

MSKSEMI 美森科

SEMICONDUCTOR



ESD



TVS



TSS



MOV



GDT



PLED

STTH3L06x-MS

Product specification

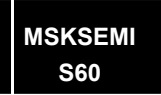
Description

This device uses Turbo 2 600 V technology, and is particularly suited as boost diode in discontinuous or critical mode power factor corrections. It is also intended for use as a freewheeling diode in power supplies and other power switching applications.

Features

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

Reference News

STTH3L06U-MS	MARKING
 DO-214AA(SMB)	
STTH3L06S-MS	MARKING
 DO-214AB(SMC)	



Device summary

Symbol	Value
$I_{F(AV)}$	3 A
V_{RRM}	600 V
I_R (max.)	100 μ A
T_J (max.)	175 $^{\circ}$ C
V_F (typ.)	0.85 V
t_{rr} (typ.)	60 ns

Characteristics

Absolute ratings (limiting values per diode at 25 °C, unless otherwise specified)

Symbol	Parameter			Value	Unit
V_{RRM}	Repetitive peak reverse voltage			600	V
$I_{F(RMS)}$	Forward rms current			10	A
$I_{F(AV)}$	Average forward current $\delta = 0.5$, square wave	SMC	$T_I = 100\text{ °C}$	3	A
		SMB	$T_I = 80\text{ °C}$		
I_{FSM}	Surge non repetitive forward current, $t_p = 10\text{ ms}$ sinusoidal		SMB/SMC	60	A
T_{stg}	Storage temperature range			-65 to +175	°C
T_j	Maximum operating junction temperature			+175	°C

Thermal parameters

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

Static electrical characteristics (per diode)

Symbol	Parameter	Test conditions		Min.	Typ.	Max.	Unit
I_R	Reverse leakage current	$T_j = 25\text{ °C}$	$V_R = V_{RRM}$	-		3	μA
		$T_j = 150\text{ °C}$		-	15	100	
V_F	Forward voltage drop	$T_j = 25\text{ °C}$	$I_F = 3\text{ A}$	-		1.3	V
		$T_j = 150\text{ °C}$		-	0.85	1.05	

To evaluate the conduction losses use the following equation:

$$P = 0.89 \times I_{F(AV)} + 0.055 I_{F(RMS)}^2$$

Dynamic characteristics

Symbol	Parameters	Test conditions		Min.	Typ.	Max.	Unit
t_{rr}	Reverse recovery time	$T_j = 25\text{ °C}$	$I_F = 1\text{ A}$; $dI_F/dt = -50\text{ A}/\mu\text{s}$; $V_R = 30\text{ V}$	-	60	85	ns
t_{fr}	Forward recovery time	$T_j = 25\text{ °C}$	$I_F = 3\text{ A}$; $dI_F/dt = 100\text{ A}/\mu\text{s}$; $V_{FR} = 1.1 \times V_{Fmax}$	-		100	
V_{FP}	Forward recovery voltage		$I_F = 3\text{ A}$; $dI_F/dt = 100\text{ A}/\mu\text{s}$	-		7.5	V

Characteristics (curves)

Figure 1: Conduction losses versus average current

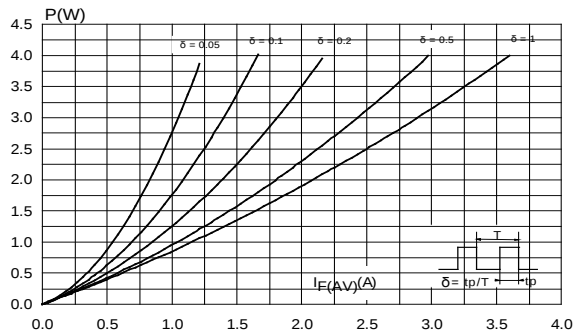


Figure 2: Forward voltage drop versus forward current

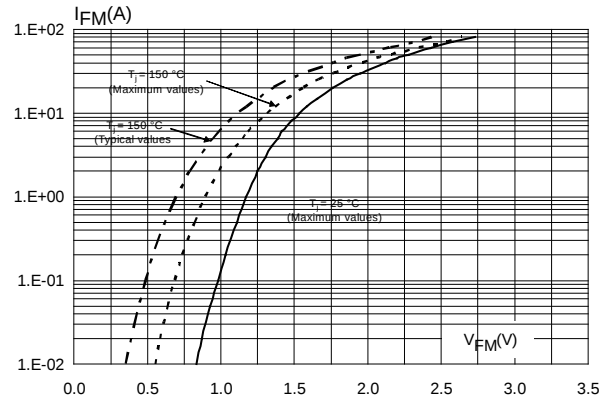


Figure 3: Peak reverse recovery current versus di_F/dt (typical values)

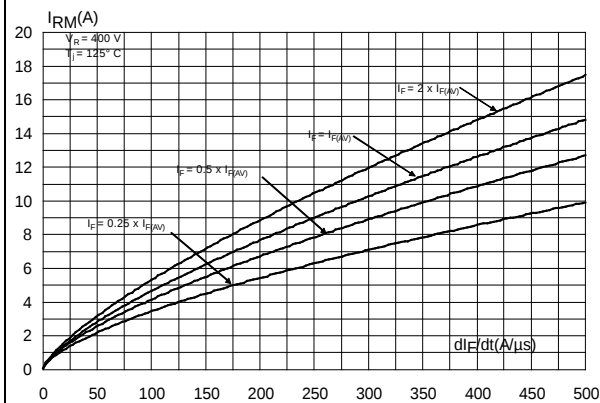


Figure 4: Reverse recovery time versus di_F/dt (typical values)

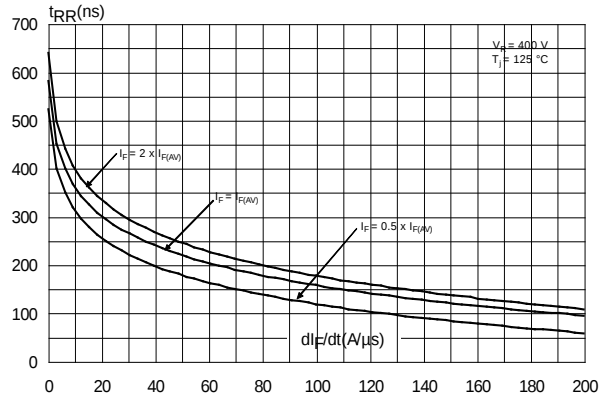


Figure 5: Reverse recovery charges versus di_F/dt (typical values)

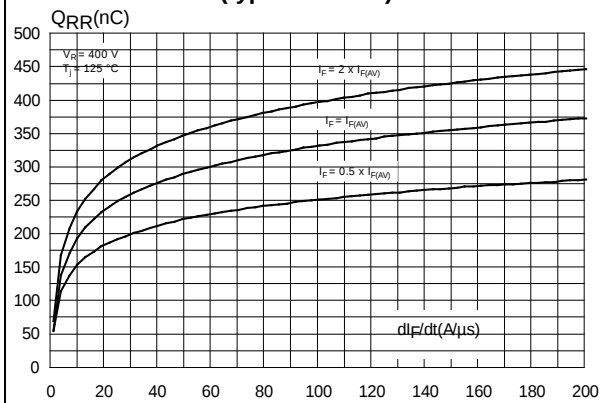


Figure 6: Softness factor versus di_F/dt (typical values)

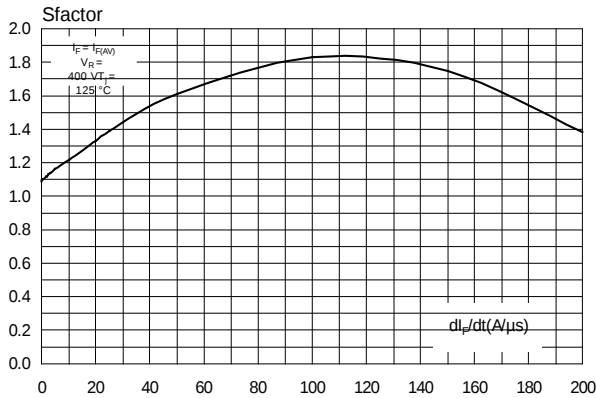


Figure 7: Relative variations of dynamic parameters versus junction temperature

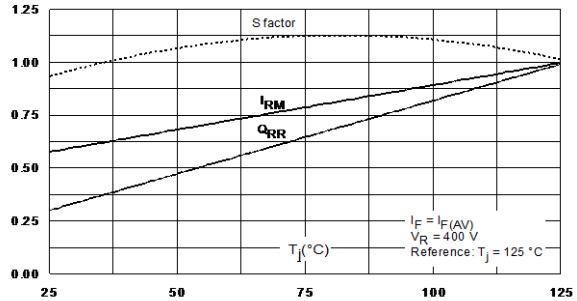


Figure 8: Transient peak forward voltage versus di_F/dt (typical values)

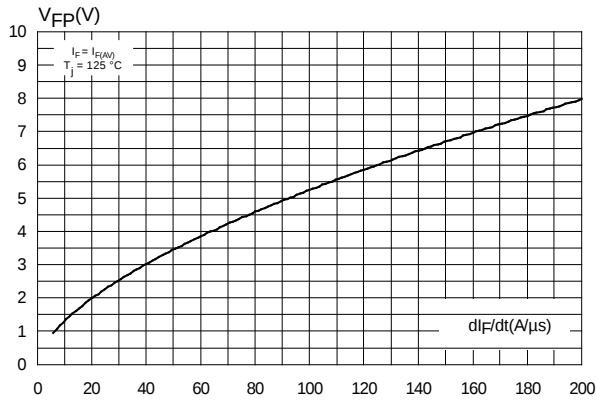


Figure 9: Forward recovery time versus di_F/dt (typical values)

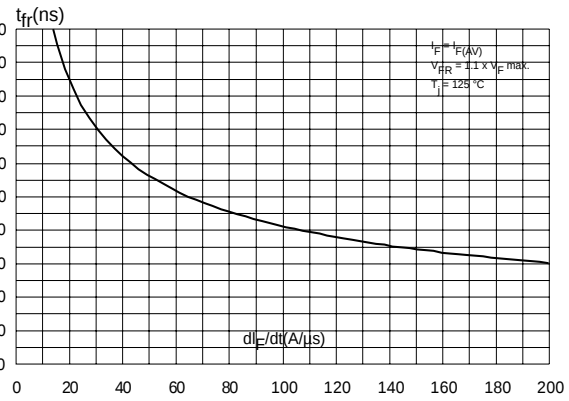
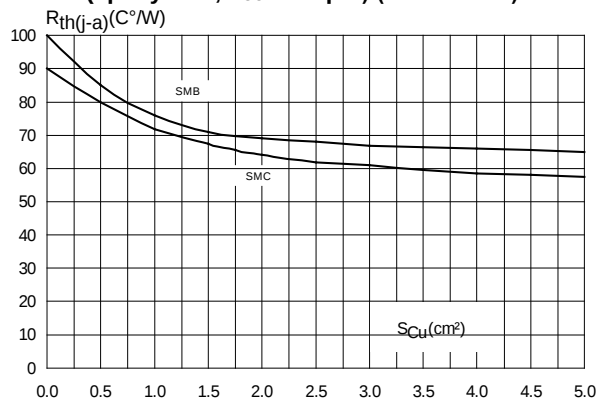
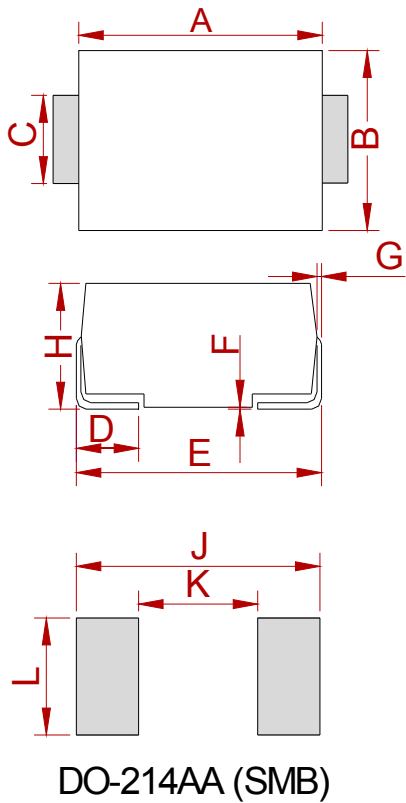


Figure 10: Thermal resistance junction to ambient versus copper surface under lead (epoxy FR4, $e_{Cu} = 35 \mu m$) (SMB / SMC)



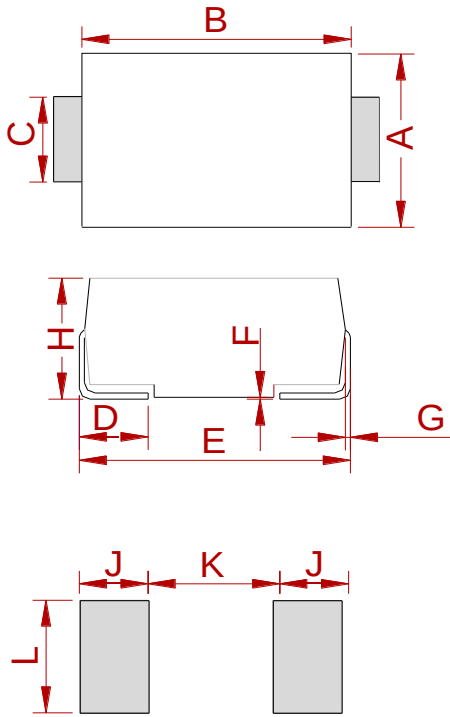
PACKAGE MECHANICAL DATA



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	

REELSPECIFICATION

P/N	PKG	QTY
STTH3L06U-MS	DO-214AA (SMB)	2500

PACKAGE MECHANICAL DATA


DO-214AB (SMC)

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
STTH3L06S-MS	DO-214AB (SMC)	2500

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