

1.Description

The STTH310, which uses ultrafast high voltage planar technology, is specially suited for free-wheeling, clamping, snubbing, 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



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, $\delta = 0.5$	SMC	$T_L = 75^\circ\text{C}$	$I_{F(AV)}$	3	A
Forward Surge Current, $t_p = 8.3\text{ms}$ sinusoidal	SMC		I_{FSM}	45	A
Storage Temperature Range			T_{STG}	-65 to 175	$^\circ\text{C}$
Operating Junction Temperature Range			T_J	-40 to 175	$^\circ\text{C}$

5. Thermal Parameters

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

6. Static Electrical Characteristics

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

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

7. Dynamic Characteristics

Parameter		Symbol	Conditions	Typ	Max	Unit
Reverse Recovery Time	$T_J = 25^\circ\text{C}$	t_{rr}	$I_F = 0.5\text{A}$, $I_{RR} = 0.25\text{A}$, $I_R = 1\text{A}$		75	ns
Forward Recovery Time	$T_J = 25^\circ\text{C}$	t_{fr}	$I_F = 3\text{A}$, $dI_F/dt = 50\text{A}/\mu\text{s}$, $V_{FR} = 1.1 \times V_{Fmax}$		500	ns
Forward Recovery Voltage	$T_J = 25^\circ\text{C}$	V_{FP}	$I_F = 3\text{A}$, $dI_F/dt = 50\text{A}/\mu\text{s}$, $V_{FR} = 1.1 \times V_{Fmax}$		12	V



8. Typical Characteristic

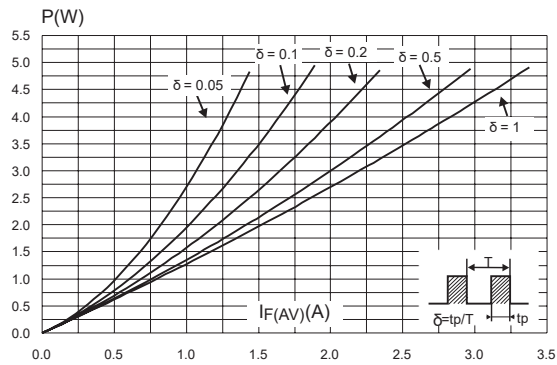


Figure 1: Conduction losses versus average current

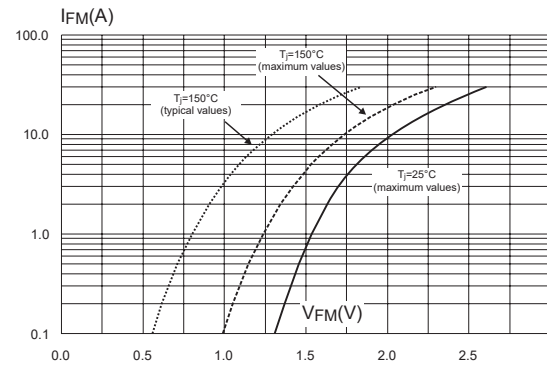


Figure 2: Forward voltage drop versus forward current

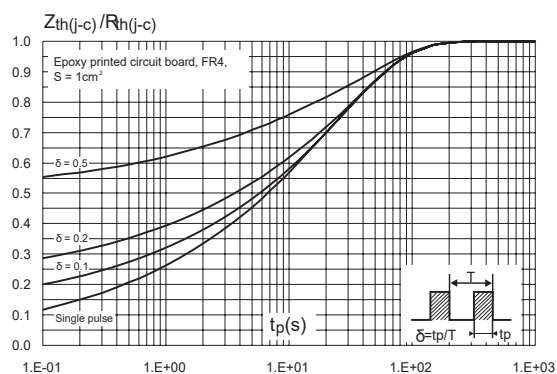


Figure 3: Relative variation of thermal impedance junction ambient versus pulse duration (SMC)

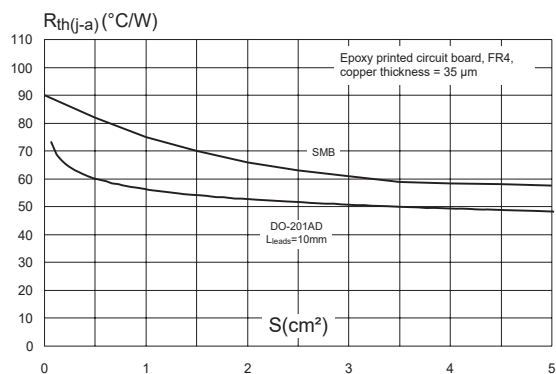
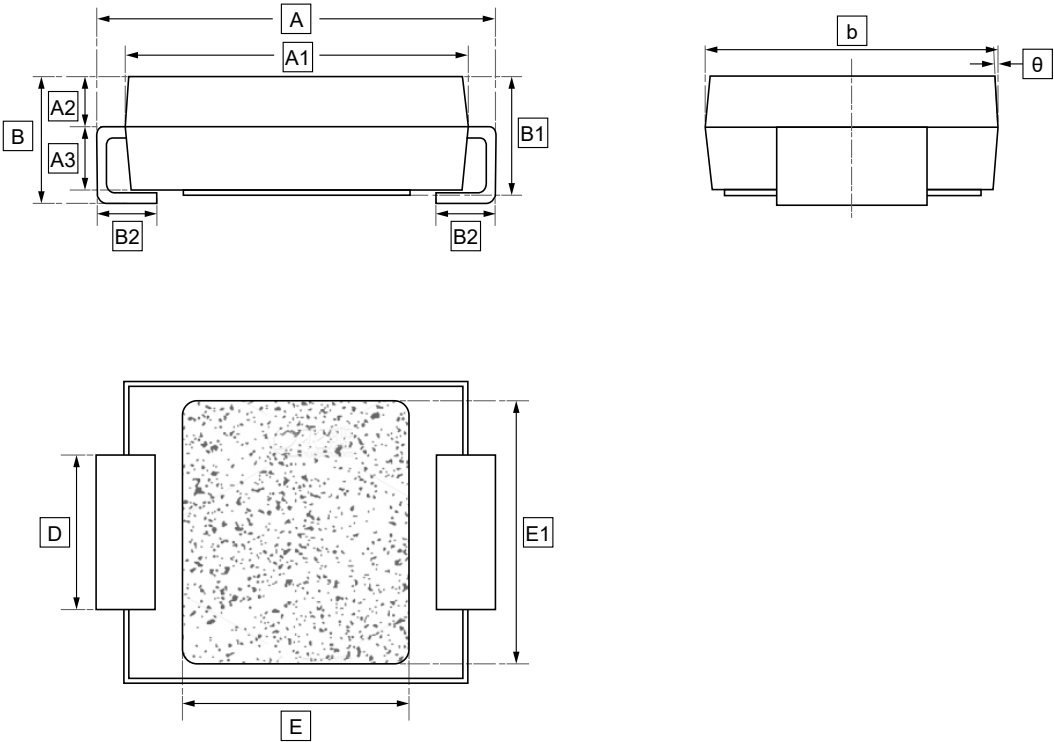


Figure 4: Thermal resistance junction to ambient versus copper surface under each lead



9.SMC Package Outline Dimensions

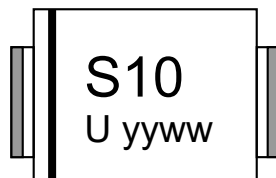


DIMENSIONS (mm are the original dimensions)

Symbol	A	A1	A2	A3	B	B1	B2	b	D	E	E1	θ
Min	7.9	6.8	0.97	1.17	2.35	2.25	1.0	5.8	2.98	4.4	5.0	5°
Max	8.1	6.9	1.03	1.23	2.55	2.35	1.4	5.9	3.02	4.6	5.2	



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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