

MSKSEMI 美森科

SEMICONDUCTOR



ESD



TVS



TSS



MOV



GDT



PLED

STTH3R06x-MS

Product specification

Description

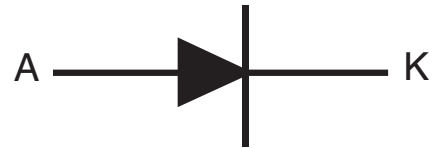
The STTH3R06x-MS, which is using Turbo 2 600V technology, is specially suited for use in switching power supplies, inverters and as a free wheeling diode.

Features

- Ultrafast switching
- Low forward voltage drop
- Low thermal resistance
- Low leakage current (platinum doping)

Reference News

STTH3R06U-MS	MARKING
 DO-214AA(SMB)	
STTH3R06S-MS	MARKING
 DO-214AB(SMC)	



Main Product Characteristics

$I_{F(AV)}$	3 A
V_{RRM}	600 V
I_R (max)	100 μ A
T_j	175°C
V_F (typ)	1.0 V
t_{rr} (typ)	35 ns

Absolute Ratings (limiting values)

Symbol	Parameter			Value	Unit
V _{RRM}	Repetitive peak reverse voltage			600	V
I _{F(RMS)}	RMS forward current			10	A
I _{F(AV)}	Average forward current δ = 0.5	SMB	Tl = 55°C	3	A
		SMC	Tl = 80°C		
I _{FSM}	Surge non repetitive forward current	SMB / SMC	tp = 10ms sinusoidal	55	A
				45	
T _{stg}	Storage temperature range			-65 to + 175	°C
T _j	Maximum operating junction temperature			175	°C

Thermal resistance

Symbol	Parameter		Maximum	Unit
$R_{th(j-l)}$	Junction to lead	SMB	25	°C/W
		SMC	20	

Static Electrical Characteristics

Symbol	Parameter	Test conditions		Min.	Typ	Max.	Unit
I_R	Reverse leakage current	$T_j = 25^\circ\text{C}$	$V_R = V_{RRM}$			3	μA
		$T_j = 150^\circ\text{C}$			15	100	
V_F	Forward voltage drop	$T_j = 25^\circ\text{C}$	$I_F = 3\text{A}$			1.7	V
		$T_j = 150^\circ\text{C}$			1.0	1.25	

To evaluate the conduction losses use the following equation: $P = 1.03 \times I_{F(AV)} + 0.09 I_F^2 (RMS)$

Dynamic Characteristics

Symbol	Parameter	Test conditions		Min.	Typ	Max.	Unit
t_{rr}	Reverse recovery time	$T_j = 25^\circ\text{C}$	$I_F = 0.5\text{A}$ $I_{RR} = 0.25\text{A}$ $I_R = 1\text{A}$			30	ns
			$I_F = 1\text{A}$ $di_F/dt = -50 \text{ A}/\mu\text{s}$ $V_R = 30\text{V}$		35		
t_{fr}	Forward recovery time	$T_j = 25^\circ\text{C}$	$I_F = 3\text{A}$ $di_F/dt = 100 \text{ A}/\mu\text{s}$ $V_{FR} = 1.1 \times V_{Fmax}$			100	ns
V_{FP}	Forward recovery voltage		$I_F = 3\text{A}$ $di_F/dt = 100 \text{ A}/\mu\text{s}$			10	V

Figure 1: Conduction losses versus average current

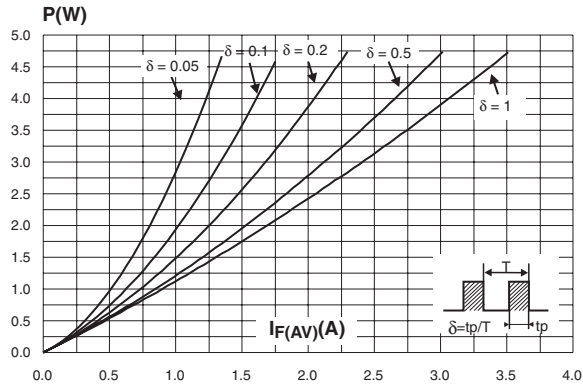


Figure 2: Forward voltage drop versus forward current

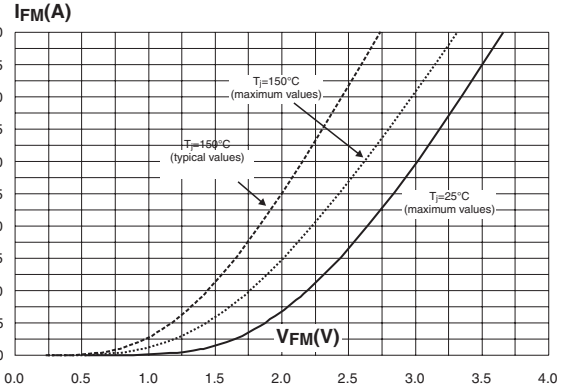


Figure 3: Relative variation of thermal impedance junction ambient versus pulse duration (epoxy printed circuit FR4, $L_{leads} = 10mm$, $S_{Cu} = 1cm^2$)

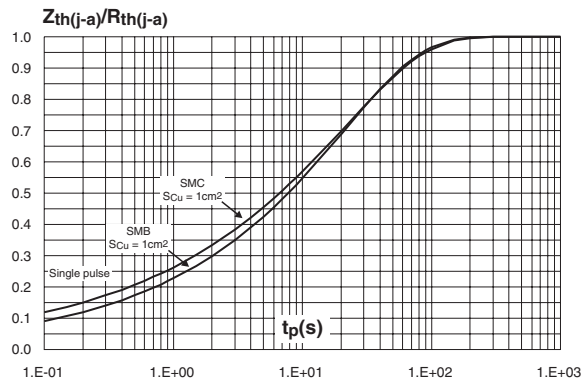


Figure 4: Peak reverse recovery current versus di_F/dt (typical values)

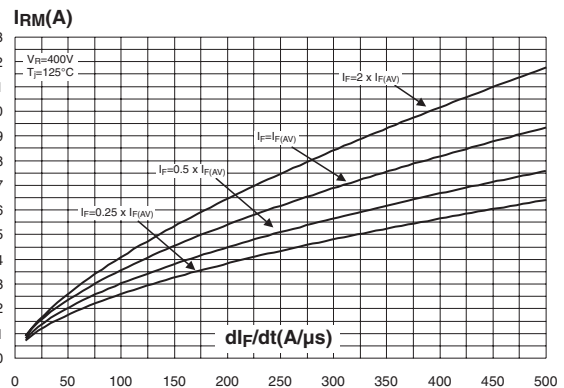


Figure 5: Reverse recovery time versus di_F/dt (typical values)

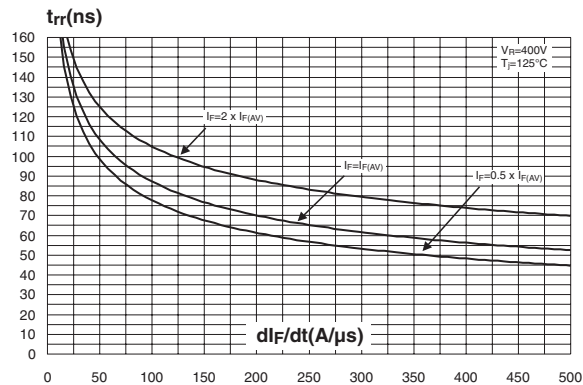


Figure 6: Reverse recovery charges versus di_F/dt (typical values)

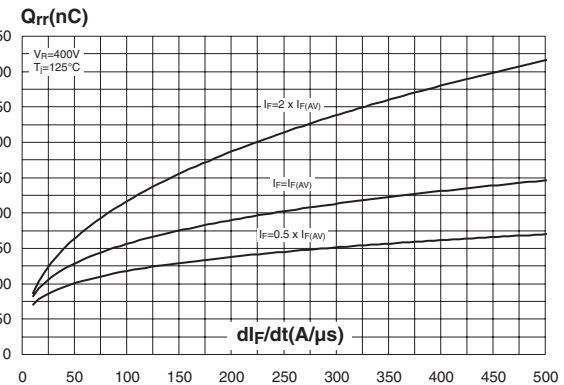


Figure 7: Softness factor versus di_F/dt (typical values)

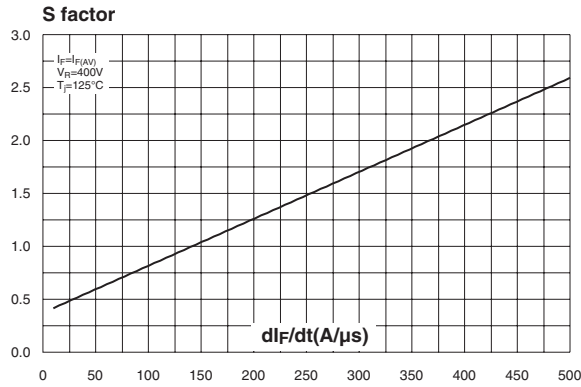


Figure 8: Relative variations of dynamic parameters versus junction temperature

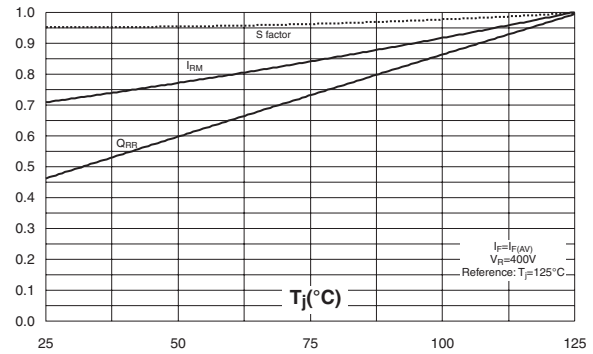


Figure 9: Transient peak forward voltage versus di_F/dt (typical values)

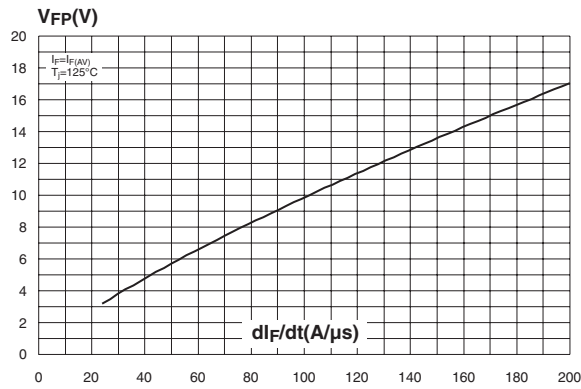


Figure 10: Forward recovery time versus di_F/dt (typical values)

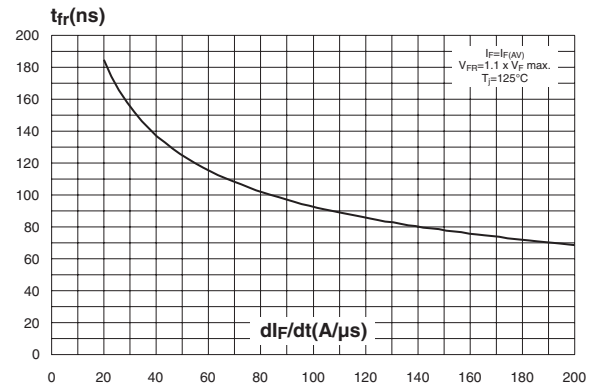


Figure 11: Junction capacitance versus reverse voltage applied (typical values)

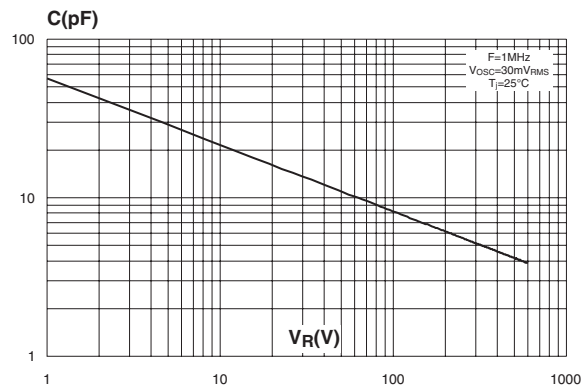
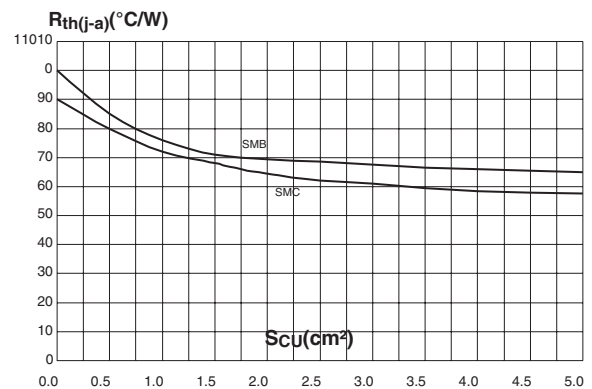
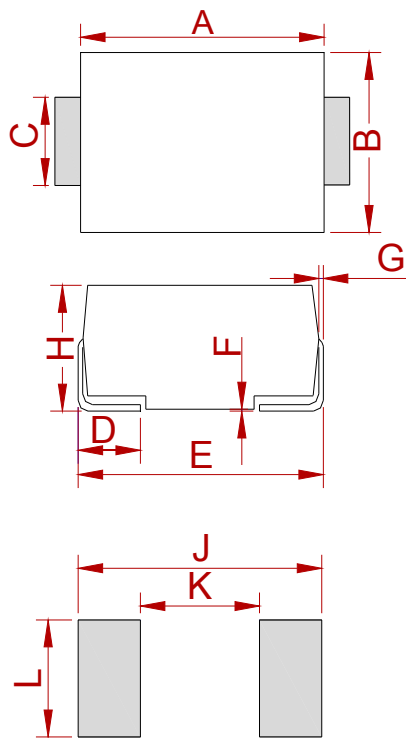


Figure 12: Thermal resistance junction to ambient versus copper surface under lead (epoxy FR4, $e_{CU} = 35\mu m$) (SMB / SMC)



PACKAGE MECHANICAL DATA



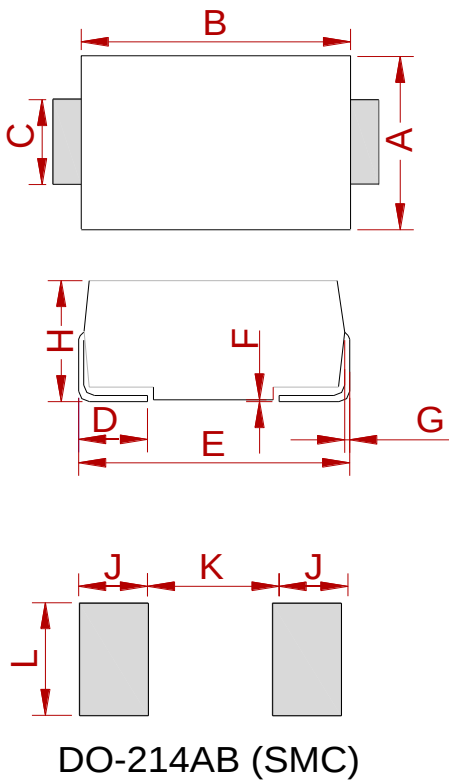
DO-214AA (SMB)

Ref.	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	4.25	4.75	0.167	0.187
B	3.30	3.94	0.130	0.155
C	1.85	2.21	0.073	0.087
D	0.76	1.52	0.030	0.060
E	5.08	5.59	0.200	0.220
F	0.051	0.203	0.002	0.008
G	0.15	0.31	0.006	0.012
H	2.11	2.44	0.083	0.096
J	6.80		0.270	
K		2.60		0.100
L	2.40		0.090	

REELS SPECIFICATION

P/N	PKG	QTY
STTH3R06U-MS	DO-214AA (SMB)	2500

PACKAGE MECHANICAL DATA



Ref.	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	5.75	6.25	0.226	0.246
B	6.90	7.40	0.272	0.291
C	2.75	3.25	0.108	0.128
D	0.95	1.52	0.037	0.060
E	7.70	8.20	0.303	0.323
F	0.051	0.203	0.002	0.008
G	0.15	0.31	0.006	0.012
H	2.15	2.62	0.085	0.103
J	2.40		0.094	
K		4.20		0.165
L	3.30		0.130	

REEL SPECIFICATION

P/N	PKG	QTY
STTH3R06S-MS	DO-214AB (SMC)	2500

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