

STTB506B(-TR)

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

MAIN PRODUCT CHARACTERISTICS

I _{F(AV)}	5 A
V _{RRM}	600 V
V _F (max)	1.3 V
t _{rr} (typ)	45 ns

FEATURES AND BENEFITS

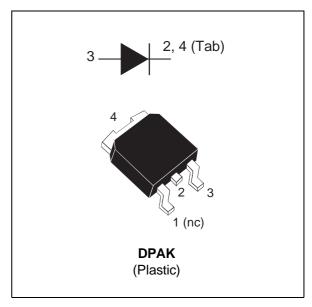
- SPECIFIC TO THE FOLLOWING OPERATIONS: SNUBBING OR CLAMPING, DEMAGNETIZA-TION AND RECTIFICATION, FREEWHEEL OR BOOSTER DIODE
- ULTRA-FAST RECOVERY
- VERY LOW OVERALL POWER LOSSES IN BOTH THE DIODE AND THE COMPANION TRANSISTOR
- DESIGNED FOR HIGH PULSED CURRENT OP-ERATIONS
- SURFACE MOUNT DEVICE
- TAPE 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 particulary suitable in the primary circuit

PRELIMINARY DATASHEET



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 enveloppe, these 600V devices are particulary 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	Α
I _{FRM}	Repetitive Peak Forward Current	65	А	
T _{stg}	Storage Temperature Range	- 65 to + 150	°C	
Tj	Max. Junction Temperature		150	°C

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

August 1995 - Ed : 1B

STTB506B(-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	$I_{F(AV)} = 1.5A, \delta = 0.5$ $T_L = {}^{\circ}C$	TBD	W
P _{max}	Total Power Dissipation $P_{max} = P_1 + P_3$ ($P_3 = 10\% P_1$)	T _L = 76°C	TBD	°C/W

STATIC ELECTRICAL CHARACTERISTICS

Symbol	Tests Conditions	Tests	Min.	Тур.	Max.	Unit	
I _R *	Reverse leakage	Tj = 25°C	$V_R = 0.8 \text{ x } V_{RRM}$			100	μΑ
	Current	Tj = 125°C				0.75	mA
V _F **	Forward Voltage	Tj = 25°C	I _F = 5 A			1.4	V
	drop	Tj = 125°C	I _F = 5 A			1.3	

DYNAMIC ELECTRICAL CHARACTERISTICS

TURN-OFF SWITCHING

Symbol	Parameter		Min.	Тур.	Max.	Unit	
t _{rr}	Reverse Recovery Time	Tj = 25°C	I_F =0.5A I_R =1A I_{rr} =0.25A I_F =1A dI_F/dt =-50A/ μ s V_R =30V		45	95	ns
t _{fr}	Maximum Reverse Recovery Current	Tj = 125°C	$I_F=5A$ $V_R=400V$ $dI_F/dt = -40A/\mu s$ $dI_F/dt = -500A/\mu s$		20	7.5	Α
S factor	Softness Factor	Tj = 125°C	V _R =400V I _F =5A dI _F /dt = -500A/μs		1		/

TURN-ON SWITCHING

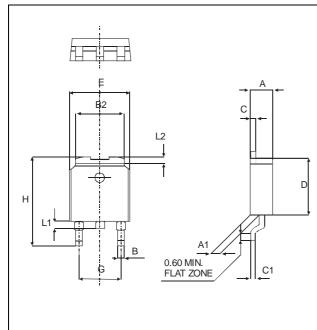
Symbol	Parameter	Test Conditions			Тур.	Max.	Unit
t _{rr}	Forward Recovery Time	Tj = 25°C	I _F =5A dI _F /dt = 40A/μs Measured at 1.1 x V _{Fmax}			500	ns
VPF	Peak Forward Voltage	Tj = 25°C	I _F =5A dI _F /dt = 40A/μs I _F =25A dI _F /dt=500A/μs		10	8	V

Pulse test: * tp = 5 ms, duty cycle < 2 %

^{**} tp = 380 μ s, duty cycle < 2%

PACKAGE MECHANICAL DATA

DPAK



	DIMENSIONS						
REF.	Millimeters			Inches			
	Min. Typ.		Max	Min.	Тур.	Max.	
Α	2.20		2.40	0.086		0.094	
A1	0.90		1.10	0.035		0.043	
В	0.64		0.90	0.025		0.035	
B2	5.20		5.40	0.204		0.212	
С	0.45		0.60	0.017		0.023	
C1	0.48		0.60	0.018		0.023	
D	6.00		6.20	0.236		0.244	
Е	6.40		6.60	0.251		0.259	
G	4.40		4.60	0.173		0.181	
Н	9.35		10.10	0.368		0.397	
L1	0.60		1.00	0.023		0.039	
L2		0.80			0.031		

Information furnished is believed to be accurate and reliable. However, SGS-THOMSON Microelectronics assumes no responsability for the consequences of use of such information nor for any infringement of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of SGS-THOMSON Microelectronics. Specifications mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information previously supplied. SGS-THOMSON Microelectronics products are not authorized for use as critical components in life support devices or systems without express written approval of SGS-THOMSON Microelectronics.

© 1995 SGS-THOMSON Microelectronics - Printed in Italy - All rights reserved.

SGS-THOMSON Microelectronics GROUP OF COMPANIES

Australia - Brazil - France - Germany - Hong Kong - Italy - Japan - Korea - Malaysia - Malta - Morocco - The Netherlands - Singapore - Spain - Sweden - Switzerland - Taiwan - Thailand - United Kingdom - U.S.A.

