

STTH3L06

TURBO 2 ULTRAFAST HIGH VOLTAGE RECTIFIER

Table 1: Main Product Characteristics

$I_{F(AV)}$	3 A
V_{RRM}	600 V
$I_R (max)$	100 μ A
T_j	175°C
$V_F (typ)$	0.85 V
$t_{rr} (typ)$	60 ns

FEATURES AND BENEFITS

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

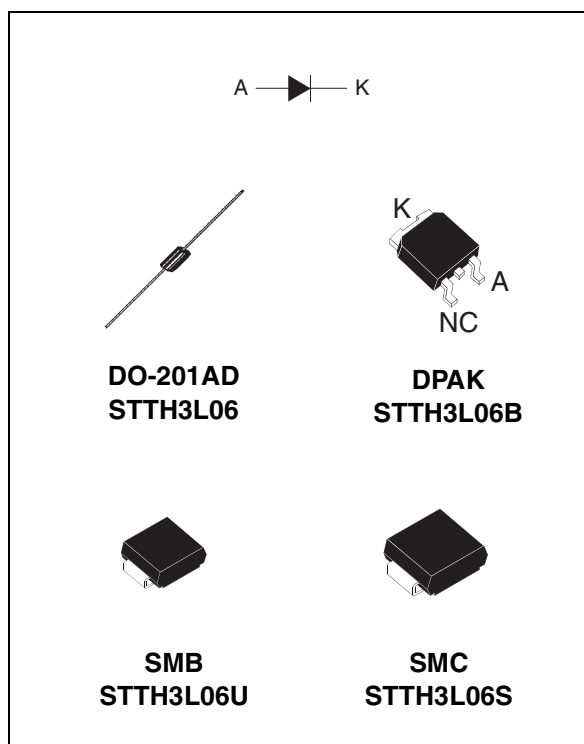
DESCRIPTION

The STTH3L06, which is using ST Turbo 2 600V technology, is specially suited as boost diode in discontinuous or critical mode power factor corrections.

This device is intended for use as a free wheeling diode in power supplies and other power switching applications.

Table 2: Order Codes

Part Number	Marking
STTH3L06	STTH3L06
STTH3L06RL	STTH3L06
STTH3L06B	STTH3L06B
STTH3L06B-TR	STTH3L06B
STTH3L06U	3L6U
STTH3L06S	S06



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Table 3: Absolute Ratings (limiting values)

Symbol	Parameter		Value	Unit	
V_{RRM}	Repetitive peak reverse voltage		600	V	
$I_{F(RMS)}$	RMS forward current	DO-201AD / SMB / SMC	10	A	
		DPAK	6		
$I_{F(AV)}$	Average forward current $\delta = 0.5$	DO-201AD	TI = 100°C	3	A
		DPAK	TI = 155°C		
		SMB	TI = 80°C		
		SMC	TI = 100°C		
I_{FSM}	Surge non repetitive forward current	DO-201AD	tp = 10ms sinusoidal	70	A
		SMB / SMC		60	
		DPAK		40	
T_{stg}	Storage temperature range		-65 to + 175	°C	
T_j	Maximum operating junction temperature		175	°C	

Table 4: Thermal Parameters

Symbol	Parameter		Maximum	Unit
$R_{th(j-l)}$	Junction to lead	DO-201AD L = 10 mm	20	°C/W
		DPAK	5.5	
		SMB	25	
		SMC	20	
$R_{th(j-a)}$	Junction to ambient (see fig. 13)	DO-201AD L = 10 mm	75	°C/W

Table 5: 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	$T_j = 25^\circ\text{C}$	$I_F = 3\text{A}$			1.3	V
		$T_j = 150^\circ\text{C}$			0.85	1.05	

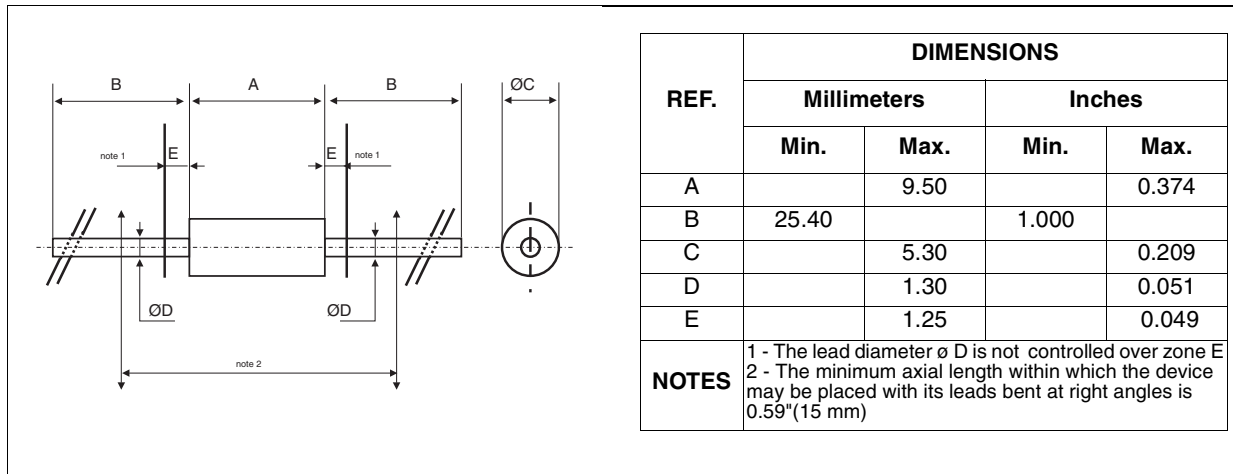
To evaluate the conduction losses use the following equation: $P = 0.89 \times I_{F(AV)} + 0.055 I_{F(RMS)}^2$

Table 6: Dynamic Characteristics

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

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Figure 22: DO-201AD Package Mechanical Data



In order to meet environmental requirements, ST offers these devices in ECOPACK® packages. These packages have a Lead-free second level interconnect . The category of second level interconnect is marked on the package and on the inner box label, in compliance with JEDEC Standard JESD97. The maximum ratings related to soldering conditions are also marked on the inner box label. ECOPACK is an ST trademark. ECOPACK specifications are available at: www.twtysemi.com

Table 7: Ordering Information

Ordering type	Marking	Package	Weight	Base qty	Delivery mode
STTH3L06	STTH3L06	DO-201AD	1.12 g	600	Ammopack
STTH3L06-RL	STTH3L06	DO-201AD	1.12 g	1900	Tape & reel
STTH3L06B	STTH3L06B	DPAK	0.3 g	75	Tubel
STTH3L06B-TR	STTH3L06B	DPAK	0.3 g	2500	Tape & reel
STTH3L06U	3L6U	SMB	0.11 g	2500	Tape & reel
STTH3L06S	S06	SMC	0.243 g	2500	Tape & reel

- Epoxy meets UL94, V0
- Band indicated cathode (DO-201AD)
- Bending method: see application note **AN1471** (DO-201AD)