

# STTH1L06/U/A

## TURBO 2 ULTRAFAST HIGH VOLTAGE RECTIFIER

### MAIN PRODUCT CHARACTERISTICS

$I_{F(AV)}$	1 A
$V_{RRM}$	600 V
$I_R (max)$	75 $\mu$ A
$T_j (max)$	175 °C
$V_F (max)$	1.05 V
$t_{rr} (max)$	80 ns

### FEATURES AND BENEFITS

- Ultrafast switching
- Low reverse recovery current
- Reduces switching & conduction losses
- Low thermal resistance

### DESCRIPTION

The STTH1L06/U/A, which is using ST Turbo 2 600V technology, is specially suited as boost diode in discontinuous or critical mode power factor corrections.

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



### ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$V_{RRM}$	Repetitive peak reverse voltage		600	V
$I_{F(RMS)}$	RMS forward current	DO-41 SMA / SMB	10 7	A
$I_{F(AV)}$	Average forward current	$T_I = 120^\circ\text{C} \quad \delta = 0.5$ DO-41 $T_I = 135^\circ\text{C} \quad \delta = 0.5$ SMA $T_I = 145^\circ\text{C} \quad \delta = 0.5$ SMB	1 1 1	A
$I_{FSM}$	Surge non repetitive forward current	$t_p = 10$ ms Sinusoidal DO-41 $t_p = 10$ ms Sinusoidal SMA / SMB	30 20	A
$T_{stg}$	Storage temperature range		- 65 + 175	°C
$T_j$	Maximum operating junction temperature		+ 175	°C

**STTH1L06/U/A**
**THERMAL PARAMETERS**

Symbol	Parameter			Maximum	Unit
R <sub>th(j-l)</sub>	Junction to lead	L = 10 mm	DO-41	45	°C/W
			SMA	30	
			SMB	25	
R <sub>th(j-a)</sub>	Junction to ambient (note 1)	L = 10 mm	DO-41	70	

Note 1: R<sub>th(j-a)</sub> is measured with a copper area S = 5cm<sup>2</sup> (see Fig 12)

**STATIC ELECTRICAL CHARACTERISTICS**

Symbol	Parameter	Tests conditions		Min.	Typ.	Max.	Unit
I <sub>R</sub>	Reverse leakage current	V <sub>R</sub> = 600V	T <sub>j</sub> = 25°C			1	μA
			T <sub>j</sub> = 150°C		10	75	
V <sub>F</sub>	Forward voltage drop	I <sub>F</sub> = 1 A	T <sub>j</sub> = 25°C			1.3	V
			T <sub>j</sub> = 150°C		0.85	1.05	

To evaluate the maximum conduction losses use the following equation :

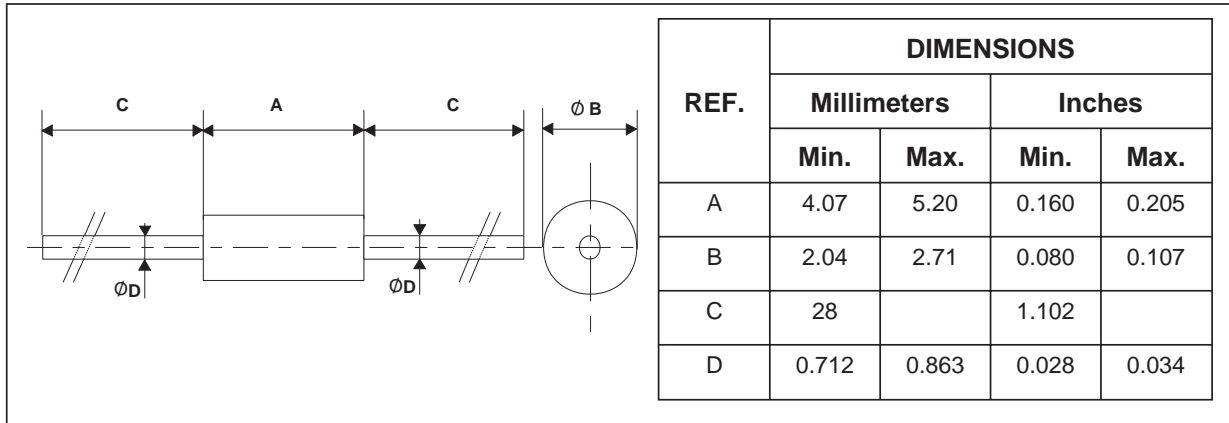
$$P = 0.89 \times I_{F(AV)} + 0.165 I_{F(RMS)}^2$$

**DYNAMIC ELECTRICAL CHARACTERISTICS**

Symbol	Parameter	Tests conditions		Min.	Typ.	Max.	Unit
t <sub>rr</sub>	Reverse recovery time	I <sub>F</sub> = 1 A dI <sub>F</sub> /dt = - 50 A/μs V <sub>R</sub> = 30V	T <sub>j</sub> = 25°C		55	80	ns
t <sub>fr</sub>	Forward recovery time	I <sub>F</sub> = 1 A dI <sub>F</sub> /dt = 100 A/μs V <sub>FR</sub> = 3.5V	T <sub>j</sub> = 25°C			50	ns
V <sub>FP</sub>	Forward recovery voltage	I <sub>F</sub> = 1A dI <sub>F</sub> /dt = 100 A/μs	T <sub>j</sub> = 25°C			10	V

STTH1L06/U/A

PACKAGE MECHANICAL DATA  
DO-41



Ordering code	Marking	Package	Weight	Base qty	Delivery mode
STTH1L06	STTH1L06	DO-41	0.34 g	2000	Ammopack
STTH1L06RL	STTH1L06	DO-41	0.34 g	5000	Tape & reel
STTH1L06U	BL6	SMB	0.11 g	2500	Tape & reel
STTH1L06A	HL6	SMA	0.068 g	5000	Tape & reel

- Epoxy meets UL 94,V0
- Band indicated cathode
- Bending method: Application note AN1471