

## TURBOSWITCH™ "B" . ULTRA-FAST HIGH VOLTAGE DIODE

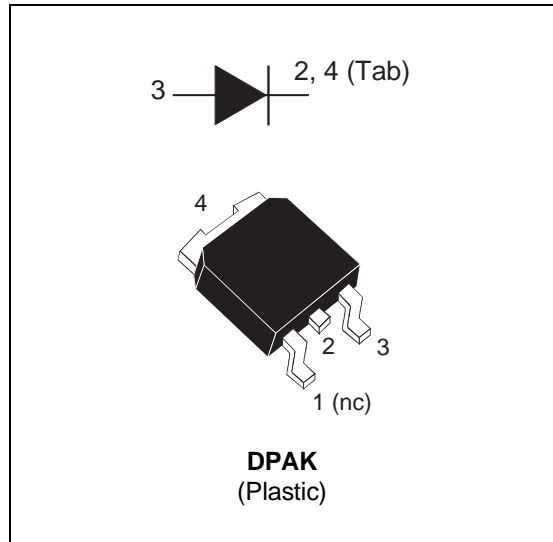
### MAIN PRODUCT CHARACTERISTICS

$I_{F(AV)}$	<b>3 A</b>
$V_{RRM}$	<b>600 V</b>
$V_F (max)$	<b>1.3 V</b>
$t_{rr} (typ)$	<b>45 ns</b>

### PRELIMINARY DATASHEET

### FEATURES AND BENEFITS

- SPECIFIC TO THE FOLLOWING OPERATIONS :  
SNUBBING OR CLAMPING, DEMAGNETIZATION AND RECTIFICATION
- ULTRA-FAST, VERY SOFT AND NOISE-FREE RECOVERY
- VERY LOW OVERALL POWER LOSSES AND PARTICULARLY LOW FORWARD VOLTAGE
- DESIGNED FOR HIGH PULSED CURRENT OPERATIONS
- SURFACE MOUNT DEVICE
- TAPE AND REEL OPTION : -TR



### DESCRIPTION

The TURBOSWITCH is a very high performance series of ultra-fast voltage power diodes from 600V to 1200V.

TURBOSWITCH "B" family drastically cuts losses in all high voltage operations which require extremely fast, soft and noise-free power diodes. They are particularly suitable in the primary circuit

of an SMPS as snubber, clamping or demagnetizer diodes, and also in most power converters as high performance Rectifier diodes.

Packaged in DPAK Surface Mount envelope, these 600V devices are particularly intended for use on 240V domestic mains.

### ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter		Value	Unit
$V_{RRM}$	Repetitive Peak Reverse Voltage		600	V
$V_{RSM}$	Non Repetitive Surge Reverse Voltage		600	V
$I_{F(RMS)}$	RMS Forward Current		8	A
$I_{FRM}$	Repetitive Peak Forward Current	$t_p = 5 \mu s$ $F = 1 KHz$	110	A
$T_{stg}$	Storage Temperature Range		- 65 to + 150	°C
$T_j$	Max. Junction Temperature		125	°C

TM : TURBOSWITCH is a trademark from SGS-THOMSON Microelectronics.

## STTB306B(-TR)

### THERMAL AND POWER DATA

Symbol	Parameter	Conditions	Value	Unit
$R_{th(j-c)}$	Junction to Case Thermal Resistance		TBD	°C/W
$P_1$	Conduction Power Dissipation	$I_{F(AV)} = 1.5A, \delta = 0.5$ $T_L = \text{°C}$	TBD	W
$P_{max}$	Total Power Dissipation $P_{max} = P_1 + P_3$ ( $P_3 = 10\% P_1$ )	$T_L = 76\text{°C}$	TBD	°C/W

### STATIC ELECTRICAL CHARACTERISTICS

Symbol	Tests Conditions	Tests Conditions	Min.	Typ.	Max.	Unit
$I_R^*$	Reverse leakage Current	$T_j = 25\text{°C}$	$V_R = 0.8 \times V_{RRM}$		20	$\mu A$
		$T_j = 125\text{°C}$			500	$\mu A$
$V_F^{**}$	Forward Voltage drop	$T_j = 25\text{°C}$	$I_F = 3A$		1.4	V
		$T_j = 125\text{°C}$	$I_F = 3A$		1.3	

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

### DYNAMIC ELECTRICAL CHARACTERISTICS

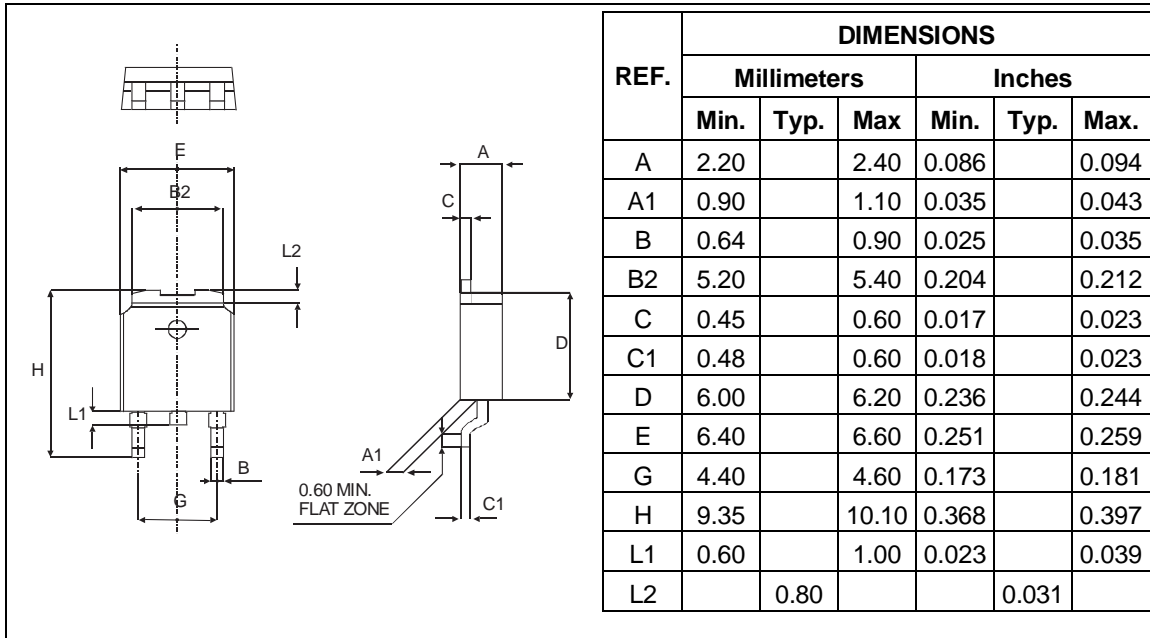
#### TURN-OFF SWITCHING

Symbol	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
$t_{rr}$		$T_j = 25\text{°C}$	$I_F=0.5A$ $I_R=1A$ $I_{rr}=0.25A$ $I_F=1A$ $di_F/dt=A/\mu s$ $V_R=30V$		45	95	ns
$t_{fr}$	Maximum Reverse Recovery Current	$T_j = 125\text{°C}$	$I_F=2A$ $V_R=400V$ $di_F/dt = -16A/\mu s$ $di_F/dt = -50A/\mu s$		3.6	2.4	A
S factor	Softness Factor	$T_j = 125\text{°C}$	$V_R=400V$ $I_F=2A$ $di_F/dt = -50A/\mu s$		TBD		/

#### TURN-ON SWITCHING

Symbol	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
$t_{rr}$	Forward Recovery Time	$T_j = 25\text{°C}$	$I_F=2A$ $di_F/dt = 16A/\mu s$ Measured at $1.1 \times V_{Fmax}$			500	ns
$V_{PF}$	Peak Forward Voltage	$T_j = 25\text{°C}$	$I_F=2A$ $di_F/dt = 16A/\mu s$			8	V
		$T_j = 25\text{°C}$	$I_F=5A$ $di_F/dt = 50A/\mu s$		6		

**PACKAGE MECHANICAL DATA**  
DPAK



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