

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

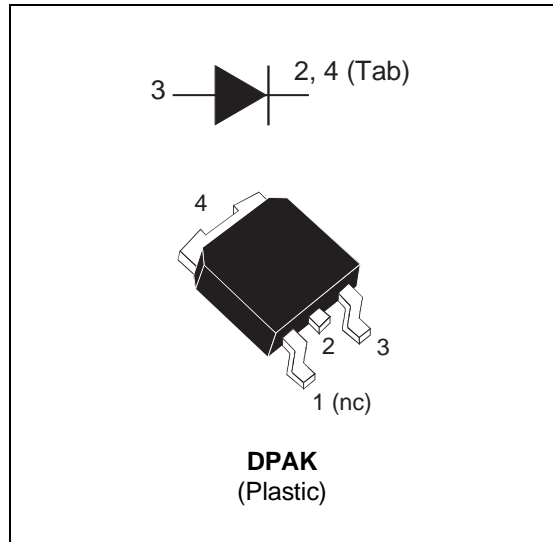
MAIN PRODUCT CHARACTERISTICS

$I_{F(AV)}$	5 A
V_{RRM}	600 V
V_F (max)	1.3 V
t_{rr} (typ)	45 ns

PRELIMINARY DATASHEET

FEATURES AND BENEFITS

- SPECIFIC TO THE FOLLOWING OPERATIONS :
SNUBBING OR CLAMPING, DEMAGNETIZATION 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 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	$t_p = 5 \mu s$ $F = 5 KHz$	65	A
T_{stg}	Storage Temperature Range		- 65 to + 150	°C
T_j	Max. Junction Temperature		150	°C

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

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	$I_{F(AV)} = 1.5A, \delta = 0.5$ $T_L = \text{°C}$	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	$T_j = 25\text{°C}$	$V_R = 0.8 \times V_{RRM}$		100	μA
		$T_j = 125\text{°C}$			0.75	mA
V_F^{**}	Forward Voltage drop	$T_j = 25\text{°C}$	$I_F = 5 A$		1.4	V
		$T_j = 125\text{°C}$	$I_F = 5 A$		1.3	

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

DYNAMIC ELECTRICAL CHARACTERISTICS

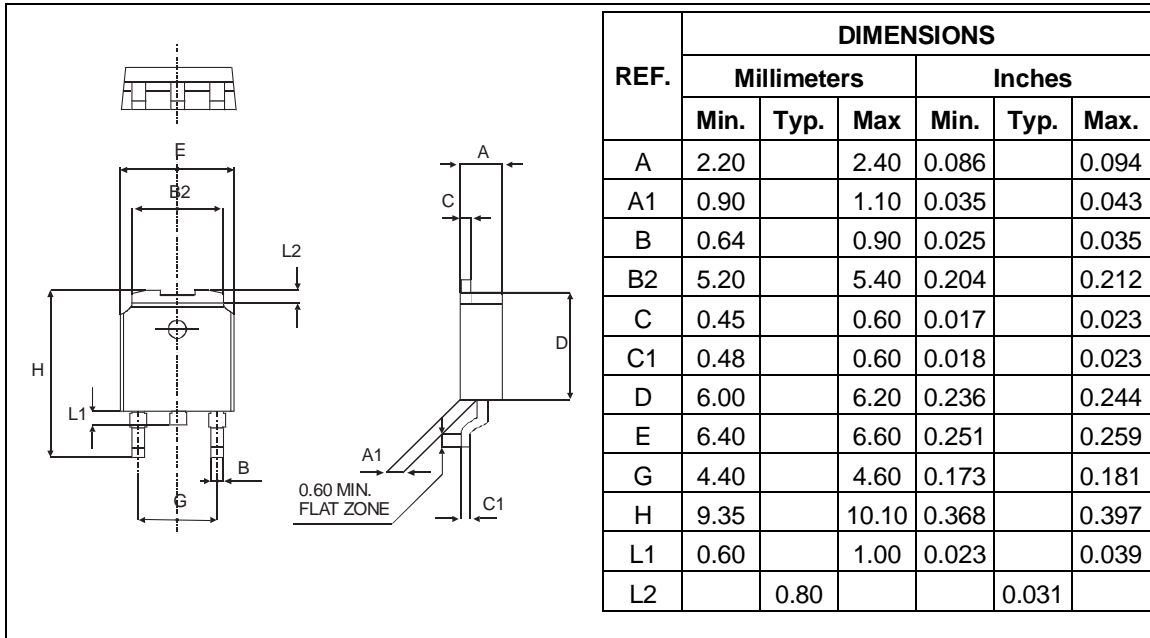
TURN-OFF SWITCHING

Symbol	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
t_{rr}	Reverse Recovery Time	$T_j = 25\text{°C}$	$I_F=0.5A$ $I_R=1A$ $I_{rr}=0.25A$ $I_F=1A$ $dI_F/dt=-50A/\mu s$ $V_R=30V$		45	95	ns
t_{fr}	Maximum Reverse Recovery Current	$T_j = 125\text{°C}$	$I_F=5A$ $V_R=400V$ $dI_F/dt = -40A/\mu s$ $dI_F/dt = -500A/\mu s$		20	7.5	A
S factor	Softness Factor	$T_j = 125\text{°C}$	$V_R=400V$ $I_F=5A$ $dI_F/dt = -500A/\mu s$		1		/

TURN-ON SWITCHING

Symbol	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
t_{rr}	Forward Recovery Time	$T_j = 25\text{°C}$	$I_F=5A$ $dI_F/dt = 40A/\mu s$ Measured at $1.1 \times V_{Fmax}$			500	ns
V_{PF}	Peak Forward Voltage	$T_j = 25\text{°C}$	$I_F=5A$ $dI_F/dt = 40A/\mu s$ $I_F=25A$ $dI_F/dt=500A/\mu s$		10	8	V

PACKAGE MECHANICAL DATA
DPAK



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