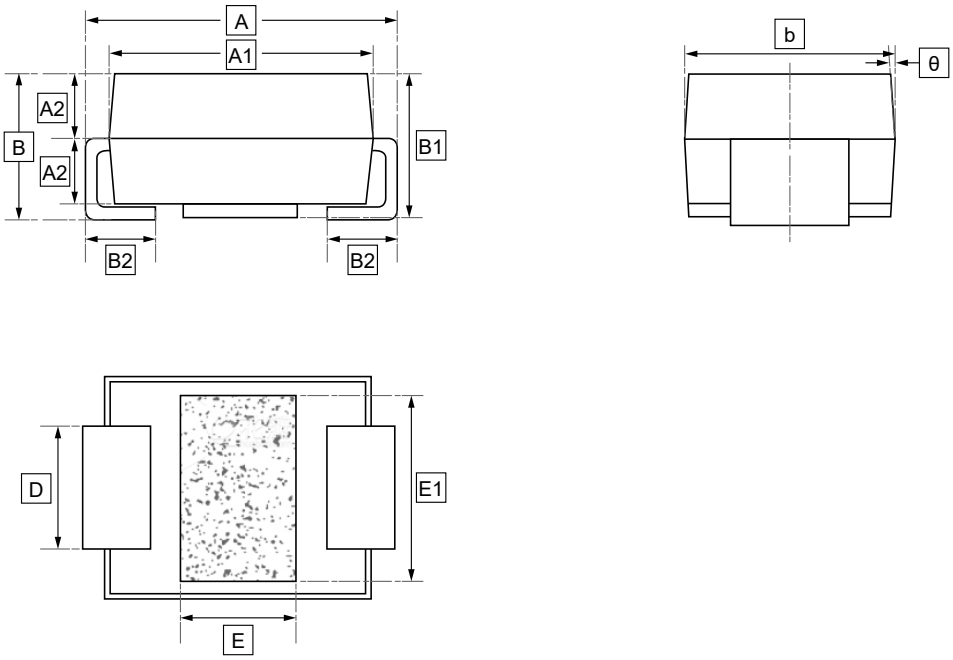
9.1 SMA Package Outline Dimensions



DIMENSIONS (mm are the original dimensions)

Symbol	A	A1	A2	B	B1	B2	b	D	E	E1	θ
Min	4.9	4.05	0.97	2.18	2.15	1.0	2.55	1.38	1.8	2.0	5°
Max	5.1	4.15	1.03	2.38	2.25	1.4	2.65	1.42	2.0	2.2	

9.1 SMB Package Outline Dimensions

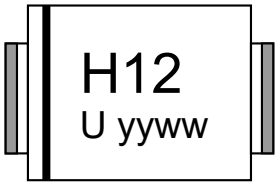


DIMENSIONS (mm are the original dimensions)

Symbol	A	A1	A2	B	B1	B2	b	D	E	E1	θ
Min	5.1	4.4	1.02	2.25	2.25	1.0	3.55	1.98	1.8	2.9	5°
Max	5.3	4.5	1.08	2.45	2.35	1.4	3.65	2.02	2.0	3.1	

10.Ordering Information

SMA



SMB

yy: Year Code
ww: Week Code

Order Code	Marking	Package	Base QTY	Delivery Mode
UMW STTH112A	H12	SMA	5000	Tape and reel
UMW STTH112U	U12	SMB	2500	Tape and reel

11.Disclaimer

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