

HIGH VOLTAGE ULTRA-FAST DIODE

PRELIMINARY DATASHEET

MAJOR PRODUCTS CHARACTERISTICS

I_{Fpeak}	4 A
V_{RRM}	600 V
t_{rr}	55 ns
V_F (max)	1.2 V

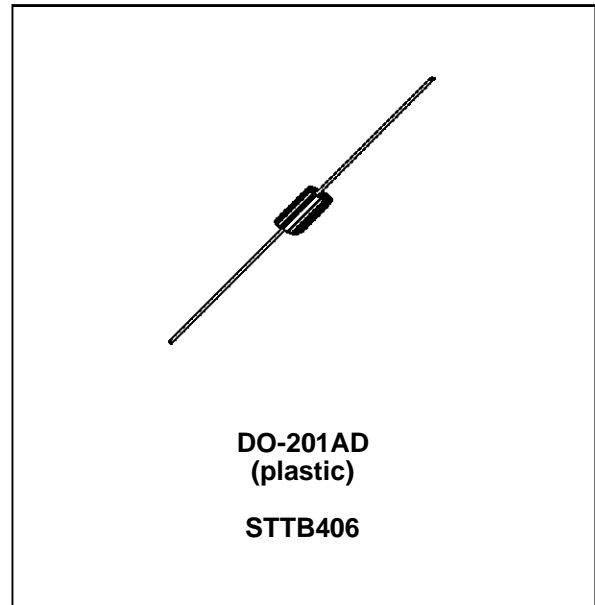
FEATURES AND BENEFITS

- TURBOSWITCH™ OUTSTANDING BENEFITS.
- HIGH REVERSE VOLTAGE : 600 V
- LOW POWER LOSSES INDUCING LOW TEMPERATURE AND HIGH RELIABILITY.

DESCRIPTION

High voltage ultra-fast diode suitable as a booster diode in PCF circuitry in discontinuous mode in electronic ballast for lighting, TV and small equipment SMPS.

The device is packaged in a DO-201AD axial plastic envelope.



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter		VALUE	Unit
V_{RRM}	Repetitive Peak Reverse Voltage		600	V
V_{RWM}	Reverse Working Voltage		600	V
I_F peak	Forward Average Current (1)		4	A
	Ambient temperature (2)		65	°C
I_{FRM}	Repetitive peak forward current	$t_p = 5\mu s$ $f = 1kHz$	100	A
I_{FSM}	Surge Non Repetitive Forward Current	$t_p = 10 ms$ sine	150	A
T_{stg}	Storage Temperature Range		- 40 to 150	°C
T_j	Max Operating Junction Temperature		135	°C

(1) duty cycle = 0.5 and square waveform

(2) on infinite heatsink

STTB406

THERMAL DATA

Symbol	Parameter	Max.	Unit
$R_{th(j-l)}$	Junction to lead on infinite heatsink	21	°C/W
$R_{th(j-a)}$	Junction to ambient on printed circuit L lead = 10mm	75	°C/W

STATIC ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Test Conditions	Typ.	Max.	Unit
I_R *	Reverse Leakage Current	$V_R = 0.8 V_{RWM}$ $T_j = 25^\circ\text{C}$ $T_j = 125^\circ\text{C}$		50 0.75	μA mA
V_F **	Forward Voltage Drop	$I_F = 4 \text{ A}$ $T_j = 25^\circ\text{C}$ $T_j = 125^\circ\text{C}$		1.3 1.2	V V

Pulse test : * $t_p = 5 \text{ ms}$, duty cycle < 2%
** $t_p = 380 \mu\text{s}$, duty cycle < 2%

DYNAMIC ELECTRICAL CHARACTERISTICS TURN-OFF SWITCHING

Symbol	Parameter	Test Conditions	Typ.	Max.	Unit
t_{rr}	Reverse Recovery Time	$I_F = 0.5 \text{ A}$ $I_R = 1 \text{ A}$ $I_{rr} = 0.25 \text{ A}$	55	75	ns
		$I_F = +100 \text{ mA} / -100 \text{ mA}$	130		ns

DYNAMIC ELECTRICAL CHARACTERISTICS TURN-ON SWITCHING

Symbol	Parameter	Test Conditions	Typ.	Max.	Unit
t_{fr}	Forward Recovery Time	$I_F = 4 \text{ A}$ $dI_F/dt = 100 \text{ A}/\mu\text{s}$ Measured at V_F max. $T_j = 25^\circ\text{C}$		0.5	μs
V_{FP}	Peak Forward Voltage				15

To evaluate the conduction losses, in cse of square waveform, use the following equation :

$$P = 1.0 \times I_{F(av)} + 0.050 \times I_{F(RMS)}^2$$

Ex : for $I_p = 4 \text{ A}$ and $\delta = 0.5$, $I_{F(av)} = 2 \text{ A}$ and $P = 2.5 \text{ Watts}$.

PACKAGE MECHANICAL DATA
DO-201AD



REF.	DIMENSIONS				NOTES
	Millimeters		Inches		
	Min.	Max.	Min.	Max.	
A		9.50		0.374	1 - The lead diameter \varnothing D is not controlled over zone E 2 - The minimum axial length within which the device may be placed with its leads bent at right angles is 0.59" (15 mm)
B	25.40		1.000		
\varnothing C		5.30		0.209	
\varnothing D		1.30		0.051	
E		1.25		0.049	

Weight : 1 g

Marking : Type number

White band indicates cathode

cooling method : by convection (method A)

Date code

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