UMW STTH310

High voltage ultrafast rectifier

1.Description

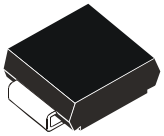
The STTH310, which uses ultrafast high voltage planar technology, is specially suited for free-wheeling, clamping, snubbering, demagnetization in power supplies and other power switching applications.

2.Features

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

3.Pinning Information





SMC

Table 1. Device summary

Symbol	Value
$I_{F(AV)}$	3A
V_{RRM}	1000V
$T_{j(max)}$	175°C
$V_{F(max)}$	1.42V
$t_{rr(max)}$	75ns

4.Absolute Ratings (Limiting Values)

Parameter			Symbol	Value	Unit
Repetitive Peak Reverse Voltage			V_{RRM}	1000	V
Average Forward Current, δ = 0.5	SMC	T_L=75°C	$I_{F(AV)}$	3	A
Forward Surge Current, t_p=8.3ms sinusoidal	SMC		I_{FSM}	45	A
Storage Temperature Range			T_{STG}	-65 to 175	°C
Operating Junction Temperature Range			T_J	-40 to 175	°C

5.Thermal Parameters

Parameter		Symbol	Max	Units
Junction To Lead	SMC	$R_{th(j-l)}/R_{th(j-a)}$	20	°C/W

6.Static Electrical Characteristics

Parameter		Symbol	Conditions	Min	Typ	Max	Unit
Reverse Leakage Current	T_J=25°C	I_R	V_R=V_{RRM}			10	μA
	T_J=125°C					50	μA
Forward Voltage Drop	T_J=25°C	V_F	I_F=3A			1.7	V
	T_J=150°C				0.98	1.42	V

To evaluate the conduction losses use the following equation: $P = 1.20 \times I_{F(AV)} + 0.075\ I_F^2{}_{(RMS)}$

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=3A,dI_F/dt=50A/μs,V_{FR}=1.1xV_{Fmax}		500	ns
Forward Recovery Voltage	T_J=25°C	V_{FP}	I_F=3A,dI_F/dt=50A/μs,V_{FR}=1.1xV_{Fmax}		12	V

8.Typical Characteristic

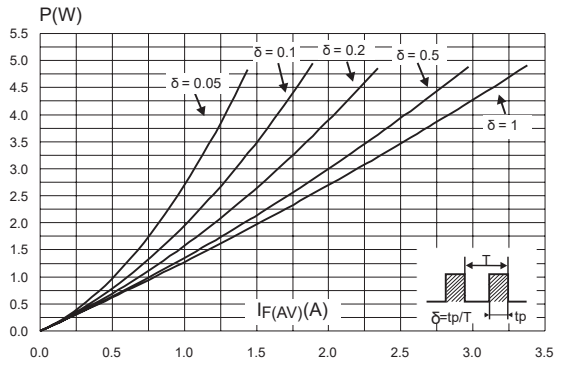


Figure 1: Conduction losses versus average current

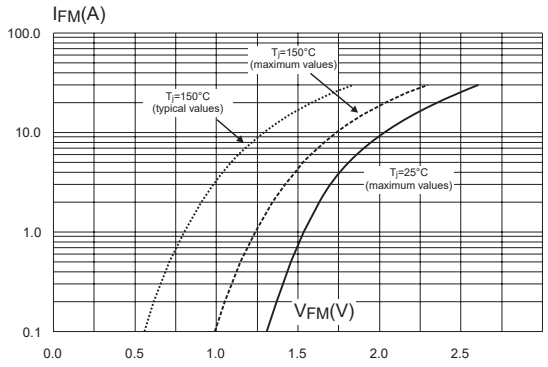


Figure 2: Forward voltage drop versus forward current

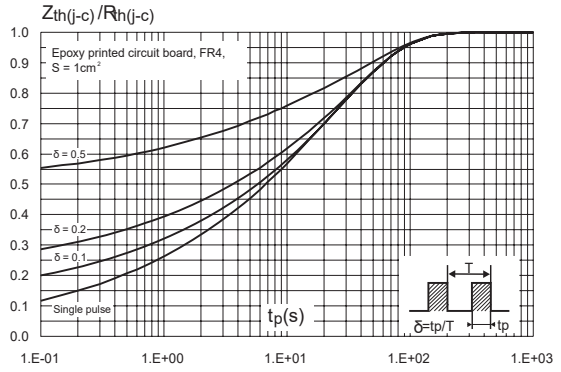


Figure 3: Relative variation of thermal impedance junction ambient versus pulse duration (SMC)

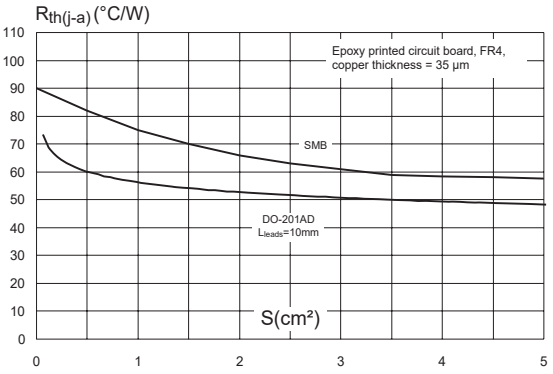
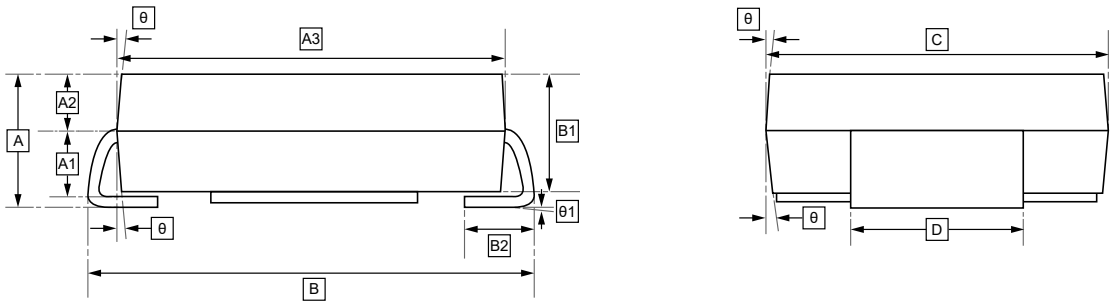


Figure 4: Thermal resistance junction to ambient versus copper surface under each lead

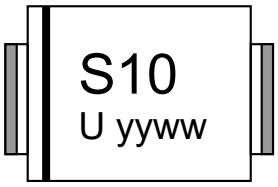
9.SMC Package Outline Dimensions



DIMENSIONS (mm are the original dimensions)

Symbol	A	A1	A2	A3	B	B1	B2	C	D	θ	θ1
Min	2.2	1.0	0.9	6.7	7.7	2.0	1.0	5.7	2.8	0°	0°
Max	2.6	1.4	1.2	6.9	8.2	2.5	1.4	6.2	3.2	5°	5°

10.Ordering Information



yy: Year Code
ww: Week Code

Order Code	Package	Base QTY	Delivery Mode
UMW SSTTH310S	SMC	2500	Tape and reel

11.Disclaimer

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